

The Utility of Air Power in Nation Building

By Gp Capt R M Poole

*'Warfare rarely is only about breaking things or killing people. The goal is to affect some sort of change in the opponent's behaviour.'*¹

*'It now [2002] does look as if air power has prevailed... and that the time to redefine how victory in war may be won has come.'*²

Airpower in its many forms has long since become an indispensable tool for any military force fighting against guerrillas, terrorists and other irregular forces.³

Air power can combine synergistically with land power and be decisive in a joint campaign to rebuild a nation post major combat, provided that the mesmerising lure of technology is balanced with a desire to improve process and common understanding.

No one can doubt the utility of air power following the massively impressive successes in Gulf War I, Kosovo and Gulf War II. When a target set exists that requires kinetic effects, air power consistently proves its worth. Yet many believe it to be largely useless when the major combat phases are over and nation building begins. This view fails to understand the broad utility of power projected from the skies. With lateral thought and considerable effort to achieve common intent with the supported commander, air power can provide a significant contribution to the difficult and poorly understood concept of reconstruction or stabilization operations. Yet there is more to be done.

The military's primary task in nation building is to establish a secure environment. The focus of effort is therefore on the prevention and deterrence of hostile acts, criminal activity and acts of sabotage



Devastation after a car bomb explodes in Iraq

A significant risk of winning the war while losing the peace has arisen in more than one contemporary crisis

against the infrastructure. Support from the air plays a major role in two of these tasks at least, in roles that have hitherto been dismissed by many:

*'Despite being designed to target laser guided bombs, in both Afghanistan and Iraq we are employing the targeting pods on F-15s, F-16s, A-10s and the B-52 to provide . . . high-resolution video of ground targets, allowing us to use these airframes in non-traditional ISR roles for increased coverage of the battlefield . . . While these have not been traditional uses for air power, they have been effective and that is all that matters.'*⁴

'Joint' is the way ahead: careers depend on it and organizations spring up based on it. But are recent conflicts good examples of jointery? We have made a good start, but much needs to be done. An

imbalance exists between joint process techniques and technology dependence that exacerbates the problem. We will be truly integrated when we no longer need the word 'joint'. Against an updated process tool of *conceive, act, assess*, this paper shows that air power is a multifunctional tool with inherent characteristics of flexibility, speed and reach that secures it a leading and enduring role in all areas of effects based operations.

UK and Canada define 'joint' as being 'activities, operations, organizations, etc, in which elements of more than one service participate'. The US version is similar though 'military departments' is used instead of 'services'.⁵ Joint defines the military relationships, not the interaction between military and civilian organizations.

We could do well to rip up all the single service and so-called joint doctrine and just learn to communicate. Just because armies are from Mars and air forces are from Venus, it doesn't mean we can't forge a happy marriage — we, like most, have to work at it.

War is more than the military; combat is the purview of the military. Effects Based Operations (EBO) can only be truly successful if traditional military activity is integrated with civilian activity in some form of combined joint interagency Task Force.⁶ Only in concert with

Non-government organizations (MSF, ICRC etc) and other Government departments (CIA, MI6 etc) can a nation's military plan to win a small or asymmetric war succeed. Even then, the demand on intelligence services may be too great.

Recent examples in Asia and the Middle East suggest that the military's traditional force on force role is becoming less relevant as the West struggles with nation building in new forms and paradigms. A significant risk of winning the war while losing the peace has arisen in more than one contemporary crisis. The first step will

The transition to peace must start with enforcement, then through consent, a handover of sovereignty before stabilisation and eventual withdrawal

Coalition troops in Iraq



be to recognize the need for a pan-government, nation-wide control mechanism to better shape the response to future crises — the concept is not new. While some countries have recognized the need for pan-departmental cooperation to address homeland and continental security in the post 9-11 era, little has been implemented. Such interoperability is as difficult as herding cats yet is critical to future operations.

However, the military must get its own house in order before engaging other agencies: we must perfect joint operations, an underlying principle of EBO. The uncharted territory seen in Iraq with novel and non-traditional uses of air power, supporting and augmenting ground force operations will form the backdrop. I will give an airmen's perspective of the joint processes required to conduct a successful campaign (using Iraq and Afghanistan as the context) with a design to transfer sovereignty following major combat — also known as nation building. Afghanistan is arguably further 'along track' with well-established Provincial Reconstruction Teams (PRTs). Iraq has moved on from major conflict but a type of insurgency, bordering on civil war, persists.

The post major combat phases are perhaps the most difficult for militaries to succeed in: the situation is often more confused, plans for sovereignty transfer not always clear and collateral damage risks are even more of a concern. Moreover, there is no front-line and few control measures such as a fire support coordination line (FSCL) with which to separate friendly forces from foe. Most importantly, the enemy is indistinct: they blend in with the population and gain easy sanctuary. I will therefore concentrate on this early phase of nation building, the area between major combat and the less violent PRT type scenario. Finally, I contend that the focus on technology is deflecting western militaries and their nations away from the greater process requirement of true 'jointery', a pre-requisite to the next stage of EBO: the cooperation between the land and air components in the application of national power in modern conflict.

