IRAQ 2003 - AIR POWER POINTERS FOR THE FUTURE CLOSING ADDRESS

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The aim of this year's Air Power Conference at Hendon was to stimulate debate on the air power aspects of Iraq 2003. This was planned to embrace both the military and the academic communities. We were asked to look at the Combined aspects of the air campaign from both the US and the UK perspectives and analyse the role of air power as a manoeuvre force; this we have done. But the reality of yesterday is worth little unless we can draw out the salient pointers for the future, and that is my job now.

Iraq 2003 represents a good case study for two reasons. It was the first war of its type but, I submit, it is also the last war of its type. It was the first war because it was the first time that we could take a true effects-based approach, enabled by precision, enabled by greater granularity of information, enabled by the ability to move that information across networks (at least to a limited extent) and thus develop at least some degree of common situational awareness. That awareness allowed us to generate very high tempo.

The 5 Corps advance on Baghdad is probably the highest tempo piece of armoured warfare that we have ever seen. Next, information operations mattered. It was an operation fought in the glare of the international community fed by their respective media. It was also a war fought in an ambiguous and non-linear battlespace. So, the first war of its type. Conversely, Iraq 2003 could be regarded as the last war of its type as we are pretty much running out of rogue states The notion of what it means to be a rogue state is now taking root.

Our aim for this Conference was to make you think, because I need people who can think. I cannot run a headquarters with people who will not think because I cannot empower them as decision makers. I have a prejudice. My prejudice is that airmen do not like thinking. Airmen are obsessed with bombs, fuses, cockpits and screens and are actually rather uncomfortable exploring the underpinning logic and doctrine. So producing a thinking air force is a strategic requirement for me, and I am absolutely passionate about that.

However, before I summarise the Conference, I wish to say a few words of thanks. Thank you to the co-sponsors, firstly, the RAF Museum. This is an impressive museum and I commend it to those of you on stations grappling with your leadership programmes and the generation of ethos amongst your people. This museum is one of the best visual

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An RAF Tornado departing on a mission

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aids you can have. Secondly, the Air Historical Branch, it too provides a rich seam of material that you should be using. Finally, to the Director of Defence Studies (RAF), and to his staff, not only for sponsoring it but for organising the Conference.

In summarising the proceedings, I will examine those aspects that I feel to be important pointers for the future using the components of fighting power as the template. I will start by looking at the context in which the future pointers are going to be important to us. The context itself is significant because we have to ensure that Air Power is relevant in the future. Air Power comes with a good brand. Ministers and others in this country have, historically, regarded air power as being an effective and efficient tool in international relations. It provides us with the ability to exhibit and project the will of our nation. That is deep rooted. However, these things do not come free and they have to prove themselves over and over again. So, what does Iraq represent as a first example of post-modern warfare? What was the type of battlespace in which we were engaged and could be engaged in the future? I said it is ambiguous and non-linear, but what does that mean? As a starting point, we can go back to what General Krulak used to say about three-block warfare.

In Iraq we could see that, within a very small piece of the battlespace, we would have: high-intensity armoured warfare, with a lot of 'shot-and-shell'; we would have standard framework type operations conducting peace support and then we would have peacekeeping in terms of distributing humanitarian aid. Sometimes the traditionally linear became non-linear because we had long lines of communications with the front end of them punching through with armour and the back end of them delivering humanitarian aid as they went forward. But the difference between the reality and what General Krulak saw was that he understated the dynamics. The dynamics of Iraq was that these three blocks kept changing in location and varying in intensity, such that yesterday's humanitarian aid distribution point became the scene of tomorrow's firefight. And that is an aspect that makes command, planning and execution very difficult. Add to that urban Close Air Support and you start to get a feel for just how complicated these dynamics can be.

