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Air Power and Special Forces:
A Symbiotic relationship

by David Jeffcoat

FOREWORD

It was General Douglas MacArthur who said, 'New conditions require, for solution—and new weapons require, for maximum application—new and imaginative methods. Wars are never won in the past.' Nowhere has this been better demonstrated than in the application of precision firepower by air power facilitated by Special Forces on the ground during Operation *Enduring Freedom* in Afghanistan. The elements of this combination that permits the lethal application of firepower points towards a symbiotic relationship between air power and Special Forces operations.

Some of the characteristics of air power that enhance the application of firepower are concentration of force, precision, reach, responsiveness and versatility. In combination with the Special Forces characteristics of assimilation, jointness, lightness and persistence, these air power characteristics can be utilised with greater effect in the application of potent warfighting capabilities.

This paper attempts to draw out the synergy between the characteristics of air power and Special Forces that come together so powerfully to make it a formidable combination, and describes its implications for the application of precision firepower. It suggests that the relationship between the two and the increased effectiveness that the combination brings to a battle should be optimised and further exploited.

The development is indeed a groundbreaking development and merits further study by strategists and theorists as well as the practitioners of air power and joint warfare.

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ABOUT THE AUTHOR

Squadron Leader David Jeffcoat joined the Royal Australian Air Force in 1977 as an Engine Fitter before transferring to the Officer Corps and graduating in 1981 as a Navigator. Initially serving on the P-3B Orion he later converted to the P-3C Orion on all sensor and navigation stations culminating in the position of Tactical Coordinator. Ten years of operations and exercises throughout Australia, South-East Asia, South-West Pacific, Canada and the US with 92 Wing was briefly interrupted with a short posting to Canberra. His final appointment at 92 Wing was as Flight Commander on 10 Squadron. He was then posted to an Electronic Warfare staff position in Headquarters Air Command. After two brief postings in Canberra in Headquarters and Public Affairs, he was selected to attend the Indonesian Air Force Command and Staff College (SESKOAU) in Lembang, Indonesia.

Upon graduation from Class 37 of SESKOAU in 2001 he was posted to Headquarters Northern Command in the plans area. In 2002 he was selected as the 2003 Chief of Air Force Aerospace Fellow to study cultural influences on air power. From January 2004 he will be the Commanding Officer of 27 Squadron. Squadron Leader Jeffcoat is an Indonesian linguist who has a Masters in Business Administration through the University of New England and is currently studying for a Master of Defence Studies through the University of New South Wales.

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> *It is firepower, and firepower that arrives at the right time and place, that counts in modern war—not man power.*
>
> Captain Sir Bassil Liddell Hart[1]

INTRODUCTION

Operations in Afghanistan in late 2001 and early 2002 clearly demonstrated the effectiveness of combining precision firepower delivered by aircraft against ground-based targets with Special Forces operating on the ground. Some commentators have dubbed this combination, when supplemented with indigenous allies, the Afghan Model and claim it should now 'become the template for US defence planning'.[2] Other commentators argue this campaign was a 'surprisingly orthodox air-ground theatre campaign'.[3] New terms for air power roles not envisaged ten years ago are being coined as a result of these experiences, such as bomber Close Air Support (CAS) and Ground-Aided Precision Strike (GAPS) to describe heavy bombers (B-1, B-2, B-52) working with Special Forces on the ground.[4] The widely acknowledged success of the combination of firepower delivered by aircraft and Special Forces in Operation *Enduring Freedom* (OEF) demands the essential elements of this combination be discerned and analysed to better understand how the lessons derived from this campaign may be applied in future campaigns in differing contexts.

This paper will describe the essence of the Air Power–Special Forces combination in the application of precision firepower. Revealing the essence of this Air Power–Special Forces combination will demonstrate the symbiotic nature of this relationship that should now be recognised and exploited. This will be done by describing the fundamental characteristics of air power and Special Forces, then relating them to factors affecting the application of precision firepower. Examples from OEF will be used to demonstrate most of these characteristics of air power and Special Forces in the application of precision firepower.

Limitations

General Horner, writing about ways to focus his fellow airmen's attention during Operation *Desert Storm* stated, 'The most important place where things are happening is over the target'.[5] This paper takes heed of these words and examines only those roles directly related to the application of precision firepower. Other air power roles relevant to Special Forces such as reconnaissance, airlift and combat support will not be considered in this paper.

Terms and Definitions

The following terms used in this paper are defined to ensure clarity:

- **Application of Precision Firepower.** For the purpose of this paper the application of precision firepower is defined as the action of activating the required weapon at a specified time and place in order to achieve an effect desired by the relevant commander. Weapons refers to all types of conventional

weapons, including high explosives and projectiles. Application of precision firepower includes all air power roles that feature the delivery of weapons by aircraft to land or sea based targets such as strike, offensive air support, Suppression of Enemy Air Defence (SEAD), bomber CAS and GAPS.

- **Special Operations (SO).** Special Operations are 'measures and activities outside the scope of conventional forces conducted by specially trained, organised and equipped forces to achieve military, political, economic or psychological objectives. These operations may be conducted during peacetime, conflict and war, independently or in conjunction with conventional force.'[6]
- **Special Forces (SF).** Special Forces are 'specially selected military personnel, trained in a broad range of basic and specialised skills who are organised, equipped and trained to conduct special operations'.[7] In the US context, SF are referred to as Special Operations Forces (SOF) which are further subdivided into air force special operations forces, army special operations forces and naval special operations forces.[8]

CHARACTERISTICS OF AIR POWER AND SPECIAL FORCES

Understanding the essence of the Air Power–Special Forces combination requires the distinguishing features, or characteristics, of each part of this combination to be discerned. A better understanding of exactly what it is about the Air Power–Special Forces combination that makes it so successful in the application of precision firepower will enable its full potential to be more fully realised and exploited in doctrine development, force development, joint training and joint operations. More effective employment of the Air Power–Special Forces combination should therefore be achieved.

The characteristics of air power presented in this paper are taken directly from *AAP1000 Fundamentals of Australian Aerospace Power.*[9]

There appears to be no readily available list of characteristics of SF amongst the available literature on SF, SOF and SO. The preponderance of literature and studies on SF, SO and SOF is limited to operational narratives and descriptions of SF weapons or tactics.[10] McRaven's[11] and Gray's[12] writings on the theories of SF, SO and SOF are the few exceptions to this observation. Australian Defence Force (ADF) doctrine on SO also offers a list of distinguishing characteristics of SO, but not SF.[13] This paper will use the ADF doctrine on SO along with McRaven's and Grey's theories of SF, SO and SOF to develop a set of relevant characteristics of SF that will be reinforced with examples taken from historical accounts of operations and exercises conducted by SF.

