The Employment of Air Power in Afghanistan and Beyond

By Gp Capt Chris Finn RAF

It has been suggested that the use of air power in Afghanistan was fundamentally different from its use in previous campaigns, so much so that even senior army officers noticed. A detailed analysis of the operational and tactical lessons is undoubtedly going on in all the air forces that participated in Operation ENDURING FREEDOM. The initial combat elements of Operation ENDURING FREEDOM and Operation VERITAS, the UK's contribution to that, are not long over, and we will perhaps have to wait a couple of years for more detailed analysis on the lines of the Gulf War Air Power Survey, or Owen's case study of Operation DELIBERATE FORCE. But that should not preclude an initial look at the effect that campaign may have on our broad perceptions of the employment of air power or the initial implications for the employment of air power in any future operation.

Northern Alliance troops look on as US B-52s bomb Taliban positions

Northern Alliance fighters on patrol after taking Kabul

It had taken just 78 days to remove the Taliban and Al Qaeda from power in Afghanistan

The events of 11 September 2001 will be etched in the memory of the readers of this article. The speed of the international response to those events may not be so obvious. On 1 October, General Tommy R Franks, Commander in Chief US Central Command, briefed Secretary Rumsfeld on his mission analysis and recommendation of a military course of action. This was briefed to President Bush the following day and he directed that combat operations should begin on 7 October, 26 days after the attacks on New York and the Pentagon.[1] On 22 December a ceremony was held in Kabul to mark the inauguration of the Afghanistan Interim Government. It had taken just 78 days to remove the Taliban and Al Qaeda from power in Afghanistan. This paper will therefore look at the application of air power in Afghanistan over those 78 days, then identify the key aspects of that application, then compare the use of air power in Afghanistan with the previous operations in Kosovo, Bosnia and the Gulf War, then seek to identify fundamental differences in the application of air power whilst also highlighting those determining factors which are unique to the Afghan campaign. Finally it will draw conclusions on the impact of Operation ENDURING FREEDOM on the fundamental principles upon which we believe the most effective use of air power is based.

At the strategic level the military campaign was but one line of operation in the 'war against terrorism': others being diplomatic, financial, law enforcement and humanitarian.[2] The aim of the joint campaign, to use UK parlance, was from the outset to seize the initiative and 'eliminate the support to Al Qaeda, primarily the Taliban, and … eliminate the Taliban'[3] whilst keeping in mind the lessons of the Soviet defeat in Afghanistan. At the operational level, the military lines of operation[4] were direct attack of the leadership of Al Qaeda and the Taliban, destroying the Taliban military, and humanitarian aid. The primary mechanisms were operational fires and the use of Special Operations Forces (SOF) in reconnaissance and direct action roles. The employment of conventional land forces in an operational manoeuvre role was not ruled out. Given the timescales outlined above, and the size and location of Afghanistan, overflight, turn round and basing rights were an essential prerequisite for the employment of air power in any meaningful quantity. A considerable diplomatic effort ensured that by the end of the campaign,[5] US military aircraft had overflight authority for 89 countries, landing rights for 76, and 23 countries had agreed to host US forces directly involved in offensive operations.

From General Franks' statement to the Senate Armed Services Committee,[6] one can identify 5 lines of operation at the tactical level. Those are: control of the air; direct attack on the leadership of Al Qaeda and the Taliban; destroying the Taliban military forces; information operations; and humanitarian relief.

...control of the air was achieved within 2 weeks , and enabled the US to use more vulnerable platforms such as the AC-130 Spectre gunship, with only a limited amount of ongoing suppression of enemy air defences (SEAD)...