Background

There can be few doubters over the ability for US-

led coalitions to rapidly and decisively overcome conventional forces with the shining examples of Operations Desert Storm, Allied Force and the major combat phase of Iraqi Freedom. The difficult bit, a linked sequence of confrontations,⁷ follows thereafter. It is not that easy to pack up and move out to the next big fight — intervention and occupation, as Colin Powell warned, equals ownership. As Meigs suggests:

*'Military organizations must be able to work across a much broader field of activities than those of the conventional military setting; focusing units intensely on the tasks needed to win conventional combat is no longer sufficient for operational success across the spectrum of conflict.'*⁸

The transition to peace must start with enforcement, then through consent, a handover of sovereignty before stabilisation and eventual withdrawal. Before looking at what might be called 'operations other than war (OOTW)' or counter-insurgency it is useful to start from a common understanding of what EBO means.

EBO, as many commentators advocate, is nothing new.⁹ Still in the concept stage, the UK considers EBO to be 'the coordinated national and international activities conducted to realise the objectives necessary to obtain strategic aims. The military contribution to EBO is the synchronised application of military capabilities to achieve effects.'¹⁰ (DGD&D's dismissal of the use of the term 'effects-based' with regard to operations in Iraq highlights the considerable debate remaining).¹¹ US Joint Forces Command defines effects-based operations as 'a set of actions planned, executed and assessed with a systems perspective that considers the effects needed to achieve policy aims via the integrated application of various instruments of power.' RAND offers a better description:

*'... operations conceived and planned in a systems framework that considers the full range of direct, indirect and cascading effects, which may — with different degrees of probability — be achieved by the application of military, diplomatic, psychological and economic instruments.'*¹²

In all instances, the recognition that the range of options available is wider than just the military element is manifestly true.¹³ The RAND definition importantly recognises the taxonomy of effects, to which *unexpected* should be added. Moreover, though axiomatic, (as the JFCOM definition recognises) *assessment* is a major ingredient. Finally, the wording implies *joint* action unequivocally, a theme I shall use throughout this paper.

What is new is the context within which EBO takes place. Whether an RMA has happened or not is hard to tell, it being early days, but Transformation is the name of the game in the post 9-11 era of the global war on terror.¹⁴ Whether all practitioners are on board and know what we are transforming into, and why, is also uncertain. Change from a steady state is not an easy thing to manage; change induced before previous changes have taken place is complex in the extreme.

What is important, however, is not to be seduced by the dazzling PowerPoint slides of the technologists. Military people like order and control; they like to command people and things. To use Czerwinski's words: 'Bureaucracy is the quintessential linearization technique in social affairs'.¹⁵ There is little more bureaucratic or linear than the military. It therefore is not surprising that procurement processes revolve around replacing your old equipment with new equipment that can, in theory, do so much more than before. There is no doubt that the right equipment will help but resources spent on process will give just as much capability but at lower risk.

By thinking logically through the processes required and ensuring that the human interfaces are honed to perfection, many effects can be produced jointly that will propel a campaign towards its objectives. Air power still has a role to play, some 18 months after the major combat phase in Iraq — it is just that many cannot see what that role is. When Baghdad fell, the USAF air support operations squadron (ASOS), a critical link between the land component and its supporting air forces, was repatriated as each component believed there was little that air power could do. Now that the ASOS is back in theatre, air power has supported troops in contact with

conventional firepower and other effects on many occasions. But before joint effects can be achieved, the desired outcome must be conceived and planned and to complete the loop, assessments must be made. In all of these aspects, technology must facilitate, not dominate.

The OODA loop paradigm has been useful to date but now needs updating. I suggest that the *observe*, *orientate* and *decide* components can be rolled into one: *conceive*. This simplification presents an opportunity to better address the oft forgotten *assess* element after the action phase. I will therefore use an EBO process loop (model) of *conceive*, *act* and *assess* (the sum total of which would be *achieve*) by which to measure the utility of air power in nation building.¹⁶

Conceive

To correctly identify the required effect it is imperative to think like your adversary, not yourself. When we are searching for clues as to what course to take, we think of what would hurt us. The tendency for 'mirror imaging' must be avoided.¹⁷ Time after time, conflict after conflict, western militaries consider the likely enemy courses of action based on the assumptions and culture inherent in our western way of warfare.¹⁸ Peach adds, 'western intelligence staffs . . . are highly skilled at analysing images . . . but . . . less adept . . . thinking like the enemy'.¹⁹ Warden-ist plans advocate the turning out of the lights, yet Saddam used to switch the lights off in towns or villages as a punishment. Understandably, it is hard for the locals to tell the difference between these two forms of power cut: the effect perceived was not the effect achieved.

Therefore, the conduct of the major combat phase will directly affect the subsequent stabilisation and rebuilding process. Such phasing implies sequential actions — once the door is kicked down and the suspect taken away (a technique Saddam used) we will think about winning over the population. Similarly, during the American Civil War, General Sherman sliced his way through Georgia, capturing Savannah but avoided regular battles and killed few people. However, the devastation caused *en route* is still resented a century and a half later.²⁰ The lesson has not been learned.