CHARACTERISTICS OF AUSTRALIAN AIR POWER

The characteristics of Australian air power most relevant to the application of precision firepower are concentration of force, impermanence, payload, penetration, precision, reach, responsiveness, speed, tempo and versatility.[14]

Concentration of Force

Aircraft originating from disparate locations, whether from forward operating bases or homes bases, can rapidly congregate at single or multiple designated points in time and space, either in series or in parallel.[15] Air component commanders are therefore able to concentrate their air power capabilities based largely on the joint commander's requirements, with a lesser concern on the limits of time and space compared with exclusively land and sea-based forces. An air-to-air refuelling capability is the key enabler that allows greater flexibility for this inherent characteristic of air power. Within the next four years the RAAF will have a significantly improved air-to-air refuelling capability.[16]

Impermanence

Air power 'is an impermanent form of military power'. No aircraft can stay aloft indefinitely, nor can any crew. This is often seen as a limitation of air power. Persistence of air power is, however, becoming possible with long endurance Unmanned Aerial Vehicles (UAVs) and military satellites in geo-stationary orbits. This is especially the case for US aerospace forces, with capabilities such as the Global Hawk UAV and a constellation of military satellites. The RAAF does not possess these long endurance capabilities or the large quantities of aircraft necessary to maintain a persistent presence over an area of operations (AO) beyond a day or so.[17] In the Australian context, air power is therefore limited by its impermanence and lack of persistency.

Payload

Aircraft can carry large quantities of high explosive and projectiles faster than land or sea-based vehicles. High aircraft sortie rates can also deliver multiple quantities of high explosives or projectiles.[18]

Precision

Modern air dropped Precision Guided Munitions (PGM) are able to achieve levels of accuracy and modes of impact that greatly reduces the probability of collateral damage and increases the chance of the high explosive detonating at the right place, even within a building.[19] For example, current generation Global Positioning System (GPS) guided bombs called Joint Direct Attack Munitions (JDAM) utilise 1000 and 2000 pound dumb bombs to achieve consistent Circular Errors of Probability (CEP) of 9.6 metres.[20]

Reach

The presence of geographic features, like oceans, mountains and deserts, and artificial barriers, like national borders, does not impede air power.[21]

Responsiveness and Speed

Air power is able to deploy into an AO and conduct offensive operations quicker than any other form of combat power that has not been prepositioned. The inherent relative speed of aircraft enables both their rapid deployability and reduced exposure to adversary forces.[22]

Tempo

Air power is able to operate at a number of different rates of movement. Air power can therefore be used to rapidly respond to short notice opportunities and maintain a high rate of sorties or kept at a range of alert levels ready to conduct operations.[23]

Versatility

Modern combat aircraft are increasingly multi-role with most able to carry a number of different weapons at once.[24] For example, RAAF F/A-18 can carry a mixture of air-to-air missiles, Laser Guided Bombs (LGB) and rockets.[25]

Summary of Characteristics of Australian Air Power

The characteristics of Australian air power most applicable to the application of precision firepower are concentration of force, impermanence, payload, precision, reach, responsiveness and speed, tempo and versatility.

CHARACTERISTICS OF SPECIAL FORCES

The characteristics of SF developed in this paper will be those relevant to the types of SO most applicable to the employment of precision firepower. These are Special Reconnaissance Operations (SRO) and offensive operations. Mission types within SRO include 'target acquisition and surveillance of hostile command and control systems, troop concentrations, strike weapons ... and other military targets of significance to the theatre and joint force commanders'.[26] While offensive operations 'can also includestand off attacks by weapons systems either delivered, directed or designated by Special Forces'.[27]

Theories of Special Forces, Special Operations and Special Operations Forces

The characteristics of SO as stated in ADF doctrine, along with the writings of McRaven and Gray on the theories of SF, SO and SOF, offer useful foundations in developing a list of characteristics of SF. Validation of these characteristics will be gained by reference to significant exercises and operations where SF type forces have played critical roles. As far as possible, this analysis will illustrate the points with examples drawn from the experiences of Australia's Special Air Service Regiment (SASR) as described in Horner's unofficial history of the SASR, *SAS: Phantoms of War: A History of the Australian Special Air Service*.[28]

ADF doctrine on SO states the distinguishing characteristics of SO is its joint nature, time criticality, strategic effect, unorthodox means, special training and equipment, and the need for specialised intelligence.[29]

McRaven has identified six principles of SO from an analysis of eight historical SO conducted by German, Italian, American and Israeli SF. McRaven's six principles of SO are simplicity, security, repetition, surprise, speed and purpose. McRaven contends these six principles 'allow special operations forces to achieve relative superiority'.[30] Gray writing about the theory of SF has put forward a range of 'conditions for success' required for SF to achieve results disproportionate to their size. These conditions range from 'permissive domestic conditions, a tolerant political and strategic structure' to 'only SOF skilled in their trade should conduct special operations'.[31]

Characteristics of Special Forces

McRaven contends that SF's ability to rapidly achieve relative superiority over larger enemy forces is the dominant reason for the success of SO.[32] However, all military forces strive for relative superiority over their enemy, whether the forces they face are comparatively larger or smaller. Any list of characteristics of SF will therefore not be unique to SF alone. Theconventional approach to achieving relative superiority is greater numbers, as espoused by Clausewitz who stated, 'In tactics, as in strategy, superiority of numbers is the most common element of victory'.[33] What is unique to SF is the expectation of commanders borne out of historical examples of SO that SF will invariably achieve relative superiority over a larger enemy and therefore win. Similarly, any list of characteristics of SF will therefore be common to conventional forces, but they will be ones SF must consistently achieve at a higher level than conventional forces to ensure SF are indeed able to achieve relative superiority over larger enemy forces.

To achieve McRaven's principles of SO and most of Gray's conditions for success, SF must possess a set of distinguishing features or characteristics. For example, only forces that are light and have the ability to work with a range of heavier forces are able to achieve a combination of McRaven's principles of simplicity and speed in SO. McRaven contends that innovation, limited number of objectives, and good intelligence are the three elements of simplicity which are crucial to the success of SO. SO require high relative speed to swiftly reach the objective despite the actions of the adversary. This invariably translates to a dependency on aircraft. Large land-based combat forces are inherently heavy and complex to operate and manoeuvre in the face of enemy action. Forces with a heightened sense of purposefulness are required to ensure the mission is achieved no matter the barriers that may appear, a key principle of SO.[34] The type of forces most likely to achieve McRaven's principles of SO are therefore light forces able to overcome some of their limitations by working closely with other forces, able to innovate by using new, perhaps unorthodox means, or equipment and with a strong sense of purpose. Gray states that to achieve his conditions for success SF need to have flexible thinking, provide unique strategic services and be highly competent tactically.[35]

The characteristics of SF are assessed to be assimilation, jointness, lightness, persistence, purposefulness and unorthodox means. Each of these characteristics will be further explained by relating them to McRaven's principles of SO, Gray's factors for success, and historical examples of SF in exercises and operations. Assimilation

Assimilation refers to the ability of SF to operate in close proximity to the selected targets. This includes the ability to not only operate behind enemy lines and remain indistinguishable from the natural or human environment, but also to interact with sympathetic elements of the local population and gain relevant information from them about the target. Necessary traits associated with this characteristic include the ability to blend in with both the immediate natural and human environment. Camouflage and high degrees of cultural awareness are key factors in the development of this characteristic. Without a high degree of cultural awareness it is unlikely SF will be able to gain the required level of trust and cooperation from sympathetic local elements necessary to gain the required information.