CONTROL OF THE AIR

Unlike the opposition in the Gulf War, Bosnia or Kosovo, the Taliban and Al Qaeda had only a limited number of surface-to-air missiles and had little training in the use of AAA or man-portable surface-to-air missiles. Thus control of the air was achieved within 2 weeks,[7] and enabled the US to use more vulnerable platforms such as the AC-130 Spectre gunship, with only a limited amount of ongoing suppression of enemy air defences (SEAD). However, whilst the bombers and fast-jets could operate with relative impunity that was not so for helicopters. On the 4th of March 2003, during Operation ANACONDA, two helicopters were hit; one by a rocket-propelled-grenade which failed to explode, and one by machine gun fire. Furthermore, large aircraft and helicopters were more vulnerable to ground fire when operating at low level in periods of strong moonlight.

In practical terms the operations against the Taliban and Al Qaeda command and fielded forces can be considered as one. The targets grouped broadly into command, military infrastructure and fielded forces, although in many cases targets such as training camps could encompass all 3 categories. Attacks against

these target sets commenced at the same time as attacks against the limited Taliban air defences but became the primary target sets after only 48 hours. However, as Secretary Rumsfeld said, 'It is not a country that is rich in targets'.[8] So it is not surprising that, whilst the 15 planned target areas for 19 October included AAA sites, anti-aircraft sites with dispersed armour and radar, ammunition and vehicle storage depots and military training facilities, including armoured vehicles, trucks and buildings[9] the briefing given only 2 days later, on 22 October, identified greater emphasis being placed on the fielded Taliban forces rather than fixed structures.

In addition to fielded forces the Taliban and Al Qaeda leadership were directly targeted, including an attack on the residence of Mullah Omar in the middle of Quandahar, the Taliban capital.[10] One system used for this was the Predator UAV, armed with Hellfire air-to-ground missiles.[11] Unusually, the system was operated by the CIA[12] who borrowed the aircraft from the USAF and fired dozens of Hellfire missiles at the Taliban and Al Qaeda leaders. However, leadership targets were implicit in the targeting of C2 facilities, the Taliban defence ministry in Kabul as well as military bases and terrorist training compounds.[13]

In his statement to the Senate Armed Services Committee, General Franks said 'precision guided munitions … have resulted in unprecedented low levels of collateral damage'. This is borne out by a summary of collateral damage incidents which showed that from 24 October to 6 December 2001 there were 5 incidents of targeting errors or possible weapon malfunction causing loss of civilian life and damage to civilian property. There was also an incident on the 11th of October 2001 where the Taliban claimed that 200 people had been killed at Karam, and one on the 13th of October where the wrong co-ordinates had been programmed into a bomb (JDAM) causing the death of up to 4 civilians.

Whilst carrier-based aircraft flew 75% of the offensive missions they delivered only 43% of the PGMs dropped; land-based `fighters' dropped 10% and the heavy bombers 47%...

Between the 10th of October and the 31st of December a total of 21,000 sorties were flown on Operation ENDURING FREEDOM, 12,500 of which entered Afghan airspace and of which 6,546 were offensive sorties.[14] The USAF and USN each flew approximately 45% of the sorties and coalition partners the rest.[15] A total of 17,471 weapons were delivered of which 9,987 were PGMs. The majority of the unguided bombs were Mk 82s dropped by B-52 bombers. Whilst carrier-based aircraft flew 75% of the offensive missions they delivered only 43% of the PGMs dropped; land-based 'fighters' dropped 10% and the heavy bombers 47%.[16] However, what these statistics do not show is the effectiveness of the missions. A measure of this is in General Franks' comment: 'during DESERT STORM we averaged 10 aircraft per target, in ENDURING FREEDOM we averaged 2 targets per aircraft'.[17] Given the sortie numbers outlined above, this would imply that some 13,000 DPIs (Designated Point of Impact) were struck, to achieve which each of the nearly 10,000 PGMs dropped would have to have been targeted on individual DPIs. That is not unreasonable given that in Operation ALLIED FORCE the PGM to DPI ratio was 1.22:1.[18] How this significant improvement in effectiveness was achieved requires examination of the inter-related areas of information gathering and management, and command and control philosophy.