Allies and friends who understand the culture, history, religion and numerous other factors of the nation in question must be part of an eclectic team. I met a Syrian-born American member of the US Office of Special Investigation in Oman. He had more insight into the problems in Iraq than had been heard in the Combined Air Operations Centre (CAOC) in months. With his thoughts in mind, we must exploit the beliefs of the adversary — religious and moral. Culture, values and vulnerability must be understood, as must motivation and *modus operandi*. It would also help to be at least conscious of the need for a hearts and minds campaign: bombing a field after an attack on the coalition, for example, is unlikely to create a useful effect on a few insurgents.²¹ It is almost certainly going to adversely affect the locals in the neighbouring towns and villages who will probably receive a very different message:

‘We don’t know why they bomb our house and our fields. We have never resisted the Americans. There are foreign fighters who have passed through here, and I think this is who [sic] they want. But why are they bombing us?’

US Army Brig Gen Mark Kimmitt told reporters . . . that Operation Iron Grip in this area sends a very clear message to anybody who thinks that they can run around Baghdad without worrying about the consequences of firing RPGs, firing mortars. There is a capability in the air that can quickly respond against anybody who would want to harm Iraqi citizens or coalition forces.²²

So Corum and Johnson’s view that ‘aerial campaigns that target insurgents and terrorists located in or very near population centres are generally counterproductive’ seems to hold water.²³

Conceiving the right effect puts significant demands on the intelligence services, particularly human intelligence or HUMINT. Despite all the technological advantages available to the US, the coalition still knew little about what was going on in Iraq. Jane’s reports that ‘while national technical means continued to receive high levels of funding for surveillance satellites, signals intelligence flights, and other eavesdropping technologies, human-based intelligence capabilities

have withered’.²⁴ In mitigation, the Iraqi regime was so tight that it was almost impossible to get operatives in on the ground. This has been learned as one of many lessons: ‘high technology IS&R assets have not proved to be a substitute for HUMINT sources and analytic skill’.²⁵

Time spent in deducing and conceiving effects is time well spent. Turning thoughts into deeds demands an equal amount of lateral thinking and mental agility. Having decided on ‘the right things’, we must do ‘the things right’.

Act Beyond ‘joint’

Pape rightly states that ‘the combined use of air power and ground forces . . . remains the most effective way . . . to win major wars’.²⁶ How those elements of military power combine is more significant. Once an effect has been deduced, an effects chain must be created. However, until the joint issues are sorted out, the chain will be of limited utility. One of the greatest failings in joint operations has been the propensity to dictate the air support in the form of platform and weapons required while omitting the essential reason for calling the air component. Components must learn to ask the right question and learn to listen.

Common intent

The best form of support and in turn, the greatest synergy from joint operations, will come when each party understands the other fully. In a supporting role, the air element must understand the intent of the land commander, either explicitly or implicitly. Commander’s intent is associated with a commander’s objectives and end-states for the mission. It is usually articulated explicitly (often in written form) and is intended to guide or direct action. Explicit intent²⁷ is costly in terms of time taken to pass knowledge and obtain understanding — this time is rarely available. It follows therefore, that the more a relationship can operate on implied intent, the more flexible will be the supporting/supported relationship and more robust the outcome in times of uncertainty.

The Canadian scientists Pigeau and McCann advocate a theory that is perhaps useful as a model

to help understand a root problem with jointery. They claim that common intent, a mixture of explicit and implied intent, forms a key part of military relationships. Furthermore, they suggest shared knowledge, reasoning ability and motivation are all necessary for shared intent which, between the commander and subordinates, is 'fundamental for achieving coordinated action in military missions'.²⁸ The ultimate objective of air and land forces would be common intent: a shared goal or purpose along with a shared understanding of the connotations. It includes a shared understanding of:

- Correct actions in *foreseen* circumstances
 - Appropriate actions in *unforeseen* circumstances.
- Achieving common intent between the air and land components could be furthered through:
- Socialization (i.e. team building)
 - Joint training
 - Professional indoctrination through doctrine
 - After-action reviews
 - Shared operations
 - Shared ideals
 - Dissemination of command experiences and debriefing

Indeed a similar concept exists within the philosophy underpinning British Army ethos and doctrine: mission command. Principally, it is 'unity of effort , . . . decentralization, trust, mutual understanding [*intent*] and timely and efficient decision making'.²⁹ Thus an expansion of this philosophy to the joint arena would appear to be a good start. It stands to reason that air and land components of a JTF should not meet for the first time on the battlefield. There is a pressing need for joint training and socialization through team building — the searching for a common understanding of the psyche and make up of each other's tightly-woven formations. Sun Tzu suggests that knowing one's enemy as one knows oneself will ensure that in a thousand battles, you will never be defeated. I would suggest the same would be true if 'enemy' was replaced with 'sister-service'.³⁰

Train as you fight

The UK can no longer afford to train its forces solely through independent training programmes where service training objectives take primacy over

developed interoperability. The propensity to justify huge exercise costs through 'success' in the form of achieved, but canned, objectives must yield to a learning environment that tries to emulate the Chaos brought by conflict.³¹ The air/land relationship must be tested, not scripted. Mistakes must be made and then learned from. The intelligence community must have an input to the outcome and quality of the exercise. At the National Training Centre, Fort Irwin, California, the US Army has learned the value of ignominious defeat at the hands of a highly skilled Red Team.³² As Bingham highlights, 'the conduct of joint operations in war becomes, in effect, on the job training and repeatedly reveals that lessons from previous conflicts in areas such as interoperability have not been fixed'.³³ We cannot allow this to continue. In other words, train as you would fight; accept failure on the training range, not the battlefield.

