

PATHFINDER



AIR POWER DEVELOPMENT CENTRE BULLETIN

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'Pathfinder' is a fortnightly bulletin from the Air Power Development Centre. Its title is a tribute to the Pathfinder Force which operated within RAF Bomber Command from August 1942. The original Pathfinders were an elite navigational group with the role of preceding each raid and accurately lighting up the target area with incendiary fires to permit visual bombing by the main force. The first commander was Group Captain (later Air Vice-Marshal) D.C.T. Bennett, a Queenslander who trained with the RAAF in 1930-31 before transferring to the RAF, and many other Australians also flew with the force.

The emblem we have adopted is 'Fiery Mo', the unofficial insignia carried on No. 6 Squadron's Hudson aircraft in New Guinea during 1943.

THE SHAPE OF THINGS TO COME

There is a very clear commonality in the thinking of all air power theorists, starting from the pronouncements of Douhet and Mitchell, leading to the assertions of Warden and others in recent times. The commonality is their implicit belief in the capabilities of air power and what it can provide to the larger aims in a war. Theories of air power have usually transcended national boundaries and implementation of these ideas was within the capabilities of several nations, as witnessed by the strategic bombing campaign during World War II. This trend has carried on and now perhaps there is even greater global consensus about air power theory. However, air power capabilities now encompass a large and divergent spectrum such that it is necessary to qualify air forces with appropriate adjectives like 'emergent', 'small' etc., to ensure that it is correctly understood within the context of a discussion.

Even with these limitations, air power has become accepted internationally as an instrument of national policy, but its effectiveness is dependent on a number of factors. The level of national technological literacy, resource availability (both the ability and inclination of the government to allocate it), industrial base and the size of the standing air force itself will directly affect the capability that it can bring to bear. Currently, only the USA excels in all the above conditions and even a very cursory look at some of the other modern air forces around the world will indicate the overwhelming pre-eminence of US air power.

Even with a clear understanding that the complete spectrum of capabilities may be well beyond their grasp, nations continue to nurture different levels of air power capabilities. This is because the basic attributes of speed, flexibility, reach and the ability to transcend natural barriers make air power a principal element in any multi-dimensional strategy, if carefully nurtured and optimally employed. These basic attributes are now complemented by accuracy of weapon delivery, stealth, network centricity,

and space-based capabilities. Essentially this combination of inherent characteristics and evolving technology enhances air power's already large envelope of operational utility.

So what does the future hold for air power? As with any prediction, one way to gauge the future of a capability is by analysing the trends that are clearly apparent now and then projecting them further into the required timeframe. Since air power is very clearly reliant on technology for its competence, evolutionary changes taking place in the field of aviation-related technologies would give a clear indication of the probable way forward. Looking at the history of aviation, it has also to be accepted that technology also produces revolutionary changes that sometimes have disruptive fallouts at the strategic conceptual level of air power employment. Fortunately such instances have been few and have happened only at irregular intervals.

Crystal gazing within the currently available indications provides a fairly easily understandable future progression for air power. It can safely be assumed that air power



will soon be thought of as air and space power. This has resource and technological capability implications for all air forces. Space equipment is expensive to obtain and maintain and also needs a fairly advanced technological base for sustenance. But there is also a discernible trend of commercial assets being made available for military purposes, even though they may not have the ideal security and bandwidth. Irrespective of the resource implications, air power will become steadily more reliant on space-based assets for its communications, intelligence, surveillance, and reconnaissance as well as electronic warfare capabilities. The inescapable truth is that only air forces with ready and secure access to space capabilities will be able to perform to the required level in a modern battlespace.

The second evolution that is already under way is the increased employment of Uninhabited Aerial Vehicles (UAVs) and their weaponisation to make them combat capable. The nations on the forefront of this process are also the ones that have a great aversion to accepting own casualties. The advantages of Uninhabited Combat Air Vehicles (UCAVs) are fairly simple to understand. Along with these advantages, their employment will also bring with it challenges to international bodies that try to regulate the use of armed forces in operations other than war. The use of UCAVs in anti-terrorism operations and their legality is already being debated. Despite the legal implications, UCAVs will make their operational debut sooner rather than later and will enter the armoury of nations that have the technological capability to produce them or the resources to procure them. Integrating these combat assets into the spectrum of air power will prove to be interesting.

An air force of consequence will need to be networked in more ways than one. It is already an accepted fact that response to threats will have to be multifaceted and multi-pronged. Under these circumstances, instantaneous communications and dissemination of information become war-winning capabilities. By virtue of their inherently larger perspective, air power assets are the best suited



The first X-45A Unmanned Combat Air Vehicle technology demonstrator completed its sixth flight on 19 December 2002.

to become nodes as network enablers at all levels. The latest combat aircraft that are being fielded have built-in capabilities to switch from being purely combat-capable platforms to becoming the nodal communication points for a networked and data-linked ensemble of platforms. This transformation can take place even while the basic combat capabilities are still being effectively utilised. Essentially the requirement is to make sure that the commanders (at all levels) see first so that they can decide first and thereby ensure that they act first. Air power is and will continue to be the biggest enabler of this process.

So, the future air force will be networked not only within itself, but to all national security agencies, and will then be able to provide appropriate and instant response to emerging threats. These responses could extend from deterrence at one end of the spectrum to the lethal application of force, if necessary, at the other. The essence of air power in the future will be speed for rapid response and precision-lethality for adequacy of response to threats on a global scale.

“For the first time in some 5000 years of military history ... [in Kosovo] we saw an independent air operation produce a political result. ... This kind of utility can do nothing but place greater demands on air and space forces for the future.”

- Gen. Michael J. Dugan, USAF, 1999



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