In terms of rate of effort more than 3,000 weapons had been dropped by 19 October[19] and some 6,000, ie an average of 300 per day, after 20 days of operations.[20] This in turn means that the remaining 11,500 weapons were dropped in the next 71 days: an average of 162 weapons per day. Whilst it is not possible to isolate from the DoD briefings exactly when the rates of effort changed one can broadly deduce that the first half of the conflict was twice as intensive as the second. Furthermore, 6,344 of the weapons dropped were unguided Mk 82 bombs[21] which would have taken only 125 B-52 sorties, or even less if the B-1s were involved.[22] So we are left with 11,124 weapons to be dropped in 6,421 sorties: an average of only 1.7 weapons per sortie. Given that the B-1 and B-52 carried 24 and 21 JDAMs respectively[23] and pictures of F-18s involved showed them generally loaded with 3 LGBs that figure is not valid. So assuming the remaining B-1 and B-52 sorties dropped the remaining JDAMS some 5,600 fast jet sorties delivered the remaining 6,624 PGMs. But that would only require 2,208 sorties so up to 3,400 fast jet sorties did not deliver any weapons. Now that is just one way the distribution of weapons could have occurred but, when taken with the weapon rate analysis above, and given that sortie rates remained fairly constant, one can conclude that at least 65% of the sorties in the latter half of the campaign did not deliver any weapons.

...aircraft who could not engage a primary (fixed) target would be re-targeted onto an emerging or mobile target...

E8 JSTARS aircraft that can detect, locate, track and classify enemy ground formations as well as co-ordinating allied aircraft

LEVEL OF INFORMATION

A key facet of this campaign was the Americans' ability to achieve a level of information superiority far greater than in previous campaigns and to shorten the 'sensor – decision-maker – shooter' process. This was achieved through the use of multiple systems such as Predator and Global Hawk UAVs, RC-135 Rivet Joint signals intelligence aircraft, U-2 reconnaissance aircraft and E-8 JSTARS, plus the intelligence and targeting information from Special Forces on the ground, using Link 16 and other datalinks.[24] Furthermore, such links enabled aircraft to be re-targeted en-route. This flexibility was evident as early as 17 October when 'flex-targeting' began to feature in the routine DoD briefings. As Rear Admiral Stufflebeem (Deputy Director for Operations, Current Readiness and Capabilities) explained it:[25] aircraft who could not engage a primary (fixed) target would be re-targeted onto an emerging or mobile target. In his brief of 28 November[26] he went further to refer to 'more aircraft being brought to bear on 'on call engagement' and close air support missions'. However, he had earlier referred to 'engagement zones' being a tactic of interdiction[27] in which pre-determined types of targets were located and identified by a (forward air) controller who then brought in aircraft to engage those targets.

The confusing aspect of this is the general use of the term 'close air support' (CAS) to describe all the offensive operations which were targeted in some way from the ground. In fact there was a clear difference between those attacks which were in direct support of the indigenous Afghani forces or coalition special forces and those which were against both fixed and emerging targets that were not in contact. What we were actually seeing was the use of FACs, both ground and airborne, providing targeting information for both CAS and AI missions, and indeed those which in UK doctrine would be classified as 'strategic effect' ones as well. What is quite clear though[28] is that at no time were offensive aircraft allowed to roam free in designated areas on 'armed recce' type missions. Even the AC-130 Spectre gunships carried FACs to authorise the crew to engage targets.[29]

...'excessive caution and micromanagement was hampering military operations' and that up to 10 opportunities to attack senior Taliban leadership ` did not receive clearance to strike in time'