The Joint National Training Capability (JNTC), an initiative being developed by the USJFCOM is exactly the sort of approach that is being pursued by the UK as a result of Lessons Identified³⁴ from Operation Iraqi Freedom. Indeed, the UK has instigated a re-invigoration of joint training under the Project Cunningham initiative to address battlefield interoperability shortfalls. Other examples worth considering are the Combined Arms (live fire) exercises at the US Marine Corps Air Ground Combat Centre at Twentynine Palms, California and the Western Desert Scud Team training model.³⁵ Service components must not only train together, they should serve together too.

Liaison

A vital element of component cooperation and understanding is the liaison officer (LNO). Frequently an unfortunate soul, the LNO is posted or attached to another service to primarily advise on the capabilities of his component and perhaps try and learn the tools of the trade of another. It takes months to be accepted and often that individual remains in obscurity on return — it is thus seen as a 'punishment' posting. Never more than now has it been necessary to reverse this mindset and send our best and brightest to serve with a sister service. Far from a career backwater, such a posting should be seen as promotion positive. True integration will be achieved when

we can think instinctively like our colleagues in the other environments and be better placed to share implicit intent.

When a JTF is formed, call for the other service's best LNOs and include them (and the component they represent) in the planning at an early stage. I have seen at first hand in the CAOC in Qatar, LNOs who have signed up their units for missions they cannot perform while failing to properly offer capabilities that, with lateral thinking, could create new operating procedures and opportunities.

Improve process

New joint tasking processes must be created to remove the limitations of previous experience. Requests for ISR and CAS support are achieved using two separate US forms (Form 75 and Form 72 respectively). Both come in from different organisations (G3 — ground Ops and G2 — ground Intel) and both normally fail to articulate the intent or the effect required. Such requests then enter the CAOC separately through the Battlefield Coordination Detachment and the ISR Division. This highlights a further problem of compartmentalising ISR assets and attack (CAS) assets. With lateral thought and a willingness to break with tradition, reconnaissance assets can contribute kinetically whilst attack assets can add to battlespace surveillance.

It was proved time and again in Iraq and Afghanistan that effects can be achieved with non-traditional means. Fast jets can offer non-traditional ISR using targeting pods; unmanned aerial vehicles (UAV) can be armed (MQ-1 Predator) for kinetic response. When the intent is common, the lateral thinkers, SAMS and SAASS graduates,³⁶ QWIs³⁷ and tacticians can all flourish and the opportunities for supporting the commander with novel and effective methods can multiply.

The effects chain

In order to address the time sensitive and mobile nature of the vast majority of targets, a chain of

events — *the effects chain* — must be created that is reactive, dynamic and flexible. Consisting of the elements *Find, Fix, Track, Target, Engage* and *Assess* (F2T2EA), the process dictates an end-to-end sequence of events that if prepared and followed will give the best chance of mission success. The air component initially struggled to gain support of this concept from CJTF-7, a follow on C2 organization conceived for the nation building/stabilization phase in Iraq, also known as 'phase IV'. Formed overnight, mainly from V Corps, its constitution³⁸ and approach to operations reflected the warfighting needs of the major combat phase. Having taken Baghdad in quick order and achieved a decisive point, the required change in mindset to match the change in the nature of the operation was slow in evolving.

When III Corps later replaced V Corps, the air component and the inbound land-centric JTF staffs quickly reached 'violent agreement'. Air Combat Command had run a phase of pre-deployment Battle Command Preparation Training for III Corps that concentrated on EBO. It produced a new team with a refreshingly broad-minded flexibility that saw immediate improvements in the inter-component relationship. Before the deputy air component commander could ask for intent to be included in all air support requests, the incoming commanding general proposed it. By way of example, the following vignette from a testimony given by Lt Gen Buchanan to the US House of Representatives Armed Services Committee illustrates the effective linking of effects capability:

*'On December 29, 2003, Forward Operating Base St. Mere came under mortar attack. The 3rd BCT Fire Support Element counter-battery radar fixed the point of origin and within 20 seconds the point of origin was passed from the air liaison officer to the MQ-1 [Predator] crew. Eighty-five seconds after the attack, the MQ-1 had located and was tracking two vehicles fleeing the point of origin at a high rate of speed. The MQ-1 was directed to follow the southern-most vehicle, as a quick response force was assembled. Forty-five minutes into the engagement, the quick response force from the 82nd Airborne apprehended the subjects that were tracked by the MQ-1.'*³⁹



F-15E Strike Eagle approaches a tanker during a routine patrol over northern Iraq