The second point about the nature of this battlespace is that we were fighting amongst the indigenous people. That was certainly the case in

Kuwait in 1991 and it was also the case in Kosovo and Bosnia. So a significant change since the Cold War in that our military activity, the application of military violence in the battlespace, is now being undertaken amongst the people. That is significant because, in any operation, there is always going to be a Phase 4. The degree to which you win or lose the hearts-and-minds of the indigenous population will be predicated on your conduct in battle. The degree of violence, and the way in which that violence is applied, will influence the indigenous people and will undoubtedly affect their ability to accept you when you get into a nation-building phase. Nation-building is also about infrastructure and much of our conduct in battle has to have an eye on preserving the infrastructure as much as possible. When we did the targeting for Iraq, it started very much as a multi-missioned, 'break-everything', target list. But, by the time we had applied strategy to it, we were quite clear about what aspects we needed to attack and what aspects we should avoid. Of course, all of this was being done in the glare of the international media. We cannot ignore the media. The power of the digital image is here to stay. The pictures of alleged abuse of Iraqi prisoners that were spread

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A fully laden RAF GR7

An F3 on patrol as the sun rises

In this post-modern world, we now see more and more the need to get to problems early, and to get to problems nearer their source. You can either pay now or you can pay later but pay you will

over our national newspapers earlier this year provided stark images to the public. Whether they were real images or whether they were fakes is almost immaterial, because the impact they had, particularly in the Gulf region, was enormous. So, given this complexity, why would we ever want to get involved in something similar in the future. From the UK Government's point of view, there are probably three threats that should worry us most.

Firstly, the proliferation of weapons of mass destruction is a real and present danger. It is not one to be underestimated and not one that we should ignore simply because our assumptions over Iraq may have been wrong. Secondly, international terrorism has taken root and we therefore have to consider the degree to which we can deal with such terrorism close to its source. It was clearly a very important aspect in Afghanistan and we still have much more to do. And, thirdly, there is the impact of failing states that can, and do, cross the spectrum of security challenges. There is much discussion going on now about the difficulties generated by failing states, the circumstances in which we would be prepared to use military force, and the international political constructs that we would need to support our actions. There are three cases for military action. The first is self-defence. Article 51 of the UN Charter is black-and-white, and is about the inherent right of self-defence of against armed attack. But what about the need to defend national interests? In a globalised world, how do you define vital national interests? Do you define them by geographic borders, do you define them in

A US B-1B Lancer bomber takes on fuel

Support for TELIC rose to 85% by the time we got to the start line and in the first few days of fighting. However, it subsided to 50% even before we had finished fighting and has dropped considerably below 50% since then

economic terms, do you define them in human terms, or indeed any other terms? Self-defence in a globalised world is not as clear as it was in 1949 when the Charter was written. Secondly, there is humanitarian intervention. In Kosovo in 1999, the Government attached much importance to what, at that stage, was termed an ethical foreign policy, founded and formulated around humanitarian intervention. That well-publicised policy conjured up in the minds of the British public a rather warm feeling of benign intent, of a 'force-for-good'. The third case is the really difficult one: The threat to international peace and regional security. It is difficult because it is likely to be collective in nature and it is likely to affect an entire region, just as Iraq was an issue for all the Gulf States. It is also likely to affect a number of major international players, clearly the US in the case of Iraq, but also European nations. Action is allowable under Chapter 7 of the UN Charter, but it is hugely difficult to gain an international consensus on what needs to be done. In this post-modern world, we now see more and more the need to get to problems early, and to get to problems nearer their source. You can either pay now or you can pay later but pay you will.

An Argentine Navy Super Etendard during the Falklands campaign

The last time we had to fight for control of the air was during the Falklands Campaign and that was a very close-run thing

Much of what we do in the future will be in coalition with the US. We therefore need to understand their doctrine on intervention. It is already developing along the lines of 'anticipatory intervention', in other words intervention when you think something might just get out of hand, which may result in a serious situation developing. 'Pre-emptive intervention' could be deemed to be required where things could well get out of hand, whilst preventative intervention is where there are definitely the ingredients for things to get out of hand, but they have not done so just yet. Making judgements on intervention is hugely difficult. The reason that they are difficult is because they have to be based on the interpretation of intelligence which itself can be both fragmented and highly nuanced. The way in which we now need to generate and use intelligence in this post-modern world is important to help us make those very difficult decisions.