Achieving surprise, which McRaven has identified as a key principle of SO, requires an intimate knowledge of the target and its associated defences and terrain. McRaven contends that history teaches us that most targets of SF have been well prepared to counter any type of offensive action. Achieving surprise therefore 'means catching the enemy off guard'.[36] To find out exactly when and how the enemy will be off guard often requires close observation of the planned target for an extended period of time, either by the SF themselves or sympathetic elements of the local population. Even with advanced artificial sensors, the human sensor in close proximity to the target is still the best way to gain this type of information.

Gray refers to the need for 'permissive domestic conditions', which not only refers to the SF's home nation but also the immediate environment the SF are operating as condition for success. Gray refers to the need for SF to tailor their activities 'with regard to popular beliefs and cultural symbols'.[37] To achieve these conditions for success, SF need to have the quality of being able to assimilate and successfully adapt to the local environment, whether it be through SF members becoming indistinguishable from the local population, or by SF winning the trust of the locals sufficient to gather the required information.

Some SF type units are raised specifically to conduct reconnaissance operations behind enemy lines. Some reasons for this may be to more tightly restrict information concerning the existence and nature of theseunits due to their extreme vulnerability, and to separate these more sensitive roles from other more widely known SF units. Political sensitivity of their operations could also be a contributory factor. The British SF unit, 14 Intelligence Company, also referred to as the Army Surveillance Unit Northern Ireland, is reputed to be a reconnaissance SF unit. Beginning as an army unit that covertly tracked Soviet military mission members in Germany, it was reborn in 1974 as a SF unit with the task of covertly tracking Irish Republican Army (IRA) and Loyalist forces in Northern Ireland.[38] In 1997, 14 Intelligence Company was also reputedly involved in covertly tracking suspected Serb war criminals in Bosnia leading to their apprehension by SAS teams.[39] The ability to blend in with their local environment is an essential quality for these types of SF units.

Other examples of operations where more regular SF units have taken measures to adapt to their environment include the following:

- On the US Ranger operation to rescue allied Prisoners of War (POW) near Cabanatuan City in Japanese-occupied Philippines in January 1945, the US commander of that operation went out of his way to complement local Filipino guerrilla leaders during his initial meetings. A US forward scout unit, called the Alamo Scouts, was also formed to support this operation. In this unit every five-man team included at least one Filipino. The support provided by the Filipino guerrillas and detailed intelligence gained by the Alamo Scouts enabled the 375 Rangers and guerrillas to successfully rescue 512 POWs from a Japanese POW camp, with nearly 250 Japanese soldiers surrounded by a further 8000 Japanese soldiers located within five miles of the camp.[40]
- In Panama in December 1989, US Delta forces conducted a successful rescue of Mr Kurt Muse, a US citizen and leader of an anti-Noreiga opposition group, from Carcel Modelo prison that had over 1000 inmates. The day prior to the actual rescue US Delta personnel dressed in plain clothes, moved unobtrusively through the streets surrounding the prison and in the hills overlooking the prison observing and reporting the location and nature of recently constructed Panama Defence Force (PDF)

positions. Just before the actual rescue, these Delta personnel provided a last minute update to the inbound main rescue group before changing their role to snipers and killing some of the prison guards as well as destroying the prison's generator. The rescue was a success, though some of the rescuers and Muse were slightly injured during the rescue.[41]

- In East Timor during September and October 1999, Australian and allied SF personnel formed Liaison and Communication Teams (LCT) that were tasked to liaise with local FALINTIL commanders. Through this liaison, LCT provided a flow of intelligence on militia activities and movements to International Forces East Timor (INTERFET) Headquarters, locate war crimes sites and keep FALINTIL in their cantonments.[42]

Jointness

SF depends on a range of specialised military capabilities and assets to achieve their mission.[43] These may include submarines, aircraft or ships for insertion or extraction; specialised ISR capabilities; strike aircraft; and specialised intelligence and logistic support capabilities. In the ADF, most of these capabilities lie outside the Army dominated Special Operations Command (SOCOMD) and may also be resident in another service. SF must therefore be able to operate closely with all three services.

Most of the SO McRaven quotes in support of his six principles of SO encompass all forms of SF, including air, sea and land-based elements. Innovative uses of air, sea and land-based elements that were critical to the success of these SO are quoted in support of his principle of simplicity. In his principle of repetition McRaven cites examples of land, air and sea-based elements in these SO requiring extensive rehearsals before the operation. The importance of deception operations conducted by air and sea-based elements in some of these SO is quoted in support of his principle of surprise. The comparative speed advantages of aircraft and ships over land-based forces are also highlighted in the SO he uses to support his principle of speed.[44] Gray refers to the need for SF to have close cooperation with other military units.[45]

Examples of SO where the characteristic of jointness has been a key factor include the following:

- In April 1980, the US launched Operation *Eagle Claw* to rescue 53 hostages from the US Embassy in Tehran. The rescue force was made upof personnel from four different services and at least six different units. Elements of the rescue force were deliberately kept apart in the preparation phase in the name of operational security. There were seven separate rehearsals, though no full dress rehearsal. Shortly after the operation was aborted due to insufficient heavy lift helicopters at Desert One, a key staging base, a helicopter and C-130 collided on the ground killing 13 people. The major criticism the official Pentagon inquiry levelled at this failed operation was the ad hoc nature of the task force, a chain of command that was unclear and an excessive emphasis on operational secrecy. This and other reports were instrumental in the US creating the unified Special Operations Command in 1986.[46] A key lesson to emerge from this operation was there was no clear understanding within the disparate elements of each other's capabilities and limitations. The basic characteristic of jointness seemed to be missing in this operation.
- In March 1968, an Australian SAS patrol in Vietnam destroyed a North Vietnamese tractor in a mission Horner has described in great detail. This was one of nearly 1200 patrols carried out by the SAS in Vietnam. In his analysis of this mission, Horner draws attention to the significant support capabilities the six-man SAS patrol relied upon to achieve their objective. This tractor was an important military target because of its key role in resupplying important Vietcong (VC) bases with stores and ammunition. About 60 VC routinely escorted the tractor when carrying stores and ammunition. On this mission the patrol relied on pre- and post-action reconnaissance conducted by aircraft from 161 (Independent) Reconnaissance Flight, army engineers designing pressure switches and explosive charges, and 9 Squadron RAAF providing insertion and extraction as well as a medical evacuation. Effective cooperation amongst all these elements was essential for the success of this operation. Without these non-SF and some non-army units this SF force could not have completed their mission. In 1971, the commander of the last SAS squadron in Vietnam concluded his tour, noting in very favourable terms the consistent support they enjoyed from 9 Squadron RAAF and 161 (Independent)

Reconnaissance Flight over the last five years of operations in North and South Vietnam.[47] Effective cooperation between at least these three elements was a key factor in the success of Australian SF in Vietnam.