The unique characteristics of air power will continue to add value to the joint effects chain. Reach, speed of response, enhanced observation and perspective through elevation will offer distinct capabilities to the chain builder

It was this success with V Corps, albeit rare, that the air component hoped to recreate on a routine basis with III Corps. It should also be noted that a similar chain was built with a pair of F-16s using LITENING targeting pods, though inefficiencies in the chain led to a failure as a QRF could not be found.⁴⁰

Effects chains were then further developed to examine all the possible platforms, from all services, that could be combined to cover the effects chain elements. Only when analysed in such detail could issues such as communications be addressed. If the effect required was air cover for a convoy, for example, it was imperative that the aircrew could talk to the commander in the convoy. The US Army uses FM radio within

its convoys — only the A-10 and the F-16 had compatible radios. Without communications, the level of support would be fairly minimal. An F-15E providing air support for a convoy in Iraq found suspicious activity (also using the LITENING targeting pod) under a bridge some miles ahead of a friendly formation. Either ACFs⁴¹ were planting an improvised explosive device (IED) or locals were attending to a broken down car — full motion video (FMV) alone could not tell. The convoy was called (through the air support operations cell (ASOC) because of communications limitations) and a QRF dispatched. It turned out to be a hostile act: the perpetrators were ‘dealt with’ and the IED disabled.

Air power can offer, in increasing lethality, the following effects within current capabilities:

Presence

- Shaping⁴²
- Show of Force/Intent
- Warning Shot
- Kinetic Engagement, increasing in magnitude from the 'practice charge' weapon to a 2000 lb high explosive class

If the overall effect is likened to a pie, traditional air strikes with kinetic weapons against fixed targets would normally account for a major slice, if not the whole pie, in terms of the effect generated. With the non-kinetic options listed above, the pie is sliced in much smaller pieces with contributions from land, NGOs, OGDs, the local police and security forces, to name but a few. The air power slice may be very small but as long as it exists and contributes to the total effect, it is worth doing, particularly if there is a political reluctance to put more troops on the ground.

For those yet to grasp the nuances of EBO, air power can be viewed as irrelevant to this form of engagement. The utility of a suitably equipped UAV in certain situations has been proved; however, the platform is not a panacea. The unique characteristics of air power will continue to add value to the joint effects chain. Reach, speed of response, enhanced observation and perspective through elevation will offer distinct capabilities to the chain builder. Today's aircrews and joint planners must always understand this.

Our air forces spend all their time learning how to blow targets up or how to support those who do. With smarter weapons that require less in terms of input from the crew (and thus training), the time is right to start developing a more complete skill set, to include the full range of effects and how to apply them. The trick will be to balance the needs of a military that must be able to win force-on-force conflict.

A show of force, this time from Afghanistan, underlines the effects-based approach and gives a soldier's perspective:

*'So we are up in the mountains at about 0100 hrs looking for a bad guy that we thought was in the area. Here are ten of us, pitch black, crystal clear night, about 25 degrees. We know there are bad guys in the area, a few shots have been fired but no big deal. We decide that we need air cover and the only thing in the area is a couple of B-1 bombers. They fly around at about 20,000 feet and tells us there is nothing in the area. They then asks if we would like a low level show of force. Stupid question. Of course we tell him yes . . . Pilot asks if we want it subsonic or supersonic. Another very stupid question . . . You have to picture this: Pitch black, ten killers sitting down, dead quiet and overlooking this about 30 mile long valley. All of a sudden . . . you see a set of four 200' white flames coming at us. The controller says, 'Ah — guys — you might want to plug your ears'. Faster than you can think a B-1, supersonic, 1000' over our heads, blasts the sound barrier and it feels like God just hit you in the head with a hammer. He then stands it straight up with 4 white trails of flame coming out and disappears. Cost of gas for that: Probably \$50,000 - \$100,000 Hearing damage: For certain. Bad guys thinking twice about shooting at us: Priceless.'*⁴³

A mission and subsequent effects chain that further illustrates the utility of air power is the ongoing task to protect the infrastructure in Iraq. The establishment and maintenance of power generation and its subsequent distribution is of strategic importance. Taken with the distribution of oil, this constitutes the Iraqi 'Crown Jewels'. Not only does a country need power for all the obvious reasons but in terms of the IO campaign, the 'lights must be switched back on' as soon as possible, if the population is to believe that a transition to sovereignty and prosperity is taking place. The power line network was thus of strategic importance yet was being interdicted on a daily basis both for insurgent reasons and by criminal acts. With little employment and a need to put bread on the table, together with a smuggling/crime ring brought about as a result of years of sanctions, many reverted to crime to support their families: the copper prevalent in power line towers, many newly repaired, was of high scrap value. The thousands of kms of power line could not be patrolled by the hard-pressed ground forces of CJTF-7 and thus a solution was found using the

lightly tasked air component. The power lines (and fortunately the pipelines too) run from Basra in the south to Baghdad and then north to Mosul. Fast-air on its way to the CAS stack⁴⁴ had to fly from Basra to Baghdad as part of a previously fruitless transit. By using the ever-more-capable targeting pods in a reconnaissance role, it was possible to covertly look for activity along the lines and pipes. When suspicious vehicles and personnel were spotted, a call to the ground via the ASOC could alert a nearby QRF that would be vectored to investigate. *Find, Fix, Track*, was thus done by the air component, *Target, Engage* and *Assess* by land forces. In developing this tactic, it was found that by flying low the mere noise of a coalition aircraft could induce other effects. Interrogated Iraqis believed that every coalition aircraft had the technological means to see everything on the ground — it therefore followed in many minds that if you hear an aircraft, you have probably been spotted and now would be a good time to desist.⁴⁵ Of course tactics must change to reflect the adaptive nature of the enemy in an ever-changing dynamic — we must never be predictable.