Interestingly, we do not hear so much now of the 'something-must-be-done' school of international interventionists. I wonder whether we are seeing a re-run of the effect of the Black Week of 1899, the first week of the Boer War. The nature of the campaign in Iraq and its aftermath is going to shape public opinion about the way in which military force might be used in the future. There is now this dichotomy between some nations, particularly the US and potentially the UK, wanting to be forward learning in solving problems, against a potential lack of appetite amongst their electorates. But whatever action is taken, there will be an aftermath, and we must recognise and understand how to apply what we, as airmen, can do in future Phase 4s. As I said earlier, there will always be Phase 4s. Afghanistan for example has been in Phase 4 for 2 years. It is important that we understand that only states can legitimately apply military violence. Therefore, it is important to recognise the need for public support, which drives political will. We also need to recognise that public support has to remain in place all the way through the campaign, right to the end of Phase 4. We deployed on Op TELIC with 32% of public support. That is about the level that existed in 1956 when we deployed in the Suez

Mission command is the way we should all lead on a day-to-day basis in peace and in war

Campaign. Support for TELIC rose to 85% by the time we got to the start line and in the first few days of fighting. However, it subsided to 50% even before we had finished fighting and has dropped considerably below 50% since then.

When we are fighting in coalition, the plethora of potential problems is undoubtedly magnified. What will be the long-term impact on public support of the allegations of torture of Iraqi prisoners? More broadly, we can anticipate that International law will have to develop further in order to be able to relate to the conduct of the combat phase and this may be something of a wake-up call to many within the international community. International lawyers have to continue trying to understand how to regulate military violence in these sorts of environments and to keep up with the developments in how we conduct our operations. I also see politicians facing a fine balance the risk to which we are willing to expose our forces versus the prospect that things will actually change for the better.

Let us look at the components of fighting power and see what we can draw out as pointers for the future? Right at the top is control of the air, because if you do not have control of the air you can achieve nothing. But we did not have to fight for control of the air in Iraq to carry out our effects-based campaign. Nor did we in Kosovo, nor did we in Bosnia. Nor did we really in Iraq in 1991. The last time we had to fight for control of the air was during the Falklands Campaign and that was a very close-run thing. But in this post-modern battlespace, some people's mind-sets have now been inculcated with the notion that you do not have to fight for control of the air. That is very dangerous. What about the S400 era? The point at which surface-to-air missiles have a range in excess of 300 km is fast approaching. What happens if missile range is developed to balance exactly the laws of physics, in other words if you can target it with your radar, you are necessarily within the range of long-range surface-to-air missiles defending that target. That would completely change our approach to air warfare and would be a major challenge.

We have heard much about centralised command and decentralised execution. It is changing, and it needs to change further to account for a networked environment and to allow us to capitalise on those networks. We need to understand, and we have never yet fully understood this, the boundary between where centralised command stops and decentralised execution starts. I suggest we need to separate those boundaries so that there is a fluid middle ground, which I will call 'adaptive control'. There are circumstances in which, on one day, I may need to command certain assets centrally, and, on another day, I may not. And there are some strategically important assets which I shall always want to control in an adaptive sense. Amongst those, I would certainly include UAVs and UCAVs. The difficulty of prosecuting Time Sensitive Targets, against complex rules of engagement and difficult calculations over collateral damage, will also mean that a lot of TST clearance will be done in a centralised way.

The centre of gravity in Iraq was Saddam Hussein's regime. Their critical vulnerability was their ability to exercise command and control, and General Franks' intent was along to produce multiple problems in time and space along a number of axes such that the Iraqi regime would be unable to understand them and therefore be unable to react. The degree to which Air Power has to be employed in a manoeuvrist way, taking us away from traditional attrition into more subtle methods of delivering violence, is already mapped out for us. It is the effects-based approach, and that is why it is so fundamental to the development of our doctrine. Mission command is similarly important in enabling us to generate overwhelming tempo. Mission command has to be a contract of trust which takes place within defined boundaries. It is not something you can turn on and off when you go into operations. Mission command is the way we should all lead on a day-to-day basis in peace and in war.

There has been much debate about high-intensity and low-intensity warfare. It was particularly germane during the period of the Strategic Defence Review. The most likely and the most numerous operations call for low-intensity warfare, yet we were quite clear that only by training and equipping for the most demanding high-intensity task could we easily switch to low-intensity and then switch back again as the occasion demanded.