Lightness

SF sacrifice weight for speed and agility when conducting SO. SF need to be light forces to achieve the relative speed of engagement that McRaven stresses is so critical for SF to gain relative superiority. SF are therefore mostly small and lightly armed.[48]

During operations in both Borneo and Vietnam from 1965 to 1971 Australian SF conducted 1391 mission of which 197 were four-man patrols, 732 five-man, 263 six-man, and only nine with greater than 20 men.[49]

Other examples of SF displaying this characteristic of lightness follows:

- In September 1999, the INTERFET Response Force, comprising Australian and Allied SF, led the way for larger forces that were unable to deploy as rapidly because of logistic constraints. After 3 Brigade gained control of Dili, six-man Response Force patrols deployed, often at just 12 hours notice, by helicopter for periods of seven to 21 days into the countryside to act as pathfinders for larger units like 2 RAR.[50] Heavy land-based units could not have deployed as quickly and expect to remain self-sufficient for a similar period of time.

Persistence

Special reconnaissance operations require SF to collect and report information over a number of days to observe adversary movements and discern patterns of behaviour.[51] The characteristic of persistence will not be as important for SF who conduct roles other than SRO. Persistence is however essential for SF in the context of the application of precision firepower, given that SRO were identified as a key role for SF in the Air Power–Special Forces combination.

Examples of SF displaying persistence on exercises and operations are as follows:

- Australian SAS patrols in Vietnam tasked with reconnaissance often involved hours and days standing, lying or sitting whilst observing the enemy. Horner reports, 'One patrol stood for four days up to their waists in waterin a swamp close to a VC base camp watching the VC move back and forth.'[52]
- During an Australian Army field force exercise in July and August 1977, 22 SAS patrols were deployed across 66,000 square kilometres of north-western Australia to detect exercise enemy invasions by other army units supported by the RAN and RAAF. The exercise was a success for the SAS, with one patrol positioned to observe an airfield near the South Alligator River suddenly finding themselves right in the middle of the enemy build up. The patrol leader reported they sat it out for three days 'living like dogs on biscuits and onions', expecting at any minute to get caught, and only moving when an aircraft landed with more troops. They eventually departed the area undetected after passing on valuable information to their headquarters.[53]

Purposefulness

Purposefulness refers to the strong and unrelenting desire to achieve the objective. McRaven describes his SO principle of purpose as understanding and executing the prime mission objective 'regardless of emerging obstacles or opportunities'.[54] Like most of these characteristics of SF, this quality of purposefulness is a desirable trait of all combat forces. However, for SF to win and achieve relative superiority over larger forces, SF must more consistently and more successfully embody this quality of purposefulness than conventional forces.

Examples of SF displaying this characteristic of purposefulness are as follows:

- In late November 1970, US forces executed a raid to free allied POWs from the North Vietnamese Son Tay POW camp. The operation was well executed except the POWs were not at Son Tay when the rescue force arrived. During the operation, a US support element came under heavy fire from an unexpected location. Instead of directly engaging those firing at them, the support element withdrew and rejoined the task force to assist in the extraction of the POWs. McRaven cites this as a clear

example of individual task force members having a strong sense of purpose in achieving the objective, instead of wasting effort by needlessly engaging the enemy.[55]• McRaven provides the following quote from a German Corporal involved in the successful raid on a Belgium fortress near Eben Emael and the border with Holland in May 1940, to demonstrate the strong sense of purpose required for a successful SO: 'We had been cooped up for months and had been transformed into killers. Everything we had done was in preparation for this hour ... There was unyielding determination in each man's eyes ... With this feeling we could search out the devil in hell!'[56]

Unorthodox Means

The traditional principles of war apply to SF as much as all other combat elements,[57] but SF are required to adapt their approach to each operation and come up 'with a distinctive theory of victory'.[58] *ADFP45* states the ability to use unorthodox means within the bounds of proven principles of war is an essential quality of SF. This may translate into SF depending more on surprise than other principles, like concentration of force, depending on the nature of the SO.[59]

McRaven states that to achieve the principle of simplicity required for SO, innovation is often required.[60] Innovation by definition refers to introducing something new. Something new may be new equipment, or conventional or unorthodox tactics.

Examples of SF using unorthodox means feature in the following examples:

- In October 1977, a Lufthansa Boeing 737 was hijacked and eventually landed in Somalia. The German SF unit GSG9 conducted a successful rescue, killing three of the four hijackers, with four hostages and one GSG9 member slightly injured. Newly developed British stun grenades were supplied to GSG9 by the British SAS shortly before this operation and were a central feature of the subsequent rescue.[61]
- In the early planning for the raid on Entebbe, the idea of landing an Israeli C-130 directly on the Ugandan airport, which was protected by the Ugandan armed forces acting in cooperation with the hijackers, was deemed by the Israeli commander of the C-130 squadron to be so crazy that it would be a total surprise to the hijackers. The landing of Israeli C-130s directly on Entebbe airport was subsequently a key feature of this successful SO.[62]

Summary of Characteristics of Special Forces

The characteristics of SF most applicable to the type of SO assessed to be of most relevance to the application of precision firepower are assimilation, jointness, lightness, persistence, purposefulness and unorthodox means.

FACTORS AFFECTING THE APPLICATION OF PRECISION FIREPOWER

An understanding of the factors that affect the application of precision firepower is required to appreciate how the characteristics of air power and SF compliment and support each other in this role. The nature of this relationship between air power and SF can be more clearly discerned when the factors that affect the successful application of precision firepower are determined.

Factors Affecting

The application of precision firepower is the action of activating a required weapon at a specified time and place in order to achieve an effect required by the relevant commander. From this definition, a number of conditions fall out that point to a list of factors that affect the application of precision firepower. The first condition is required weapon. This can be expressed as a quantity of high explosive, type of projectile, or effect required, such as to disable a radar head from turning without major repair, or sufficient to completely destroy the vehicle and all its contents. The second condition refers to the time and place. This can be determined by three dimensional geographic coordinates and clock time or by reference to an object and event, such as the operations planning room when the joint planning group meets, or enemy weapons systems that are a direct threat to own forces. Inclusion of the word precision places the requirement 'of doing something exactly, or as close as possible, to the way it should be done'.[63] Reference to the effect required by the relevant commander imposes on those

carrying out this action they are acting strictly in accordance within their commander's intent. In at least the Australian context, this imposes additional requirements in respect to the Law of Armed Conflict (LOAC) and Rules of Engagement (ROE). Adherence to the LOAC requires the action taken to be against a military objective and all 'reasonable precautions are taken to avoid loss of civilian life and damage to civilian objects'. ROE will invariably impose additional constraints that are mostly context dependent.[64]

