Strategy, Air Strike and Small Nations

Shaun Clarke

STRATEGY, AIR STRIKE AND SMALL NATIONS

SHAUN CLARKE, RNZAF

AEROSPACE CENTRE
RAAF BASE FAIRBAIRN

Reprint 2001

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National Library of Australia
Cataloguing-in-Publication entry

Clarke, R.S. (Shaun), 1962- .
Strategy, air strike and small nations.

Bibliography
Includes index
ISBN 0 642 26547 X

1. Air power. 2. Air warfare. 3. Military doctrine. 4. States, Small. I. Australia. Royal Australian Air Force. II. Title (Series: Fellowship paper (Australia. Royal Australian Air Force. Air Power Studies Centre); 19).

358.4

Published and distributed by:

Aerospace Centre
RAAF Base
Fairbairn ACT 2600
Australia

Tel: (02) 62876563
Fax: (02) 62876382
e-mail: publications@aerospacecentre.com

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OTHER WORKS BY THE AUTHOR

The Regional Emergence of Strategic Missiles: A Force of Rooks for a Black King, Paper No. 55, Air Power Studies Centre, Canberra, June 1997.

Editor, *Testing the Limits*, Proceedings of the 1998 RAAF Air Power Conference, Air Power Studies Centre, Canberra, March 1998.

For Louise

ACKNOWLEDGMENTS

Sincere thanks are due to each of the staff members and fellows who contributed to the stimulating and creative environment under which I studied at the RAAF Air Power Studies Centre in 1997. In particular, I recognise Dr John Mordike for his friendship and encouragement; Mrs Sandra Di Guglielmo for her editing skills and good humour; Wing Commander Barry Sutherland for the sharing of his considerable knowledge; and Dr Alan Stephens for his mentorship.

I am especially grateful to Louise (the JFC of the Domestic AO, and also my 'best mate'), Jessica and Samuel for their unwavering support in everything I do.

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ABBREVIATIONS

AAA	Anti-Aircraft Artillery
AAR	Air-to-Air Refuelling
ABCCC	Airborne Battlefield Command, Control and Communications
ADF	Australian Defence Force
AEW&C	Airborne Early Warning and Control
AFB	Air Force Base
AI	Air Interdiction
ANZAC	Australia and New Zealand Army Corps
ANZUS	Australia, New Zealand and the United States
AO	Area of Operations
APSC	Air Power Studies Centre
AWACS	Airborne Warning and Control System
BAI	Battlefield Air Interdiction
BDA	Battle Damage Assessment
BSA	Bosnian Serb Army
C2	Command and Control
C4I	Command, Control, Communications, Computers and Intelligence
CAP	Combat Air Patrol
CAS	Close Air Support
CENTAF	Central Command Air Forces
COIN	Counter-Insurgency
CSAR	Combat Search and Rescue
DoD	Department of Defense
EW	Electronic Warfare
EZ	Exclusion Zone
FEAF	Far East Air Forces
FRY	Federal Republic of Yugoslavia
GDP	Gross Domestic Product
IADS	Integrated Air Defence System
ICBM	Intercontinental Ballistic Missile
ICRC	International Committee of the Red Cross
IRA	Irish Republican Army
JFC	Joint Force Commander
KLA	Kosovo Liberation Army
KTO	Kuwaiti Theatre of Operations
LOAC	Law of Armed Conflict
NAC	North Atlantic Council
NATO	North Atlantic Treaty Organisation
NZ	New Zealand
OCA	Offensive Counter Air
OODA	Observation, Orientation, Decision, Action
OOTW	Operations Other Than War
PGM	Precision Guided Munition
PLO	Palestine Liberation Organisation
POL	Petroleum, Oil and Lubricants
POW	Prisoner of War