Thus effects are best applied in an integrated form: Echevarria espouses interdependent manoeuvre which ‘calls for a fully joint approach from the outset, generating synergy with the interaction between fire and movement rather than placing the burden of success on one dimension, with others absent or only in support’.⁴⁶ Moreover, it would probably help if some form of ‘framework for jointery’ existed - perhaps the USAF approach to the Air Operations Centre (AOC) would be a useful model. Designated as the AN/USQ-163 Falconer, the processes, systems and people within the latest Block 10 AOC are treated as a weapon system. All elements must be accredited and incumbents trained before being declared combat ready. Thus a key element of the planning, executing and assessing of air and space missions is properly controlled, organised and maintained. If we treat the joint processes in a similar way, a more structured mechanism may help maintain the required levels of interoperability. Importantly, such enhanced levels of cooperation can only help prevent cases of fratricide. Air power can play a

pivotal role in generating effects to support nation building so long as it is constantly reactive to the environment. Having acted, it is imperative to assess.

Assess

In a linear world, the delivery of effects is dynamic and the processes used are adjusted in a cyclic way: action-reaction is the key. In a non-linear, post-Newtonian construct, it is no longer possible to achieve success by detailed monitoring and control of ‘inputs in a linear phenomenon that are proportional to outputs’.⁴⁷ The non-linearity of the modern era and EBO demands a new approach where it is no longer safe to assume that ‘2+2=4; it may equal oranges’.⁴⁸ Czerwinski suggests that concepts of *proportionality, additivity, replication, and demonstrability of causes and effects* can no longer be relied upon. Unfortunately, these concepts make up most of what is undertaken in combat assessment.

An area of consistent weakness, analysis, continues to be the ugly duckling of combat ops. A dearth of suitable measures of effectiveness leads to *output* analysis in terms of ‘bean counting’ rather than *outcome* analysis. We do it because we can. We do it because we are inherently linear in mindset. In some cases this is perfectly acceptable. However, as van Creveld observes in his analysis of the C2 of the Vietnam war:

‘Statistics constitute one of the most abstract forms of information known to man; although they can possibly present a good picture of a whole phenomenon the relevance of any given set of figures to this or that particular event at this or that particular place may well be next to zero.’⁴⁹

During Gulf War I, Schwarzkopf could not be sure of the outcome of air operations because he did not receive outcome-related information.⁵⁰ Many will remember the attrition graphs of Iraqi armour destroyed or SAM defences neutralised. Even today, when imagery is available to confirm a strike, all that can be assessed is whether the aim point was hit. It is hard to tell from an entrance hole what happened thereafter: did the weapon explode; what was the functional damage to the facility?



A Nimrod MR2 MPA

A Nimrod MPA was assisting in the night interception of Taliban and AQ who were smuggling people, drugs and money across the Gulf of Oman

If we have a poor ability to assess kinetic effects, then non-kinetic assessment poses a whole new set of problems. With the inherent temporal nature of effects, metrics have to be time sensitive. Moreover with a complex adaptive system as the adversary, analysis itself becomes more complex. Effects are achieved with many interdependent methods: military, economic, political and psychological, to name but a few. Analysis will therefore need to make use of models, both qualitative and cognitive as well as empirical information.⁵¹

In addition to new methods developed by the analytical community, joint and interagency systems analysis and fusion will be essential. Non-government organizations, other Government departments, the media⁵² and all the other theatre actors could and should play a part in building the picture - the eclectic mix

again. One example of effects assessment can be found in the following vignette from Operation Enduring Freedom:

'A Nimrod MPA was assisting in the night interception of Taliban and AQ who were smuggling people, drugs and money across the Gulf of Oman. Having found a contact on the aircraft's Searchwater radar, the Nimrod continued until close enough to slave its massive searchlight to illuminate the return. The target boat, which had been travelling at speed, stopped, giving the coalition naval forces time to intercept and detain. All were puzzled by this reaction to what was after all, only a light. After questioning it became clear: to those adversaries on board, the bright light was the 'finger of Allah'.⁵³

This example lies squarely in the cognitive domain. The same principle of influence (stop) by effect

(illuminate) could be applied to other operations such as infrastructure protection.