The following list of factors affecting the application of precision firepower can thus be discerned from the preceding analysis of the definition used for this action:

- **Achieving Precision.** Precision is achieved when the intended action conforms as close as possible with that desired in as many respects as possible.
- **Position Specified.** The position the firepower is required, either by reference to geographical coordinates or an object like a building or vehicle.
- **Time Specified.** When the firepower is required, either by a reference to an event or the clock.
- **Type of Weapon.** The type of weapon required expressed as either a quantity of high explosive or level of destruction.
- **Complying with LOAC and ROE.** Complying with LOAC requires the target to be a valid military objective, and force used should only be the minimum required. Compliance with ROE will be context dependent, though at a minimum will include the right for self-defence.[65]

Factors Affecting and Characteristics

Each of these factors affecting the application of precision firepower will be related to the characteristics of air power and SF to explore how these factors are impacted.**Achieving Precision**

Achieving precision requires the designated target to be destroyed exactly as ordered despite enemy action, the usual fog of war and myriad of other factors military forces are unable to control. Achieving precision despite all these factors requires forces to deliver the firepower required with great accuracy at the intended time and place. It requires the forces to clearly focus on their target, no matter the distractions or opportunities presented during the operation. In summary, the qualities of air power and SF most applicable to achieving the requirement of precision are as follows:

- **Air Power – Precision.** Once a target is appropriately designated, air power has the ability to deliver a variety of weapons at the target with a high degree of accuracy.
- **Special Forces – Jointness.** SF's ability to effectively operate with elements from different services enables them to rapidly cater for unplanned events, yet still achieve the objective. For example, the original plan may call for artillery directed by SF to deliver the weapons to the target, but during the operation the artillery could not be provided so instead aircraft were tasked to deliver the weapons. SF's characteristic of jointness enabled them to operate with land and air-based forces.
- **Special Forces – Purposefulness.** The purposefulness character equips SF to overcome many unplanned events and achieve the objective despite these events occurring. Without a high level of purposefulness, forces assigned to target designation may become distracted by other events with potential detriment to their primary task of refining target position.

Specifying Position and Time

Identifying the place and time to apply the required firepower, or target acquisition, is a critical factor affecting the application of precision firepower. The target may be static whose position is known for some period of time, such as a vital communications node, or dynamic such as a senior military leader or a mobile weapon system. Position and time may be related to known references such as latitude, longitude and Greenwich Mean Time. They may also be related to other events such as the largesttruck in the supply convoy travelling from A to B, or when the weapon system moves out of its hardened shelter. For dynamic targets, close observation over a period of time is invariably required to identify patterns of movement to enable their future location to

be estimated. The optimal time to strike at targets is frequently restricted to brief windows of opportunity that may only appear at short notice. The characteristics of air power and SF most applicable to this factor of target acquisition are as follows:

- **Air Power – Reach.** Air power can overcome the natural barriers of oceans and mountains and political barriers of national borders to reach any location within the combat aircraft's radius of action. Target location is therefore only limited to within the large area bounded by this radius of action. This radius of action can be extended by air to air refuelling and forward basing.
- **Air Power – Responsiveness and Speed.** Air power is able to rapidly deploy and conduct operations very quickly thus enabling brief windows of opportunity to be exploited. Air power is also able to rapidly adjust for changes in position and time of the target.
- **Special Forces – Assimilation.** SF's ability to operate in close physical proximity to the target enables SF to conduct target acquisition far more effectively than almost any other acquisition system.
- **Special Forces – Persistence.** The ability of SF to observe the target for long periods of time enables SF to better define and subsequently refine the best position and time to detonate the weapon. SF are ideally placed to refine target acquisition based on their own observations instead of old intelligence because of their ability to persist and remain within close proximity to the target.

Type of Weapon

The required weapon must be specified to ensure the required effect is achieved, whether it is complete destruction of a target system or only partial degradation of an enemy capability. The desired weapon may have been previously determined through a weapons effect planning process, where weapon types and target characteristics are matched to achieve specified levels of destruction or incapacitation. The most suitable weapon type may have been previously determined or based on an estimate by forces with more knowledge about the target's nature. In summary, the qualities of air power and SF most applicable to determining weapon type are as follows:

- **Air Power – Tempo.** Air power is able to deliver a variety of weapon types rapidly and repeatedly, as fast or as gradually as required.
- **Air Power – Versatility.** Aircraft and weapons can be readily switched between roles. One aircraft is able to carry a variety of weapon types if required, thus presenting a range of weapon types to cater for last minute changes in the type of weapon required.
- **Special Forces – Assimilation.** SF are better able to assess the nature of targets, and thus determine the most suitable weapon type than conventional forces because of their characteristic of assimilation. This ability to get close to the target, or be in close contact with those able to get closer to the target, allows SF to discern the nature of the target more accurately than most stand off artificial sensors. More data on the target for better weapons effect planning is becoming increasingly important on the modern battlefield. For example, General Horner states 'in the past you wanted to know where the tanks are stored. Now you want to know where the load-bearing wall is on the building where the tanks are stored. You want to know—is the overburden on the bunker 26 feet of concrete or 26 feet of earth? The data demands on modern warfare are just going out of sight, but it's important.'[66]

Complying with LOAC and ROE

Australia is a signatory to a number of international conventions that require any application of precision firepower be done commensurate with the effect to be achieved and in accordance with LOAC and relevant ROE. Other factors such as precision and specifying position and time will also ensure this factor of compliance with LOAC and ROE is fulfilled. In summary, the qualities of air power and SF most applicable to the factor of compliance with LOAC and ROE are:• **Air Power – Precision.** The increasing accuracy of air-dropped weapons increases the probability weapons will be detonated at the right place and time, thus reducing the chances for non-target facilities or systems to be affected.

- **Special Forces – Assimilation.** SF's ability to get close to the target, or have access to those who can get closer to the target, enables SF to more clearly discern the nature and characteristics of the target than most other sensors. The use of a building as a military headquarters may not be readily discernable

from stand-off or one time glimpses from artificial sensors. To discern whether the building does indeed contain a military headquarters, and is thus a valid military objective, may require the building to be observed over a period of time. Information from those able to get inside the building may also be essential to discern whether this building is a valid military objective or not.

- **Special Forces – Persistence.** SF's characteristic of remaining in place to observe a potential target means they are able to better discern the exact nature of a particular facility and whether or not it complies with current ROE as a valid target. For example, whether or not a village is just a community of farm workers or whether it is a base for guerrilla operations. SF's quality of persistence may also be required to discern which particular room in an identified building is a more valid target than other locations within the same building.

Overcoming Limitations of Air Power and Special Forces

The list of characteristics of air power and SF impacting on the aforementioned factors affecting the application of precision firepower have been limited to those able to reinforce these factors. Separately, both air power and SF also have characteristics that may be detrimental to the application of these factors. These are impermanence for air power and lightness for SF. Impermanence for air power in general and the RAAF's paucity of persistence in particular can potentially weaken the factor of specifying position and time. The RAAF has a limited capability to persist whilst airborne in an AO ready to strike on an opportunity basis. Similarly, the lightness of SF severely restricts SF's ability to transport weapons, thus limiting their flexibility in weapon selection when operating in isolation.