RAAF	Royal Australian Air Force
RAF	Royal Air Force
R&D	Research and Development
RNZAF	Royal New Zealand Air Force
RRF	Ready Reaction Force
SAM	Surface to Air Missile
SACEUR	Supreme Allied Commander Europe
SEAD	Suppression of Enemy Air Defences
UK	United Kingdom
UN	United Nations
UNC	United Nations Command
UNPROFOR	United Nations Protection Force
US	United States
USA	United States of America
USAF	United States Air Force
USMC	United States Marine Corps
USN	United States Navy
USSBS	United States Strategic Bombing Survey
USSR	Union of Soviet Socialist Republics
W.A.	Western Air (Plans)
WMD	Weapons of Mass Destruction
WWI	World War One
WWII	World War Two

INTRODUCTION

At the very heart of war lies doctrine. It represents the central beliefs for waging war in order to achieve victory. Doctrine is of the mind, a network of faith and knowledge reinforced by experience which lays the pattern for the utilisation of men, equipment and tactics. It is fundamental to sound judgment.

General Curtis E. LeMay

The process of constructing, testing, analysing and revising air power's purpose, methods and procedures, is a complex and continuous one. The record of this process is called doctrine — a continuously updated collation[1] of both new and enduring beliefs about air power. As the process advances, so *the record* is advanced. Next year's record will be slightly different than this year's. Old history will have been reviewed to offer new understandings, new history will have been created by the year's military events, technology will have advanced to offer new directions, and human innovators will have been at work creating completely new possibilities.

The doctrine process, then, is an ongoing activity through which we distil, collate and record our experiences, thoughts and beliefs; and then test and amend those distillations in the light of new analyses, new ideas, new technologies and new experience. It is a cyclic activity which seeks no end. Its written texts do not pretend to represent some sort of solution. They merely record progress, marking the state of the art at time of publication — like pitons occasionally driven on an endless climb. There is no such thing as perfect doctrine — that is not the nature of doctrine. The utility of doctrine lies in the process itself, rather than in the prospect of a final solution or outcome.

The doctrine *process* is what military commanders, operators, logisticians and technicians join for the acquisition of a vital mental set — achieving attitudes, expectations, perspectives and knowledge through study of the books, papers, courses, exercises, conferences, debates and so on. It is a vehicle for learning.

The purpose of air power doctrine is importantly not to legislate. It is much more importantly to educate. It does provide the shared standards, fences, boxes, vocabulary and precedent which produce a discipline out of what might otherwise be a sea of observation and speculation. But it does not seek to provide checklists of actions or formulae for success. History teaches us that which might be regarded intelligent in air power purpose; and method varies extensively with environment and circumstance. The doctrine, therefore, cannot be prescriptive. It is not a wartime aid reached for on

[1] By the word 'collation' we do not mean to imply that air doctrine is always *written*. What we believe to be true about air power can exist collectively in the *minds* of those who practice it. The relative scarcity of written Israeli air power doctrine perhaps testifies to this. Air power practices in that country are, arguably, so consistently discussed, rehearsed and refined within a *real* threat context as to reduce the need for any aid de memoir on paper.

bookshelves at the moment of crisis. It is, rather, a peacetime aid to the development of wisdom and intuition in prospective decision-makers. It is at best heuristic — providing only general rules of thumb, but in such quantity and in such an overlapping fashion as to establish in those who study it a platform for sound judgement.

This book is written as a contribution to the air power doctrine process. It is an examination of an old topic from a new perspective and, as such, aims to generate new thought on its subject. It does not set out to legislate — suggesting new rules or procedures for the use of air power. But it does hope to contribute to education — influencing people in their views of air power's utility in conflict resolution. At least in part it will aim to challenge some of our traditional precepts about air power and hopes to encourage some thinking along less conventional lines.

The specific purpose of this thesis is to examine whether small nations can do strategic strike, and if so, by what methodology. *Small nations* and *strategic strike* may seem an unlikely couplet. After all, small nations have little or no history in strategic strike. The sheer scale of operation usually associated with strategic bombing has logically excluded small nations from the practice. Actually, it is precisely this assumption which the author wishes to test. The traditional correlation of strategic air operations with high mass and large distance may not hold in modern times. 'Small nation strategic strike' may not be the oxymoron it first appears.