Having covered the integration of the sensor and shooter, what of the decision maker? Obviously fixed targets were pre-approved and in the case of engagement zones authority to engage was delegated to a FAC. But the decision making process for the 'emerging', ie neither fixed nor CAS type targets, is more confused. In a report to the house Armed Services Committee in July this year, Major General Randall M Schmidt, Assistant Deputy Chief of Staff, Air and Space Operations stated that along with technological improvements 'organising, training and equipping the Combined Air and Space Operations centre (CAOC) as a 'weapon system' resulted in an unprecedented speed of execution'.[30] This would imply that the CAOC was executing a 'hands on' air campaign. However, General Franks was quite clear that the operation was 'commanded and controlled from Tampa, Florida and stated that the 'Tomahawk targeting cycle had been reduced from 101 minutes during ALLIED FORCE to 19 minutes during ENDURING FREEDOM'.[31] In fact there was concern that control of the campaign was overly centralised in the hands of General Franks and his legal advisors with the Telegraph's Washington correspondent reporting that 'excessive caution and micromanagement was hampering military operations' and that up to 10 opportunities to attack senior Taliban leadership 'did not receive clearance to strike in time'.[32] General Kellog, the Director of Command, Control, Communications and Computers within the J6 division of the Joint staff was quite clear in an interview given in April 2002 that 'the CENTCOM commander was able to direct the battle from his

headquarters in Tampa, Florida, at a level that is unprecedented compared to DESERT STORM'.[33] It therefore seems clear that the CAOC, at Prince Sultan Air Base in Saudi Arabia, performed the tasking and mission management functions whilst targeting decisions were delegated either to the lowest level or retained at CENTCOM.

As the figures quoted earlier show, 69% of all sorties were non-offensive and, furthermore, 50% of the sorties which entered Afghani airspace were conducting Combat Support Air Operations (CSAO). Reconnaissance assets, including the UK's venerable PR 9 Canberra and Nimrod R1 aircraft contributed significantly to the information gathering referred to above. But the most significant CSAO categories were strategic and tactical lift, the latter both fixed and rotary wing, and AAR. The 701 long range bomber missions were flown mostly by just 10 B-52s and 8 B-1s with the B-1s flying 1,200 miles to remain on station for 2 hours and the B-52s flying 2,500 miles.[34] The B-2s flew just 6 missions, but they were to and from continental USA. However, more than 50% of the AAR sorties flown were dedicated to the USN[35] who flew 4,900 offensive sorties. This latter task fell mostly to the RAF's Tri-stars and VC10s due to their operating a compatible probe and drogue system as opposed to the USAF tankers with their boom and receptacle system.

HUMANITARIAN AID

The last element of the air campaign was the linked tasks of information operations and the delivery of humanitarian aid. More than 50 million leaflets were dropped to provide information for the safety of individuals on the ground as well as pointing out to them what they were suffering under al Qaeda and the Taliban although there was no obvious yardstick by which their effectiveness could be measured.[36] At the same time similar radio broadcasts were being made from EC-130 Commando Solo aircraft.[37] Finally, 2.5 million daily rations, 1,700 tons of wheat, 328,200 blankets and over 5,000 radios were distributed to the Afghan people.[38]

The following table shows the different lengths and sortie totals for the 4 major air campaigns since the end of the Cold War:

	No of Day	Total sorties	Offensive sorties	Offensive sorties/day	Percentage of Offensive sorties
DESERT STORM[39]	43	109,867	44,145	1,027	40%
DELIBERATE FORCE[40]	17	3,535	2,159	127	61%
ALLIED FORCE[41]	78	38,004	10,484	134	26%
ENDURING FREEDOM[42]	78	21,000	6,546	83	31%

DIFFERING CONFLICTS

The first area of difference is the expeditionary nature of the conflicts. Both the Bosnia and Kosovo operations involved the deployment of aircraft from their home bases but were fought from well-found NATO main operating bases. The Gulf War was a major regional conflict and was totally expeditionary, with many bases being developed extensively between September and December 1990. The Afghanistan campaign was also totally expeditionary with bases being developed as the conflict developed. The balance of offensive and supporting sorties is also instructive. In the Gulf War a limiting factor was the ability of the air headquarters to task and manage much more than the peak of some 1,200 offensive sorties per day. In DELIBERATE FORCE and ALLIED FORCE the air commanders, Generals Ryan and

Short, were both able to exercise personal control of the air effort. In ENDURING FREEDOM the scale was even less and, as was discussed above, the CinC US CENTCOM himself was able, in effect, to fulfil the JFACC's role. The nature of the supporting sorties is also different. In DELIBERATE FORCE 58% of the offensive sorties were dedicated to SEAD[43] and during ALLIED FORCE 815 SAMs were reported fired at allied aircraft.[44] However, in ENDURING FREEDOM there was a minimal air threat and the major support effort was in AAR, so much so that General Meyers, the Chairman of the US Joint Chiefs, later identified 'significant shortfalls in the total number of tankers (and) crew ratios',[45] and the UK provided the USN's AAR support.