The Air Power–Special Forces combination effectively nullifies the impermanence of air power and the lightness of SF. SF are able to discern the optimum time to engage the target because of their characteristics of persistence and assimilation. These characteristics enable SF to maintain long periods of observation on the target, identify its nature, and thus determine the optimum time when the target should be engaged. This will greatly reduce the requirement for air power assets to persist in the vicinity of the target waiting for the optimum time to engage the target. SF's characteristic of lightness is obviated in the Air Power–Special Forces combination by air power characteristics of payload and concentration of force. Air power's ability to deliver significant quantities of a variety of weapons from a variety of locations reduces the requirement for SF to transport heavy weapons.

Most of the individual characteristics of air power and SF effectively support all the factors affecting the application of precision firepower. Those characteristics that do not enhance these factors are largely obviated when air power and SF operate in combination.

AIR POWER AND SPECIAL FORCES IN OPERATION *ENDURING FREEDOM*

> *...getting US special forces on the ground early dramatically increased the effectiveness of the air campaign. In Afghanistan, precision-guided bombs from the sky did not achieve their effectiveness until we had boots, and eyes, on the ground to tell the bombers exactly where to aim.*
>
> Donald Rumsfield[67]

Operation *Enduring Freedom* featured the use of US and allied SF operating closely with allied aerospace forces in the air and local Afghan forces sympathetic to the US, now called the Afghan Military Forces (AMF), on the ground. Their aim was the elimination of the Taliban regime and destruction of the Al-Qaeda terrorist network.[68] Their enemy comprised indigenous Afghan Taliban, predominately foreign Al-Qaeda, and other

foreign allies of the Taliban. The terrain to the north of Afghanistan where many of the battles were fought featured elevations up to 2000 metres with one metre wide winding mountain paths and sheer rock faces.[69]

Biddle contends the success of US forces in OEF was not because of some unique Afghan Model, but rather a vindication of traditional joint warfare where close integration of fire and manoeuvre was the key to success. Biddle suggests OEF turned into a traditional campaign where some 60–80,000 troops fought for control of territory, and the Air Power–Special Forces combination in the application of precision firepower 'ultimately made the difference between stalemate and victory'. Biddle goes on to refute suggestions that the success achieved by the US, their allies and sympathetic indigenous forces was largely the result of local idiosyncrasies. He contends the enemy, especially the foreign forces who made up 25 per cent of the total strength, were highly motivated, resolute, well trained and quickly adapted to new conditions they faced by employing communications security, dispersal, camouflage discipline and use of cover and concealment.[70]

This section will provide examples of the characteristics of air power and SF on operations involving the application of precision firepower in Afghanistan during OEF. After each example analysis is provided on the relevance of this example to the factors affecting the application of precision firepower in the Australian context.[71]

Air Power – Concentration of Force, Reach and Payload in Operation *Enduring Freedom*

The remoteness of Afghanistan, paucity of nearby US bases, and desirability of long loiter times over the AO forced US planners to rely on B-1, B-2 and B-52 heavy bombers, supported by a significant air-to-air refuelling capability for tactical strike aircraft, to deliver the quantity of weapons required. Significant US diplomatic effort was expended to secure overflight clearances and establish the eventual 13 bases required to support OEF.[72] By March 2002, USAF heavy bombers had flown more than 48 per cent of the combat sorties, dropped nearly 7000 tonnes of munitions, and damaged 75 per cent of all planned targets.[73] B-1 and B-52 bombers flew from Diego Garcia in the Indian Ocean on sorties lasting 12–15 hours.[74] The B-2s flew from the Continental US (CONUS) striking targets in Afghanistan, then returning back to CONUS via engine running crew changes in Diego Garcia.[75] Carrier-based aircraft flew an average of 100 attack sorties per day and also depended on an extensive air-to-air refuelling capability.[76]

Analysis

The US' ability to transport and deliver by air significant tonnages of weapons over considerable distances was effectively demonstrated during OEF. Their ability to do this enabled targets to be struck across the length and breadth of the AO within very wide time windows. This flexibility would have greatly assisted SF, working in cooperation with air power, to designate the most suitable targets with few constraints regarding positions and time in the application of precision firepower. In the Australian context similar levels of concentration of force, payload and reach of air power central to this flexibility are unlikely to be achieved. The preponderance of US unique capabilities featured in this example, such as large numbers of heavy bombers, carrier based aircraft and extensive air-to-air refuelling capability, demonstrate the ability to deliver levels of concentration of force, payload and reach to such an isolated area that is beyond the capabilities of any other air force. However, the RAAF is able to carry and deliver significant quantities of weapons over a reasonable time period, but across a significantly reduced distance. In the factor of specifying position and time, this will allow some flexibility of target acquisition within the Air Power–Special Forces combination in less isolated areas that are closer to nations willing to provide/host forward operating bases.

Air Power – Precision in Operation *Enduring Freedom*

Approximately 60–70 per cent of the munitions dropped in OEF were PGM, with most being JDAM. JDAM kits convert 1000 and 2000 pound free falling bombs to near precision weapons with the addition of a strap-on package comprising a movable tail fin unit, fixed strakes and an inertial navigation system capable of receiving GPS updates.[77] JDAM achieved consistent CEP of 9.6 metres and feature selectable impact azimuth and direction as well as smart-fuses that allow selectable levels of target penetration before detonation.[78] JDAM are also reprogrammable in flight.

PGM were extremely effective during OEF when used in cooperation with US SOF on the ground. This was especially the case where the enemy presented themselves as exposed or massed targets, such as the destruction of a Taliban convoy approaching the AMF held village of Tarin Kowt on 18 November 2001. Taliban armoured vehicles and heavy weapons parked in the open were also destroyed using PGMs at Bagram on 10 October, Oimetan on 25 October, Ac'capruk on 4–7 November, and Polanyi canyon on 7 November. Crude foxholes were also regularly annihilated using JDAM. However, PGMs were not successful all the time such as at Bai Beche in November 2001 and during Operation *Anaconda* in March 2002. Al Qaeda's fighting positions at Bai Beche were well prepared and reinforced with overhead cover and were still being used to repel US supported forces after being bombed for two days. During Operation *Anaconda* 'one dug in Al Qaeda command post was found surrounded by no fewer than five JDAM craters, yet its garrison survived and resisted until they were overrun by US infantry'.[79] Many of these fighting positions made maximum use of natural concealment such as overhanging rocks and were located in the folds and chasms of the mountains.[80]

Analysis

The extensive use of PGM by air power in OEF, in cooperation with SOF, enabled weapons to be delivered with a great deal of accuracy. PGM were less accurate, however, against well prepared fighting positions that fully exploited natural features to conceal their positions. This reduced the probability of achieving the necessary precision in the application of firepower. In the Australian context, the RAAF is able to deliver Laser Guided Bombs (LGB) and is expected to be equipped with JDAMs within the next two years.[81]