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The regulation of tempo is similar. You will always need the ability to generate high tempo, and you need that for two reasons. Firstly, in adopting a manoeuvrist approach, particularly when you are dealing with regimes and their command and control: overwhelming the enemy with problems is all about generating tempo. The second point is about risk. You have a choice when planning a campaign because you can decide where you are going to take your risks and for how long. Generating a high tempo is a high-risk business initially, but you will be facing that risk for a shorter period of time. Alternatively, you can decide to take a moderate amount of risk knowing that it is going to endure. The British have a propensity in warfare to take a lot of risk up-front in the knowledge that it will subside later. It gives you the choice of going fast or slow. We studied this intently in the Iraq campaign and did a fair amount of adjustment to the plan based on the results of Exercise INTERNAL LOOK, a computer-assisted wargame. Although our goal was to generate early regime collapse, it was vital that the regime actually recognised their collapse as it was happening. So, regulating your approach so that there is time for the enemy leadership to recognise at least something of what is happening to them is an important aspect of managing tempo.

Moving on to doctrine, we have heard much about the effects-based approach. The effects-based approach is necessary for a number of reasons. The first one is efficiency. To give an example, the telephone exchange in downtown Baghdad was a high-value target. However, there were five big office blocks and a highway bridge over the river close by so there was potential for significant levels of collateral damage. We wanted to attack the target early to disrupt the telephone lines. Our BDA, however, was not particularly good and the telephone lines were still operating. So we bombed it again, and within 24 hours those telephone lines were still operating. So we bombed it again, although there was very little collateral damage, the building was wrecked and yet the telephone lines still worked. The Iraqis were just laying telephone lines around the exchange and putting sandbags over them. We simply did not know enough about how to do effects-based assessments.

There are legal and political attractions to the effects-based approach. It is reassuring for politicians and lawyers that we are able to take them through the audit trail of what it is we are trying to achieve and how we are trying to achieve it. They find that very comfortable. Also, it is important to explain to regional powers in a potential area of conflict how you are conducting the campaign, what you are going to try to achieve, and what it is going to look like. It is a very important try to maintain support in the region concerned. Like generating domestic public support, the maintenance of support from the regional powers is a significant diplomatic challenge. If you can convince regional governments of your intent to achieve an end-state by doing no more than the minimum required, then you stand a much greater chance of maintaining their support.

Moving on to information operations, I believe it to be an unhelpful term. I prefer to think about it as a subset of an Effects-Based (EB) approach. As an EB subset, you would be caused to consider the required effects together with how you might achieve them, either kinetically or non-kinetically. But I would also wish to ensure that we consider the information campaign in just the same way that we think of a diplomatic campaign or an economic campaign or, indeed, a military campaign. These, of course, are the levers of national power. The strategic level information campaign throughout IRAQI FREEDOM was not well handled. The messages coming out of London and Washington were being read differently by the regional states, were being read very differently by European states and being read very differently by the internal audience in both the US and the UK. If we had regarded information as a strategic lever of coalition power then I do not

A-10 aircraft provided close air support

Bizarrely though, there were occasions when fierce fighting was in progress with the addition of close air support, yet one block away there was a market with people selling fruit and vegetables

believe that this difference would have occurred. As for the battlespace itself, we now need to strive for the generation of high tempo by integrating air power with land manoeuvre. But it has to be efficient and it has to be done effectively; we were not that good at it in Iraq. Returning from CAS missions still with weapons onboard was particularly frustrating. There were also difficulties of simultaneity. Tasks that would have traditionally been seen as sequential, such as establishing air superiority, became simultaneous with the beginning of land manoeuvre. Five air tasks were conducted simultaneously; counter-air, for which the UK Commander was the supported commander; the counter-TBM operation in the Western Desert — and again the Air Commander was the Supported Commander with a discreet AOR. Then there was counter-land, immediate strikes and attacks on fixed pre-planned targets. Of the five different elements of air operations, 75% of the total effort went into counter-land. Therefore, it is imperative that we understand how to integrate air power and land manoeuvre effectively in order to generate tempo so as to make best use of this significant effort. We also needed to get our air support measures right. The move of the FSCL out to 200 km one night caused a significant delay in dealing with the Republican Guard south of Baghdad. There was a reason for that; 5 Corps was an analogue Corps and slow to in controlling kill boxes, unlike the Marine Corps which was networked digitally and thus much quicker.