There are two sources of motivation for this book. One is the economic imperative now facing small nations (and every other nation for that matter) to prepare *more economically* for the ultimate task of political conflict resolution by military force. As defence resources are reduced, emphasis must be placed on extracting maximum potential out of minimum inventory. This requires clearer identification of precisely what it is in political crisis management that militaries in general, and air power in particular, have the potential to do. It calls for greater focus on the most influential elements of the military repertoire, so that the greatest effect might be achieved for the least possible preparation and cost. Strategic strike has always been about a shortcut to victory. If it suggests economy, then it deserves attention in 'economically rational' times.

The other motivation for this book is an uncomfortable suspicion held by the author that small nations in their peacetime planning focus to an unhealthy extent on the American air power model. World-wide there is an apparent captivation with what is *possible* in the greater field of air power (usually under the guise of preparing for coalition), rather than with what is *practical* from air power based on indigenous stocks, equipment and organisation. A professional appreciation of the latest developments in information warfare, space-based systems, hypersonic flight, non-lethal weapons and so on, is a good thing for *all* states possessing air power (not just because of potential offensive stakeholdership through coalition, but also to provide for having to defend against such systems). At the end of the day, however, doctrine must provide for practical outcomes. The specific military repertoire of one's own nation must be fully and realistically understood in the contemplation and effective exercise of national power. Specific attention needs to be focussed not just on what is possible, but rather on what is possible for small nations.

Every nation has its own set of distinctive geographical, political, social, economic and cultural characteristics. Every military contingency occurs within a unique political and military setting. When individual nations approach basic doctrine for direction on how they might apply air power in pursuit of their national interests, they do so (or at least *should* do so) with the uniqueness of their own threats and circumstances foremost in mind. How would *we* fight the air battle? How do *we* justify our priorities? What grounds do *we* have for our force structure? How can *we* harness technology to improve our ability to fight?[2] Different nations should arrive at different answers to the same questions. Individual *small* nations too must search for their own answers. This book is involved in that search.

What is strategic strike? If it is what was done in the World War II Allied Air Offensive against Germany, and again in the Gulf War by Coalition air power against Iraq, then perhaps it does require resources beyond small nation or small coalition potential. If evidence points this way, then small nation interest in strategic bombing doctrine would *justifiably* be limited. On the other hand, if it turned out that the enormous *scale* of 'typical' strategic bombing operations was not actually the *operative* quality of such operations, then it may be that small nations should examine more closely their potential for a 'strategic' approach to strike. What is the essence of strategic strike and to what extent is it achievable by small modern air power forces? In what style might small nations carry out strategic bombing?

Some attempt has been made to write this work in terms generic to all small nations. However, given that the author is a New Zealand airman writing on an Australian fellowship, it is perhaps not difficult to guess which particular small nation alliance guides his thinking. There is a great deal of commonality between the respective histories, cultures and geopolitical circumstances of New Zealand and Australia. By at least some reckoning they constitute 'a single strategic entity'.[3] A strategic threat to one, especially where it involved territory, would certainly be a strategic threat to both. In alliance, the two nations could muster over 100 aircraft with a credible surface attack capability. Of central concern to this book is the apparent paucity of debate on the potential of such of force to undertake strategic bombing.

While the strategic school of air power thought has long championed the *independent* use of air power above any *supporting* involvement in land- and sea-based manoeuvre and attrition, the evolution of air power in New Zealand and Australia has not necessarily reflected this aspiration. Even now with F-111s well established in the Australian orbat, the peacetime training focus for both nations remains weighted towards operations in support of surface forces — close air support (CAS), air interdiction (AI), maritime strike, and so forth. Strategic strike is discussed, but such discussion arguably involves more rhetoric than method. Assumptions are popularly made about striking enemy *centres of gravity* to bring about a quicker end to conflict. However, a cursory examination of the aircraft numbers and bomb tonnages used to attempt such a methodology in places like Germany, Japan, Vietnam and the Gulf

[2] General questions raised by Air Vice-Marshal Sandy Hunter in the foreword to Group Captain A. Vallance, *Air Power: Collected Essays on Doctrine*, Ministry of Defence, Director of Defence Studies, UK, 1990, p. xii.