There is a groundswell of opinion that suggests that a solution lies in FMV. Receive Only Video Enhanced Receiver (ROVER) is in use with several ground units in Iraq giving the Predator FMV picture to the local commander. Despite the attraction of 24/7 video, the spell-binding download from Predator and other UAVs is fairly limited in value. As with a still image, unless

interpreted by an image analyst, it is often hard to discern the relevance of what one sees. Colour, high-resolution video gives plenty of *information* but little *intelligence* because it cannot show intent. As with the earlier F-15E convoy escort example, it normally takes a knowledgeable human element at the scene with significant understanding of the culture, ethos, language, and habits *etc* of the subject. Individuals being tracked by Predator as they walk across a high pass are either AQ/Taliban or local tribesmen doing what they have always done. Technology thus has serious limitations that must be balanced against improved techniques and processes.

Technique or technology?

There is a long-standing obsession with technology as the panacea to all ills. But as Jane's reports:

*'... even US technical means have been 'fooled' by those determined to avoid them. India's nuclear detonations in June 1998 were timed to escape detection by US surveillance satellites through a sophisticated deception programme. The timing of India's arrival as a new nuclear power caught the intelligence community by surprise.'*⁵⁴

With resources naturally limited, this focus on technology comes at the expense of doctrine, organization and process developments that are as likely to produce results. As DiNardo and Hughes

Individuals being tracked by Predator as they walk across a high pass are either AQ/Taliban or local tribesmen doing what they have always done. Technology thus has serious limitations that must be balanced against improved techniques and processes



A Predator UAV undergoing maintenance on returning from a reconnaissance flight over Afghanistan



An F-16 over Afghanistan; note the LITENING targeting pod under the fuselage

Units in Afghanistan are now able to see the targeting pod image of the supporting aircraft and do the ultimate talk-on — 'left a bit, right a bit; that's the target' — a novel mix of process and technology

argue, 'history has repeatedly shown that technology is best incorporated in the context of enhancing such *methods* that have already proven successful'.⁵⁵ Since the balance and symmetry of the days of the Cold War we have been comforted by the perhaps false impression that technology was everything: 'the Soviets have had great respect for, and fear of, Western systems based on high technology'.⁵⁶ An *effect* perhaps but the reality might have been very different.

In Iraq, the 101st Airborne Division has recently been replaced by a Stryker Brigade where numbers have been replaced by technology — in essence, 'bytes for boots'. Yet at \$2 million dollars apiece and with the 'latest C4ISR equipment',⁵⁷ the vehicles are still vulnerable to ambush by Haji (the Iraqi resistance) using fairly primitive RPGs — the soldiers within are no more safe than before.⁵⁸ 'See first, understand first and act first' is all well and good as a concept for future land conflict,⁵⁹ but it does not address the difficulty of finding and identifying the terrorist/insurgent/resistance fighter. That said, the plan to integrate these high mobility land units with air power platforms should lead to opportunities for true synergy in the combined arms battle and better opportunities to see, understand and act first.

Communication shortfalls have always been the number one action item in Lessons Learned or After Action Reports. It is inconceivable that we could migrate to networks of sharing masses of information without considerable teething problems. Making improvements in communications — a fundamental requirement — would be money well spent. The ability to talk, by voice or data, to Stryker type units or the conceptual UK FRES⁶⁰ will enhance the transfer of intent and lead to a quantum leap in the level of support given. Units in Afghanistan are now able to see the targeting pod image of the supporting aircraft and do the ultimate talk-on — 'left a bit, right a bit; that's the target' — a novel mix of process and technology.

Smart Acquisition is designed to procure equipment for the UK Armed Forces '*faster, cheaper and better*'.⁶¹ The methodology aims to reduce procurement time and cost by managing risk in partnership with industry. The migration to true effects based procurement is not yet complete — we still buy equipment to replace equipment — but we are getting smarter. While emphasis is rightly on war-winning capabilities, we have found ourselves in need during OOTW or nation building on more than one occasion. Air and Land systems should therefore have an additional ability to bring a wider range of effects to bear.

Efficiencies in design have led to smaller but equally effective warheads in new and planned kinetic weapons — a cockpit selectable, variable explosive yield would be the natural corollary. The UK has been considering a precision training weapon, the Laser Guided Training Round,⁶² as a potential low collateral damage weapon for some time. Precision guidance with a low or zero warhead seem to offer a promising match. With almost no financial expenditure, air platforms could drop practice weapons as a sign of intent — the marker charge giving minimal collateral damage concerns but a clear indicator that the scale of strike can be increased.⁶³ Moreover, experience in Afghanistan has underlined a need for smaller kinetic effects. Small teams of Special Forces hunt down high value individuals in the mountains near the border between Afghanistan and Pakistan, often taking weeks to make contact with the target. If additional support is required from air assets it has often come in the form of a 2,000 lb bomb. To avoid fratricide, the team must separate by at least 2 km and as a result, inevitably lose contact with their target. Smaller weapons, equally deadly, would enable contact to be maintained. Finally, the utility of the air-to-ground gun has never been greater. Arguably the weapon of choice in both theatres, its utility for either a warning shot or direct engagement is proven. Indeed the lethality of the A-10 Gatling gun or the multiple AC-130 guns has an additional IO effect on the adversary to the point where often just the seeing or hearing of the aircraft can induce the desired result. But kinetic attack is often excessive in the many and varied situations that pop up

during nation building. There appears to be a place for non-lethal weapons (NLW).