I have already mentioned the politics of generating regional support, particularly where host nation support is concerned. But we have also got to understand the political doctrine of escalation. It was something that we well understood during the Cold War from exercises such as WINTEX.

However, that was a different era and we had to re-create the understanding of escalation and escalation dominance during the Iraq campaign: Our post Cold War experience has generated the belief that we can flick a switch and go from low tempo, highly controlled environments like NORTHERN and SOUTHERN WATCH into the dynamic high tempo, many-moving-parts situation that we had in TELIC.

We also need to understand a little more about the differences in appetites for risk across a coalition. We need to recognise that, in the US, the Powell doctrine is all about the use of overwhelming force to reduce risk. For us, we are more willing to face high risk up-front on the understanding that we will endure that risk for a short period of time. Other nations have different views and so it is very important that we understand how different nations approach risk. One small subset of risk is fratricide. We need to develop further our doctrine on combat ID. But, it is not simplistic and people will erroneously assume that technology will bring us the answer. At the same time that we are applying technology to our combat ID, that same technology is allowing developments that see us driving up the tempo, driving up our ability to move faster and more furiously, and thereby increasing the risk of fratricide. So technology on its own is not the answer.

There were also some gaps in our conceptual thinking. Information management is the first of them. We are not good at information management in the military. We have to improve because, unless we can sort out our approach to information management, we will waste much of the effort and resources that are being expended on Network Enabled Capability. Ultimately, NEC is everyone's responsibility because everyone owns a little bit of information, and everyone has got to understand how to manage that information for the benefit of all. That is what NEC is all about. So, conceptual thinking on information management and applications is hugely important.

Next, urban close air support presents us with a particular dilemma. For fixed targets on the Master Air Attack Plan, we take huge amounts of time making collateral damage assessments and judging the legality of any particular target. But, in the faster-paced environment of an urban engagement with troops in close contact, this burden falls directly on the pilot. Bizarrely though, there were occasions when fierce fighting was in progress with the addition of close air support, yet one block away there was a market with people selling fruit and vegetables. The integration of urban close air support is thus an area requiring deep conceptual thought.

At the strategic level, we need to understand more about the Effects Based Approach. Recent thinking suggests that the enemy centre of gravity is a governing regime itself. In most cases since the end of the Cold War, the effect we have tried to achieve is to disconnect regimes from their people. It is arguable that had we focussed on Milosevic on Day 1 of the Balkans Campaign, we may have reached the end-state rather sooner. But in the longer term, we would not have gained the political advantage that result from the fact that it was Milosevic's own people who ultimately dealt with him. But making judgements in these areas requires accurate, factual intelligence, which can lead to robust assessments. Even then, there are complex legal issues involved. So, yet more conceptual thinking is required. One significant question in all of this is what can air power do in this asymmetric world? Certainly, air power can solve many of the information problems. Through ISTAR we can, with sufficient granularity, tell you what is happening. The next step is to turn an asymmetric target into a symmetric target for a fleeting moment in time. It is these capabilities that will make air power relevant in the strategic environment of tomorrow.

So therefore some difficult issues to solve but what are the specific challenges for air forces. Firstly, let us consider the physical component of fighting power; our manpower and our expeditionary ethos. In a 360° battlespace there is no longer an ability to differentiate easily between what is a front-line, what is a rear area, and where people might be shooting at you next. That has considerable implications for training and is what is behind my mantra of "warfighter first, specialist second." The number of Air C2 trained augmentees that we need to make our

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headquarters work in operational environments is very significant. We do not currently have enough. And accurate intelligence, down to the most granular piece of detail that the mission commander needs, has to be relayed quickly and effectively; that also takes people to sift analyse and assess. So we have to adjust our priorities and organise for war and adapt for peace is a good starting point.