Air Power – Responsiveness, Speed and Tempo in Operation *Enduring Freedom*

After four weeks of targeting Taliban's air defences, communications and military installations, air power shifted its focus to the direct support of friendly forces on the ground. Once the shift in focus took place the SOFreported they only had to wait 20 minutes from the moment a target was spotted to its destruction by air dropped munitions.[82]

Analysis

A response time of just 20 minutes from target designation to its destruction for unplanned targets is extraordinarily quick considering the significant distances most of the combat aircraft had to travel to just arrive overhead Afghanistan. The US aerospace forces' significant capabilities in the area of concurrent operations, payload and reach were the key determinants in achieving this high level of responsiveness and tempo. Australia's previously highlighted limited ability in these areas will restrict Australian air power achieving similar levels of responsiveness in isolated areas so far from forward operating bases. In areas closer to Australian forward operating bases, however, Australian air power could achieve high levels of responsiveness, speed and tempo.

The criticality of gaining effective control of the air before air power can cooperate with SF in the application of precision firepower was demonstrated in OEF. Before US aerospace forces could cooperate with SOF on the ground, some weeks were spent eliminating the enemy's very limited counter air capability. This is significant given the extreme capability mismatch between US aerospace power and Afghan counter-air capabilities before OEF. This demonstrates that control of the air remains an essential precursor before the inherently high level of responsiveness of air power in the Air Power–Special Forces combination can be considered in the application of precision firepower.

Air Power – Versatility and Special Forces – Jointness in Operation *Enduring Freedom*

On 4 March 2002 on top of a 10,000 foot mountain peak in eastern Afghanistan, a US Army Ranger platoon fought for their lives while attempting to rescue a Navy SEAL team. The Army SOF aircraft they used for their insertion was ambushed and crashed on landing. During the day they fought off elements of Al Qaeda helped by USAF SOF Combat Controllers directing USAF F-15Es. Overseeing this fight was an Australian SASR patrol that was accurately coordinating multiple air strikes to prevent Al Qaeda forces overrunning the survivors.[83] Approximately five miles above an USN P-3 circled and surveyed the engagement below. On board this P-3 was another Army Ranger and a Navy SEAL who assisted in providing force protection information

to the embattled Ranger platoon leader below. There was also a Marine officer assigned to the SOF Joint Operations Centre calmly and effectively controlling the crowded radio nets that were coordinating the close air support throughout the mission. Another Australian SASR patrol of four soldiers took part in the planning and execution of the successful recovery operation.[84] This Ranger mission was directed by an USAF Brigadier General who commanded the unit overseeing SO. Seven US servicemen died during this mission. Brown, the author of the original article, contends this number would have been substantially greater if it were not for the close cooperation from all elements of the four US services involved in this mission.[85] US commanders have also acknowledged the critical role Australian SASR soldiers played in this operation.[86]

Analysis

This mission is an outstanding example of SF and non-SF type forces working in close cooperation. It also provides an example of air power versatility where an USN P-3 designed for maritime surveillance and interdiction performs a key role in supporting embattled SOF operating on a mountain range in a land locked nation. In the Australian context, SOCOM does not have the specialised SOF helicopter capability and air force combat controllers featured in this example. However, Australian SF are required to have the ability to operate in close cooperation with all three Australian services. Since the exact details of the sensor and communication equipment that featured in this mission are unknown, it cannot be definitively stated that RAAF P-3 aircraft could also undertake similar tasks.

Special Forces – Assimilation and Unconventional Means in Operation *Enduring Freedom*

During the heavy fighting in November 2001, Chief Warrant Officer Diaz, an Arabic speaking US SOF soldier radioed excited Taliban leaders being hit by US air strikes, 'How far were the bombs from you?' Assuming they were speaking to one of their own, the Taliban answered him. The next round of bombs fell on their doorstep. Diaz later explained 'They would assume that since we were speaking Arabic, we were part of their forces. They would tell us, "The command headquarters is fine: the bombs hit 500 metres to our left." We continued to call on the radio until the command was eliminated.'[87]

Analysis

The actions by Chief Warrant Officer Diaz in fooling the Taliban leaders in order to refine his target position is an outstanding example of the SF characteristics of assimilation and jointness. Diaz was able to use his Arabic language skills to blend in with the cultural environment of the Taliban and gain the required information. This was also a good example of the characteristic of unconventional means. Use of both these characteristics enabled achievement of the factor of specifying position for the application of precision firepower. Australian SF are assessed to have similar characteristics of assimilation and unconventional means.

Special Forces – Persistence in Operation *Enduring Freedom*

In March 2002 during Operation *Anaconda*, every available stand-off reconnaissance system focused on a ten by ten kilometre battlefield to identify and locate Al Qaeda positions. Despite these efforts, less than 50 per cent of the Al Qaeda positions subsequently identified during the later battles were identified in this pre-battlefield reconnaissance. Most fire received by US forces during this operation was received from these undetected positions. The only way of target acquisition for most of the unidentified positions was by ground forces in direct contact with the defending forces located in these positions.[88]

Analysis

This is a graphic example of how the characteristic of persistence is so vital to the process of target acquisition required for the application of precision firepower. Even with the US' significant capability in stand off sensors focused on a comparatively small area, SF's characteristics of persistence was the key in determining the location of almost half the potential strike targets.

CONCLUSION

The Air Power–Special Forces combination has a powerful range of distinguishing features that mostly support those factors affecting the application of precision firepower. The individual characteristics that do not support the application of precision firepower are effectively obviated when air power and SF operate in close cooperation. Air power's distinguishing characteristics for the application of precision firepower are concentration of force, payload, penetration, precision, reach, responsiveness, speed, tempo and versatility. SF's characteristics for the application of precision firepower are assimilation, jointness, persistence, purposefulness and unorthodox means.

In this paper each of these characteristics has been analysed in relation to those factors that affect the application of precision firepower. These factors were assessed to be achieving precision, specifying time and position, required firepower and complying with LOAC and ROE. Most of the characteristics of air power and SF were found to reinforce these factors affecting the application of precision firepower. The exceptions were air power's characteristics of impermanence and SF's characteristics of lightness. The detrimental effect of these characteristics was found to be nullified in the Air Power–Special Forces combination.

Examples of most of these air power and SF characteristics during OEF in the application of precision firepower have been provided, followed by an analytical discussion of their applicability to Australian air power and SF. In general it was assessed that Australian air power and SF could offer limited levels of similar characteristics to those demonstrated by US SOF and aerospace forces in OEF. Of most significance when analysing the Air Power–Special Forces combination in OEF was the concentrated efforts made by US aerospace forces to gain effective control of the air over Afghanistan before any combat aircraft were made available to support ground based forces; and the severe degradation in precision when enemy forces stopped placing their heavy weapons and armoured vehicles in the open.