This table shows the breakdown of weapons used:

	No of Weapons	Cruise missiles	Non-cruise PGMs	No of PGMs	Unguided bombs
DESERT STORM[46]	155,186	0.2%	7%	7,759	93%
DELIBERATE FORCE[43]	1,026	1%	69%	708	30%
ALLIED FORCE[43]	23,000	1%	34%	782	65%
ENDURING FREEDOM[47]	17,471	0.4%	57%	9,987	43%

Whilst DELIBERATE FORCE was so small an operation as to be statistically insignificant in terms of the balance of weapons used the other 3 conflicts show a steady proportional increase in the use of PGMs and in ENDURING FREEDOM an absolute increase as well. However, General Meyers also made the point to the Senate Armed Services Committee the requirement for both sufficient PGM stocks and a manufacturing base to replace them in short order.[48] The reasons for the increasing emphasis are well rehearsed but include: reduction in collateral damage, increase in individual sortie effectiveness and cost.

Other linked trends which are apparent are the increasing reliance on information networks, UAVs and UCAVs, and on 'reachback' to provide information and even the command function in combat

Predator armed with Hellfire as used in Afghanistan

Other linked trends which are apparent are the increasing reliance on information networks, UAVs and UCAVs, and on 'reachback' to provide information and even the command function in combat. But, apart from the difference of scale outlined above two other factors make ENDURING FREEDOM stand out from the other conflicts. The first is the relative lack of enemy response, particularly in terms of air defence. The second is the nature of the coalition and its command structure. DESERT STORM was run in-theatre by a command structure that any NATO officer would instantly feel at home in. However, the scale of the conflict and the relative insufficiency of communication meant that the classic doctrines of mission command and for air, centralised command and decentralised execution, were followed. In both the Balkans conflicts the command structure was already in-place but there was increasing political involvement firstly in the form of the dual-key release chain for weapons prior to the decision to implement DELIBERATE FORCE. In ALLIED FORCE the tensions were inherent in the headquarters of a multi-national political organisation, NATO, becoming involved in the minutiae of targeting. Again, there is an element of scale here but another reason for political involvement is simply because it is now technologically possible. ENDURING FREEDOM was however primarily a US operation; coalition partners were welcome in terms of enhancing the legitimacy of the operation and in providing essential supporting assets. But the meat of the air combat operations was entirely conducted by the US, a lesson undoubtedly drawn from their experiences with coalition operations over Kosovo. However, as the operation was in direct response to the attacks of 11 September 2001 there were no issues of coalition solidarity and legitimacy, and the actions were backed by overwhelming US public support.

The first observation concerns the nature of the use of airpower itself in post-cold war conflicts. In the Gulf War air power did not as some have suggested merely set the conditions for a successful land campaign. Instead, by destroying the Iraqis as a fighting force airpower was the determining force in the conflict: as Dick Cheney later said 'it was crushed, I think, by the air campaign'.[49] DELIBERATE FORCE was an air-only campaign with the objective of getting the Bosnian Serbs to 'sue for cessation of military operations, comply with UN mandates and negotiate'.[50] There was also diplomatic pressure and sanctions plus the impact of the resurgent Croatian-Bosnian forces and the effect of the NATO RRF's artillery in the Mt Igman area. However, airpower provided the element of force that underpinned the other mechanisms. Similar arguments are expressed over the Kosovo conflict. In addition to the bombing Milosevic was under pressure from his cronies to do something to ease the destruction of their properties, his support from Russia was evaporating and he was indicted as a war criminal. And there was finally the possibility of a ground invasion. However, none of these mechanisms would succeed on their own or together and Lambeth's analysis in the Rand Report on the conflict that 'the bombing ultimately persuaded Milosevic that NATO would not relent and was also determined to prevail and had both the technical and political wherewithal to do so'[51] makes a convincing argument for the dominant effect of air power.