Our aircraft must be multi-role, offer true precision, with datalinks, and have the ability to talk to the weapons so that we can use them effectively. The nature of defence procurement tends to give us a rearward view of technology. New acquisitions tend to end up in the paradigm of 'yesterday's technology tomorrow'. There is a systemic weakness in our military acquisition that is founded in history. Some of it is about the nature of airmen and their souls. Back in 1914, the Royal Naval Air Service and the Royal Flying Corps existed in less than harmonious co-existence. They were two very different characters, defined by their different approaches to technology. The Royal Naval Air Service aircraft had radios in them, they had drift-compensated bomb-sights and they also had a compass. The Royal Flying Corps' answer to that was to ask for the names of the railway stations to be painted on their roofs and to give every pilot a copy of Bradshaw's Railway Guide!

When it comes to the amount of equipment or the numbers of platforms we need, we tend to think in terms of being able to provide a certain percentage to a coalition. That may represent a pragmatic starting point, but it is not actually what coalition warfare is about. It is actually about sharing the risks. Our land component provided 25% of the armoured combat power in Southern Iraq. 1(UK) Armoured Division is a very powerful armoured division, but they did not take 25% of the risks. That is not to belittle the efforts of the British Army, it is just a fact based on the nature of the battlespace and the way in which we were employed. So when it comes to making a contribution to coalitions there is a degree to which we need to think of burden-sharing in terms of risk. This puts a different emphasis on the hackneyed phrase, "coalitions of the willing".

Whilst considering equipment, let me just mention something on networks. It links to my point on the intangible aspect of NEC in that centralisation of information costs communications capability; communications cost bandwidth; and bandwidth is what we are short of. Bandwidth is what we will always be short of and so we need to think carefully about the degree to which we centralise knowledge and the ability of warfighters out in theatre to engage in information pull. That was an issue that we had hardly considered at all before IRAQI FREEDOM in terms of the way in which we train our warfighting commanders.

Also on equipment, we see a direct linkage between effects-based warfare and precision weapons. But what do we really know about the stockpiles requirements of precision weapons? What do we know about realistic usage rates in varying numbers of campaigns? What do we know about how much that will cost? That is something we have to understand.

Training for a complex battlespace requires complex collective training in realistic scenarios. This is how we approached the counter-TBM operation in Iraq's Western Desert. In these cases there is a clear need to exercise command and control from end to end adding all the friction that exists when the need exists to deal quickly with very granular information. The only way that we are going to do that in future is to embrace synthetic environments as part of our training regimes. We will have to bolt synthetic environments onto real environments so that we have real action and virtual action running simultaneously so as to test our ability to exercise command and control. One of the things that concerns me is that airmen tend to get comfortable when they are back at their well-found main operating bases. That is not what the future

J-UCAS-X-47B unmanned fighter (Andrew Hull, MoD)

The notion of using UCAVs controlled from 10 time zones away to prosecute a battle is not something international law of the future will regard as acceptable

is about. For air power to be relevant, all our people have to have an expeditionary mindset. That is why collective training is very important in maintaining their warfighting edge, to make them realise that they are warfighters first and specialists second. Conducting such training in representative theatres at strategic range is expensive. SAIF SAREEA held in Oman in 2002 is just such an example but it was money very well spent. It generated confidence and understanding based on experience in real conditions.

Sustainability is another issue. General Moseley talked to you about fuel. What he did not say, was that this air campaign was fuel-limited. There was no other way we could get more aircraft in the air because we just did not have the fuel flows into the air bases. You saw those 4.8 miles of 8,500-gallon fuel trucks queuing outside PSAB. PSAB was pumping 4.5 million gallons of aviation fuel per day into aircraft. There just was not any more fuel anywhere. A huge challenge in a large-scale operation.