[3] Desmond Ball (ed.), *Air Power: Global Developments and Australian Perspectives*, Pergamon-Brassey's Defence Publishers, Australia, 1988, p. 635.

leads one to question what approach small nation strategic strike advocates have in mind.

New Zealand has 19 A-4K Skyhawks which are maintained for conventional offensive air support operations.[4] These operations are divided into four tasks: maritime air attack, air interdiction (AI), close air support (CAS) and a lesser air defence support role. Thus the New Zealand air strike capability is orientated strongly towards surface attack.

A recent decision to replace the A-4K aircraft will see the first of 22 upgraded F-16A/B aircraft arriving in 2001. A recent policy study has confirmed the three operational roles of CAS, AI and maritime strike as the best match with New Zealand's security requirements[5].

Australia has 31 F-111C & G strike aircraft making up a force element group which represents the most significant airborne power projection capability in the South-East Asian/Australasian region. Operational tasks include strike operations against all types of land targets, and maritime strike both independently and in cooperation with surface forces.[6] However, the F-111s most rehearsed utilisation lies in deep interdiction, offensive counter-air, and long range maritime strike.

Seventy-one RAAF F/A-18 fighters also maintain a substantial surface attack capability, but with tasking centred on operating 'with and in support (of) the Royal Australian Navy and Australian Army as well as other elements of the RAAF'.[7] While the F/A-18 lacks the reach and payload of the F-111C, it could significantly augment the longer range strike capability.[8] Approximately fifty per cent of Australia's operational F/A-18 hours are expended on ground attack, with air defence accounting for the bulk of the remainder.[9]

The bottom line is that a significant bombing capability exists within the current air strike elements of New Zealand and Australia. Overall however, with strategic strike lying at the bottom of the current listing of nine Australian defence roles in priority order,[10] and with New Zealand strike forces openly dedicated to offensive air support of surface forces, planning and resource allocation appears largely non-strategic in orientation.

[4] NZAP 701A, *The RNZAF Strategic Plan: 1998/99*, Air Staff, HQNZDF, Wellington, 1998, p. 5-17
[5] *Final Report of The Air Combat Capability Study* (Chaired by Sir Wilson Whineray), New Zealand Govt Publication (for official use only), October 1998, p. vi.
[6] AAP 1010, *Chief of the Air Staff's Planning Directive: The RAAF Plan 1996/97*, Department of Defence, Canberra, 1996, p. 2-8D-2.
[7] ibid., p. 2-8E-1.
[8] ibid., p. 4-13-4.
[9] Group Captain Brent Crowhurst (RAAF), estimates in discussion, Air Power Studies Centre, RAAF Base Fairbairn, 3 November 1997.
[10] AAP 1010, *Chief of the Air Staff's Planning Directive*, p. 2-5-1.

Strategic strike methodology and feasibility has simply not been considered in detail for small nations like New Zealand and Australia. Why? Between them, New Zealand and Australia have flown on the Western Front in France during World War I, in the Middle East and Greece, in Papua New Guinea and the Pacific during World War II, in Japan, Korea, Malaya, Borneo, and Vietnam, and more recently in the Gulf and Somalia. Both nations boast proud traditions in tactical air operations supporting surface forces[11]. However, neither has a history in the sort of operations commonly considered 'strategic'. The fact is that in each of the campaigns and theatres here listed, New Zealand and Australia have served under a greater partner. Until the Pacific campaign in World War II, they predominantly served within British Empire forces. Since that time they have predominantly served in American-led campaigns. It is arguable that the apparent shortage of study into the strategic potential of small nation air power is simply due to a lack of need. Filling subordinate roles in the strategic campaigns of much larger partners, most small nations have simply never had to examine their maximum individual air power potentials.