In ENDURING FREEDOM fewer than 3l,000 ground troops were deployed[52] in comparison with the air effort outlined above. Land power was used to find and designate targets with the air component being, in doctrinal terms, 'supported' throughout the 78 day operation. As the result was the removal of the Taliban regime from power it could hardly be said that air power did not in this case have 'strategic effect'. But, given the paucity of fixed targets is that a valid conclusion?

The Taliban military is supporting their leadership and their leadership is supporting Al Qaeda. So we are systematically pulling away those legs underneath the stool

Where 'effects based warfare' is discussed in US reports on the conflict it is not in the context that UK military would wholly recognise. General Newbold and Admiral Szemborski[53] refer to it as military and inter-agency operations against the enemy's system break point to destroy his coherence and General Meyers defines it as the outcome of effective networking of sensors and shooters[54]. This is more in tune with the UK concepts of manoeuvre warfare and centre of gravity analysis than the concept of deciding the effect before the mechanism. However, Admiral Stufflebeem makes it abundantly clear in the following statement 'It's in the Taliban military. The Taliban military is supporting their leadership and their leadership is supporting Al Qaeda. So we are systematically pulling away those legs underneath the stool that the Taliban leadership counts on as being able to exert their influence and power'.[55] But as referred to at the beginning of this article, the US's strategic objective was the removal of the Taliban in its entirety, so one could conclude that the Taliban, as a homogeneous organisation, was in effect its own strategic centre of gravity.

The second observation pulls together two of Meilinger's 'propositions regarding air power'.[56] The first is that air power is targeting, which is intelligence which is analysis; the second is that air power and technology are synergistically related. This is evidenced by the innovative use of sophisticated methods to link the, sometimes very unsophisticated, sensor to the shooter in particular to service emerging targets.

Harrier GR7 launching Paveway 2 missile

...less weapons achieve greater effects and hugely increase the effectiveness of individual sorties...

The next is the increasing value of precision weapons; less weapons achieve greater effects and hugely increase the effectiveness of individual sorties. This is particularly relevant in expeditionary operations in terms of maximising the effectiveness of a small force. However, this puts a significant drain on PGM stocks which is a problem even for the US military. The increasing use of PGMs also contributes greatly to the reduction in collateral damage incidents, however intelligence and targeting errors are almost guaranteed to have catastrophic results.

Then there is the issue of command and control philosophy. Network-centricity enables reach-back but it also provides the opportunity for centralised execution as well as centralised control. Whether this is a good or bad thing is a separate issue but it is abundantly clear that in small scale conflicts centralised execution and political involvement in operational, and even tactical, decisions is becoming the norm. However, when the operational level commander is physically separated from his air component commander, particularly in what was essentially an air war, by thousands of miles the JFACC can only be effective if he has delegated command authority – or mission command. But that was not the case in Operation ENDURING FREEDOM where tactical decisions were routinely made at CENTCOM, effectively taking on the JFACC's command function.

The longest USN fast jet sortie was over 15 hours and anyone who has sat on a ejector seat for a few hours can only have sympathy for that pilot...

REACH AND RANGE

The reach and range that air power brings is vital to expeditionary operations. ENDURING FREEDOM has shown that air power can be deployed, and commence operations, globally in very short timescales. Air power can be operated over long ranges or equally, by the use of AAR, for extended duration. The longest USN fast jet sortie was over 15 hours[57] and anyone who has sat on a ejector seat for a few hours can only have sympathy for that pilot. But, the corollary is that the rate of sortie generation reduces proportionally and that aircrew sustainability becomes the dominant factor. The other observation is that in higher intensity conflicts where the rate of sorties is more important aircraft may need to be based closer to the scene of conflict and the ability to loiter will be much reduced.