The final part of my summation concerns the moral component of fighting power. When we go into combat, we have got to be sure that what we are doing is both legal and moral. I do not believe that, in future, even though technology will allow it, we will be allowed to indulge in robotic warfare. I simply do not see the international community regarding that as an appropriate way to fight. The notion of using UCAVs controlled from 10 time zones away to prosecute a battle is not something international law of the future will regard as acceptable. I think the notion of a person in the loop, the notion of positive ID, the notion of someone feeling the texture of what is going on

in the battlespace, is going to be more and more prevalent. The same aspects also mean that we will be asking more of our crews. Overall, I think robotic warfare drives you away from what I term as emotional connectivity with the battlespace. My view is that winning the hearts-and-minds battle with the indigenous population requires this emotional connectivity.

The media will be influential in the outcome of this debate. They are hugely powerful in terms of both generating and depleting public support. I worry over the degree to which the media now drives public opinion in every aspect of public life. An aspect of this is the degree to which this nation will always be a warrior nation. I wonder whether societal change will take us in a different direction. I wonder about the degree to which the role and rights of the individual are now so dominant in what is a consumerist society that we cannot, and will not, see the same sense of understanding and support for military action that we have always taken for granted. It is certainly the case that, as a society, we are developing in a way that would seemingly tend to drive us away from the understanding of what warfare is; that warfare is a dirty, disgusting and dangerous business. The mindset of the media leading up to the Iraq campaign was focused more on trivial stories rather than grand strategy; they simply did not understand what warfare was about. It is interesting to think that the military heroes of today, the Jessica Lynches, are actually the victims. Does this mean that society has turned round what they regard as suitable role models in a military context?

We see more jointery but what does that do for our motivation? Let me say something about the importance of single Service roots in a joint context. I describe this as the '3 Ps'. The first is professionalism, because it is your basic military credibility that comes from your single Service roots, your single Service ability to discharge your bit of the military campaign. That is where your professionalism comes from. The second is parenting. It is the esprit de corps, it is ethos, it is what you use as a touchstone in steep and scary places. It is tradition, it is about history, badges, squadron standards and identity: a sense of where we have come from, it is all that is about your single Service parentage. It is that which motivates you to fight; it is that which motivates you to potentially put your life on the line. And thirdly, there is passion. If you are not passionate about what you do in a single Service context, you will never make the jump from single Service into joint command. So professionalism, parenting and passion are actually fundamental to motivation in the moral component of warfare.

Finally, let me move on to leadership. It is not something you can switch on when the moment comes. Part of leadership is trust and mission command is based on trust. The generation of trust, both in a command chain and in a coalition, is simply about doing what you say you will do. It is simply about being honest about what is in the art of the possible. There is also the need for robustness and particularly the need for robustness in the face of shocks. We know we are going to lose people, we know we are going to lose aircraft, that is what war fighting is about. But developing robustness and making sure that you have answered all the 'what-if' questions are vital aspects of leadership.

Good planning is also part of good leadership. In warfare there are a huge number of moving parts. The detail really matters and when some of those moving parts come from coalition partners then the requirement for good planning is even greater. Campaign planning is a relatively recent innovation to Royal Air Force officers, whereas it should be our stock-in-trade. It has to be that way otherwise, as a commander, you will not be in a position to guarantee that most of these moving parts will mesh. That brings me to the really important issue of operational art. "Technology cannot revive the genius" was never a truer quote. You do need to think of command, of leadership and of war fighting as an art that is founded on a science. But it is not a science; it is distinctly right brain not left brain. The only way you will find yourself able to confront that is through education and through training.

So, what are the main points? Air power can get you control of the air and it can get you the information you need to unravel an asymmetric

world. We are aiming at the ability to achieve precise campaign effects, at range, in time. We know that the 'time' part of it is the difficult one. We know we need to be warfighters first and specialists second. By doing so, we will make air power relevant because we can turn asymmetric targets into symmetric targets for a fleeting moment in time, but we must be able to do it again, and again, and again. That is what persistence is all about. We know that this is a deeply human endeavour. It is not possible to delegate much of this to technology. We now need flexible platforms and agile people whereas in the past we needed agile platforms and flexible people. We need really agile people and the only way we can have that agility is for you to take it upon yourselves to educate yourselves and think deeply and conceptually about the issues we face.

Air power can get you control of the air and it can get you the information you need to unravel an asymmetric world

RAF C-130J Hercules at an Allied base during Op TELIC