Non-kinetic effects continue to be developed and are increasingly relevant in the nation building phase. Cruise missiles with carbon fibre warheads temporarily turned out the lights in Baghdad during Desert Storm. Rubber bullets have been used in Northern Ireland for some time though not all are entirely comfortable with their use as they can still kill or lead to serious injury. While lawyers struggle with new definitions over the legality of use, and others over the morality and ethics, work progresses with lasers, acoustic beams and bullets, foam and sticky materials, nets and so on. Whether delivered by air or by ground, non-lethal restraint sounds promising, but there is a long way to go to determine the full range of effects, primary and secondary, that these methods induce. NLW will not, as some might advocate, replace conventional kinetic weapons.⁶⁴ More likely, they will complement and provide decision makers with a wider range of options. Lewer and Schofield go on to say that there is:

‘. . . [an] attraction of a new generation of weapons that seem to offer the potential for a new form of warfare. This might be described as ‘societal war’, a reconceptualization of total war, in which the major civil assets of an adversary are targeted as well as its military forces and structures. For some advocates of non-lethal weapons, that offers the West the potential for strategic paralysis of an enemy’s civilian infrastructure and economy.’⁶⁵

It’s an interesting thought that NLW could counter the restraints and constraints of contemporary targeting and open up the full range of options that have hitherto been denied to the modern day targeteer. Perhaps this would enable, as Steven Metz preposes, ‘full-dimension precision’.⁶⁶ The use of such weapons would be equally attractive to police forces and thus another field of closer coordination and cooperation could start to present itself. These forces will have skills that complement the military; the opposite is also true.

Concluding thoughts — achieve?

EBO must address interagency concerns over the

coming months and years — such coordination and cooperation will demand even more of our people and processes and will be the subject of many future studies. In the interim, the military would do well to get its own house in order and start to take ‘joint’ seriously by truly integrating the components. The *combined* interoperability successes of fighting components suggest that many nations have the wrong balance or emphasis on the need to be joint. Single service training objectives must not be achieved at the expense of jointery and senior commanders must not be afraid of failing under exercise conditions. Indeed, if one is to meet the maxim of train as you fight, fight as you train, then failure must be expected under training conditions if we are to learn properly and not fail on the battlefield. Perhaps the AN/USQ-163 Falconer weapon system would be a useful model for a framework for jointery. The parallels to the processes and requirements of true joint operations are fairly axiomatic. Right now, I would suggest that, in terms of jointery, we are at best, limited combat ready.

Technology has its limits yet a rose tinted view prevails of what is likely to be achievable over the coming years — ‘technical breakthroughs have been promised for decades, but do not appear to occur [sic] despite the introduction of much more technology and . . . complexity . . .’⁶⁷

The future will belong not necessarily to the most technologically advanced combatant but the one that understands the nature of war and can most effectively cope with and exploit it.⁶⁸ Encouragingly, the UK is now adopting procurement along lines of development (LoD)⁶⁹ to break away from the equipment-orientated approach. The ‘Training’ and ‘Tactics & Doctrine’ LoDs, could address the need to gain common or shared intent and are thus the most important at the moment.

Nation building from the air is a valid role but not one that exists in isolation. Independent strategic attack and interdiction beyond the FSCL is a mature operation. A weakness exists in the closer support operations, particularly when the FSCL is ill defined or non-existent — doctrine ceases to help. The unique characteristics of airpower

complement actions taken on the ground and can lead to true synergy, a hackneyed phrase that through misuse has lost the benefit of its meaning. Most articulated future capability programmes show an overriding penchant for the linear, especially the enchantment with, and over-dependence on, technological solutions.⁷⁰ Notwithstanding possible help from technology, existing capabilities can be brought to bear to the nation-building role. Targeting pod-equipped aircraft can aid force protection through non-traditional surveillance measures. Kinetic or non-kinetic effects can be delivered against surface targets or points of interest most effectively in close coordination with troops on the ground. Equally, traditional ISR assets can be armed to offer a kinetic effects option at short notice. The more assets that can join the effects chain and the shorter the time taken to do it, the better and more flexible the JTF will be:

*'As the air commander, my primary concern is the effect air power has on the battlefield in support of . . . our ground force. If I can achieve a particular effect with F-16's with LITENING Pods, then I'll task them . . . The bottom line is to create an effect that supports the war fighter and his mission.'*⁷¹

I have shown in this paper that there is much that air power can do to support nation building. However, until we gain a mindset that can see beyond the traditional kinetic engagement, an underlying principle of EBO, the full benefits will never be realized. The brightest and best need time with the other Services to understand and achieve common intent. One only need look at the US Marine Corps to see air/land operations, albeit fairly limited in scope, that are so joint that they do not even need to use the word. Once achieved, precision campaign effects over range and time will become a reality rather than an aspiration — practice makes perfect. Then, with the military house in order, we will need to read up on complexity and Chaos theory and begin to address the real challenge of interagency operations.

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