The increasing requirement for Combat Support Operations in expeditionary operations is also obvious. But the preponderance of AAR sorties is a function both of the range of bases from the operational area, and the relatively low number of targets with the ability to keep aircraft 'on call' for extended periods. There are obvious implications here in terms of basing, when considering how to provide AAR, strategic reconnaissance and other support for carrier based air power projection particularly when they have no organic AAR capability.

One must also be very careful with regards to some of the unique circumstances in ENDURING FREEDOM when seeking to draw lessons. Firstly air power was employed in an almost exclusively benign environment; this was not the case in the other 3 conflicts and will not necessarily be the case in future. Secondly, the bare, often rolling, and relatively uninhabited terrain allowed the free use of air power. Thirdly there was no issue of interoperability, such as Mk IV IFF and Link 16 compatibility, as the combat operations were exclusively conducted by the US. Lastly, the asset-to-target ratio was such that the campaign could be planned bottom up with respect to the available targets, rather than top down, starting from the required effects, and significant numbers of on-call sorties would not drop any weapons.

...the fundamental principles of the employment of air power that we have been developing since 1915 are as valid today as they ever were...

SCALE OF CONFLICT

The final observation concerns the scale and nature of the conflict. In Afghanistan the US were operating in an asset-rich but target-poor environment. Furthermore the scale, the command and control structures and the targeting policy indicate a merging of the levels of war in a practical sense. There was no real difference between a tactical and a strategic target and what would be considered tactical decisions were being made at the military strategic command level. Again, there is nothing inherently wrong in this and some levels of command may be redundant in small-scale operations.

So where does this lead us in considering the role of air power in the 21st Century? Firstly, air power is the weapon of 1st choice for politicians by virtue of its speed of application and its offering an alternative to major land operations; it may equally be the only option available. Secondly, Trenchard's dictum that air power is inherently an offensive force is equally true today; air power has been the dominant force in recent conflicts but never in isolation. Thirdly, the reach, range and rate of application of air power in an expeditionary context can not be achieved without the enablers: AAR, strategic reconnaissance and strategic lift. Air power also has the value of repetition; once a major land formation is deployed it is there for a single purpose and once a submarine has fired its 12 or more TLAM its reload time is measured in days or weeks; but aircraft can be repeatedly used over vast areas and at differing targets each time. However air power is inherently joint in its application and its best effects are achieved by the integration of all possible sources of information. Fourthly, information technology, political necessity in terms of legitimacy and the scale of some conflicts are driving tactical decision-making into the military strategic level and sometimes higher. Whilst this provides an opportunity to streamline command structures it also has inherent dangers in being misapplied in larger conflicts, or in the wrong structures being in place if a conflict expands. Then there are also resource issues: PGMs are becoming the desired weapon both to reduce the number of sorties required and to reduce collateral damage to the minimum. However, stocks are such that large numbers of unguided weapons will need to be used in the larger scale conflicts; this will require a conscious decision to use them wherever they are an appropriate weapon in order to conserve PGM stocks for more lucrative targets. The increasing use of PGMs also accentuates the need for accurate intelligence and targeting. Furthermore, extended missions place a premium on having sufficient, rested, crews. Lastly, every conflict is unique and one lesson that must not be drawn from ENDURING FREEDOM is that control of the air is a given; the other 3 operations and in particular the ability of the Serbs to learn from previous conflicts and provide a very hostile environment in the face of overwhelming NATO air power gives the lie to this. It therefore appears that the fundamental principles of the employment of air power that we have been developing since 1915 are as valid today as they ever were – but like all doctrine they still require judgement in their application.