This paper has identified the essential characteristics of air power and SF that are inherent within the Air Power–Special Forces combination for the application of precision firepower as well as identifying how these characteristics influence those factors that affect the application of precision firepower. Real world examples taken from OEF have also been provided to highlight some limitations in the practical application of this Air Power–Special Forces combination. The revealing of these characteristics and their relationship to the application of precision firepower enables the essence of this combination to be more fully understood and recognised in the development of future joint doctrine and training.

GLOSSARY

AMF	Afghan Military Forces
AO	Area of Operations
CAS	Close Air Support
CEP	Circular Errors of Probability
CONUS	Continental US
GAPS	Ground-Aided Precision Strike
GPS	Global Positioning System
IRA	Irish Republican Army
JDAM	Joint Direct Attack Munitions
LCT	Liaison and Communication Teams
LGB	Laser Guided Bombs
LOAC	Law of Armed Conflict
OEF	Operation *Enduring Freedom*

PDF	Panama Defence Force
PGM	Precision Guided Munitions
POW	Prisoners of War
ROE	Rules of Engagement
SASR	Special Air Service Regiment
SEAD	Suppression of Enemy Air Defence
SF	Special Forces
SO	Special Operations
SOCOMD	Special Operations Command
SOF	Special Operations Forces
SRO	Special Reconnaissance Operations
UAV	Unmanned Aerial Vehicles
VC	Vietcong

ENDNOTES

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[2] S. Biddle, *Afghanistan and the Future of Warfare: Implications for Army and Defense Policy*, Strategic Studies Institute, US Army War College, November 2002, pp. iv, 2.

[3] ibid., p. iv.

[4] E.E. Theisen, *Ground Aided Precision Strike Heavy Bomber Activity in Operation Enduring Freedom*, Air University Press, Maxwell Air Force Base Alabama, July 2003, p. 1. It is unlikely these terms will stand the test of time, as they seem mere variations of more common air power terms such as offensive air support, close air support and strike.

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[7] ibid.

[8] United States Department of Defense, *Doctrine Dictionary*,
http://www.dtic.mil/doctrine/jel/doddict/data/s/04943.html, accessed
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[9] Royal Australian Air Force, *AAP 1000 Fundamentals of Australian Aerospace Power*, Aerospace Centre, Canberra, 2002, p. 123.

[10] C. Gray, 'Handfuls of Heroes on Desperate Ventures: When do Special Operations Succeed?', in *Parameters*, Spring 1999, p. 19.

[11] US Navy Rear Admiral (lower half) (selectee) William H. McRaven is a United States Navy SEAL who has recently been assigned as deputy commanding general for operations, Joint Special Operations Command, US Special Operations Command, see United States Department of Defense, *Flag Officer Assignments*, 19 August 2003,
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20 December 2003; W.H. McRaven's six principles of SO from his book *SPEC OPS: Case Studies in Special Operations Theory and Practice*, Presidio Press, Novato, 1995, is widely quoted by commentators writing about SF, SO and SOF.

[12] Dr Colin Gray is a professor of international politics and Director of the Centre for Security Studies at the University of Hull, England whose work has included studies on the past and future utility of SOF, see Gray, 'Handfuls of Heroes on Desperate Ventures', p. 4.

[13] Department of Defence, *Australian Defence Force Publication Operations Series ADFP 45 Special Operations*, Defence Centre, Canberra, 1997,

pp. 1-2, 1-3.[14] RAAF, *AAP 1000 Fundamentals of Australian Aerospace Power*, pp. 123–140.

[15] ibid., 123–124.

[16] R. Hill, *Budget 2003–04 New Defence Projects*, 54/2003, 13 May 2003; R. Hill,

Defence Capability Review, Media Release 142/2003, 7 November 2003.

[17] It is not possible to be any more precise concerning an approximate duration of persistence able to be achieved by RAAF aircraft without defining the context, such as distance of AO from operating base and aircraft tasking.

[18] RAAF, *AAP 1000 Fundamentals of Australian Aerospace Power*, p. 130.

[19] ibid., pp. 133–134.

[20] Theisen, *Ground Aided Precision Strike Heavy Bomber Activity in Operation Enduring Freedom*, p. 5.

[21] RAAF, *AAP 1000 Fundamentals of Australian Aerospace Power*, p. 135.

[22] ibid., pp. 135–136.

[23] ibid., p. 139.

[24] ibid.

[25] Department of Defence, *The Australian Defence Force Capability Fact Book*, 2003, p. 29.

[26] Department of Defence, *Operations Series ADFP 45 Special Operations*, p. 2-2.

[27] ibid.

[28] D. Horner, *SAS Phantoms of War: A History of the Australian Special Air Service*, Updated Edition, Allen & Unwin, Crows Nest, 2002.

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[30] McRaven, *SPEC OPS: Case Studies in Special Operations Theory & Practice*, pp. 8–25.

[31] Gray, 'Handfuls of Heroes on Desperate Ventures', pp. 2–4, 17.

[32] McRaven, *SPEC OPS: Case Studies in Special Operations Theory & Practice*, p. 1.

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[34] McRaven, *SPEC OPS: Case Studies in Special Operations Theory & Practice*, pp. 11, 19, 21.

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[36] McRaven, *SPEC OPS: Case Studies in Special Operations Theory & Practice*, pp. 16, 17.

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[40] McRaven, *SPEC OPS: Case Studies in Special Operations Warfare Theory & Practice*, pp. 252–255, 274.

[41] P. Harclerode, *Secret Soldiers: Special Forces in the War Against Terrorism*, Cassell & Co, London, 2000, pp. 496–505.

[42] Horner, *SAS Phantoms of War*, pp. 495–497.

[43] Department of Defence, *Operations Series ADFP 45 Special Operations*, p. 1–2.

[44] McRaven, *SPEC OPS: Case Studies in Special Operations Theory & Practice*, pp. 11, 13, 15–20.

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[47] Horner, *SAS Phantoms of War*, pp. 1–18, 390.

[48] McRaven, *SPEC OPS: Case Studies in Special Operations Theory & Practice*, pp. 4–7, 21.

[49] Horner, *SAS Phantoms of War*, p. 391.

[50] ibid., pp. 491, 501.

[51] Department of Defence, *Operations Series ADFP 45 Special Operations*,

pp. 2-1, 2-2.

[52] Horner, *SAS Phantoms of War*, p. 249.

[53] ibid., pp. 412–413.

[54] McRaven, *SPEC OPS: Case Studies in Special Operations Theory & Practice*, p. 21.

[55] ibid., p. 329.

[56] ibid., p. 67.

[57] Department of Defence, *Operations Series ADFP 45 Special Operations*, p. 1–3.

[58] Gray, 'Handfuls of Heroes on Desperate Ventures', pp. 12–13.

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[75] Theisen, *Ground Aided Precision Strike Heavy Bomber Activity in Operation Enduring Freedom*, p. 10.

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