Notes:

1 Statement of General Tommy R Franks, Commander in Chief US Central Command, to the Senate Armed Services Committee, 7 February 2002 (thereafter referred to as 'Franks')
2 The Global War on Terrorism, the First 100 Days, the Coalition Information Centres Washington, London and Islamabad, page 3.
3 Gen Richard B Myers, Chairman JCS, DoD news briefing 20 Oct 01. www.defenselink.mil
4 Franks, page 4.
5 The Global War on Terrorism, page 8.
6 Franks, page 4.
7 Franks, page 5.
8 DoD briefing 25 Oct 01.
9 DoD briefing 20 Oct 01.
10 Franks, page 5
11 Report of the Secretary of the Air Force: Annex to the Secretary of Defense's Annual Report to the President and Congress, 2002, page 139.
12 The Washington Post, '1's and 0's replacing bullets in US arsenal', Loeb & Ricks 2 Feb 02.
13 House Of Commons Research Paper 01/81.
14 William Arkin, 'Weapons Total from Afghanistan Includes Large Amounts of Cannon Fire', Defense Daily, Washington, March 5 2002 with further analysis by Christopher Bowie, Senior Analyst, Northrop Grumman.
15 USAF quoted in Jane's Defence Weekly, 2 Jan 02, p 27.
16 William Arkin, 'Weapons Total from Afghanistan Includes Large Amounts of Cannon Fire', Defense Daily, Washington, March 5 2002.
17 Franks, page 6.
18 Wg Cdr Chris Finn, The Broader Implications of the Increasing use of Precision Weapons, Air Power Review Vol 4 No 1 page 38.
DoD Briefing, 19 Oct 01.
20 Operational update, Rear Admiral Stufflebeem, 26 Oct 01.
21 Arkin.
22 B1 and B52 can carry 84 and 51 Mk 82s respectively:www.fas.org/nuke/guide/usa/bomber/b-52.htm
23 James Roche, Secretary of the US Air Force in Defence Daily International, 26 Apr 02.
24 Jane's Defence Weekly, 19 Dec 01, p20.
25 DoD briefing 17 Oct 01.
26 DoD briefing 29 Nov 01.
27 DoD briefing 17 Oct 01.
28 Ibid.
29 Ibid.
30 Statement before the Special Oversight Panel on terrorism, 11 Jul 02.
31 Franks, p7.
32 Toby Harnden, Daily Telegraph, 19 Nov 01, p13.
33 Robert K Ackerman, Signal, Vol 56 Issue 8.
34 James Roche, Secretary of the US Air Force in Defence Daily International, 26 Apr 02.
35 Ibid.
36 DoD Briefing, 22 Oct 01.
37 DoD Briefing, 26 Oct 01.
38 Franks, p7.
39 Richard P Hallion, Storm over Iraq, Washington 1992, p188.
40 Robert C Owen, Deliberate Force, Maxwell AFB, 2000, p334.
41 NATO and Kosovo, Kosovo one year on, Ch 2 p4.
42 Arkin.
43 Owen, p334.
44 Benjamin S Lambeth, NATO's air war for Kosovo, Rand 2001, p109.
45 Gen Richard B Meyers, Chairman JCS, before the Senate Armed Services Committee, 5 Feb 02, p25.
46 Wg Cdr Chris Finn, The Broader Implications of the Increasing use of Precision Weapons, Air Power Review Vol 4 No 1 page 40.
47 Arkin.
48 Gen Richard B Meyers, Chairman JCS, before the Senate Armed Services Committee, 5 Feb 02, p7.
49 Dick Cheney quoted in Richard P Hallion, Storm over Iraq, Washington 1992, p252.
50 Owen, p285.
51 Benjamin S Lambeth, NATO's air war for Kosovo, Rand 2001, pxv..
52 The Global War on Terrorism, the First 100 Days, the Coalition Information Centres Washington, London and Islamabad, page 11.
53 Lt Gen Gregory Newbold and R Adm Stanley Szemborski: Combined statement before the Senate Armed Services Committee, 11 Apr 02, p10.
54 Gen Richard B Meyers, Chairman JCS, before the Senate Armed Services Committee, 5 Feb 02, p16.
55 DoD briefing 17 Oct 01.
56 Col Phillip S Meilinger USAF (retd), 10 Propositions regarding Air Power, Air Force History and Museums Programme, 1995.
57 Franks, p6.