In the post-Cold War era, this is a less justifiable situation. Australia's post-Cold War commitment to establish its own operational theatre war-fighting capability is perhaps indicative of the changing attitudes. Australia aims to:

> ... acquire and to maintain the ability to deal with possible military threats to Australia without relying on the assistance of combat forces from another country (including the US)'[12]

Would strategic air strike feature in an Anzac coalition? It is timely for small nations to be asking new questions about their maximum air power potential. Can strategic air operations be mounted from within an orbat of, say, 100 relatively modern and well exercised surface attack platforms? If 100 isn't enough, what is? If 100 is enough, by what model or in what style might such an Anzac force carry out strategic bombing?

Part One of this two-part book is an examination of the theory and practice of strategic air strike. This will naturally open with some definitions, but those definitions may require some discussion. Producing a definition for 'strategy' has been attempted at great length by great thinkers over many centuries, and without final consensus; yet achieving a good understanding of the concept would seem fundamental to any study of air strike that is to be classified 'strategic'. An attempt will be made to distil some useful meaning for 'strategy' from the tomes.

The next step will be to define 'air power' and 'air strike', and to examine what specifically qualifies some operations as strategic. This will be followed by an examination of selected historical air strikes for their strategic content.

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[11] And contributing to air control.

[12] Ian McLachlan (then-Minister for Defence, Australia), *Australia and the United States into the Next Century*, Address to the Australian Institute of International Affairs Conference, Brisbane, 22 November 1996; see also *Australia's Strategic Policy*, Department of Defence, Canberra, 1997, pp. 29-30.

In Part Two, what has been established about the nature and history of strategy and strategic air strike will be reviewed with an explicitly small nation bias. We will start by discussing what defines 'small' for this purpose, and take time also to note a historical tendency for small nations to adopt large nation doctrine without adequate consideration of their own, usually limited, national capabilities.

In the chapter following, we will more closely explore the nature of war and the place of strategy, with a small nation bent. In an attempt to better define the small nation perspective, we will make three propositions about how such nations should view and approach military action and, more specifically, the use of air power. These propositions will lead us to a detailed examination of modern coercion theory, but again, with a small nation bias.

On the basis of everything established to that point, Chapter Seven will attempt to identify and describe a particular approach for small nation strategic bombing. The central issue being addressed will remain, throughout this work, whether there is an approach by which strategic effect can be produced using nothing more than small strike forces, or collectives of such forces.

Before wrapping up, Chapter Eight will briefly discuss creative strategic thinking and other factors which importantly underwrite a strategic approach to strike.

In simplified overview, then, this book sets out in Part One to examine the fundamentals of strategy and air power. In attempting to explain how aerial bombing might be used for strategic effect it spends some time exploring the history and evolution of that activity. Ultimately, however, it aims to discard as much of the stigma and tradition of strategic air bombing as possible, and to establish from basic principles what in essence it is. With some understanding thus established, its primary mission, in Part Two, is to explore the possible utility, for small nations, of a strategic approach to surface strike.

Before proceeding, some minor issues should be addressed regarding matters of scope and orientation. First, if not already apparent, *strategic air operations*, *strategic bombing*, *strategic strike*, *strategic aerial bombardment* and *strategic air attack* are used synonymously throughout this work.

Second, it need be noted that this book covers only one part of the air power spectrum. In the most basic of terms, air power has three generic applications: to see things (through surveillance and reconnaissance using visual and non-visual ranges of the electromagnetic spectrum); to move things (providing both inter- and intra-theatre deployment, maintenance and redistribution of force elements); and to destroy things. The strategic importance of information gathering and mobility (both in and out of war) are deserving of their own separate analyses. This dissertation, however, attends exclusively to the *destructive* application of air power.

Third, within the destructive use of air power, the specific utilities of counter-air operations, CAS, battlefield air interdiction (BAI), maritime strike, or any operational role in direct support of the surface situation, is not under specific examination here. The indispensability of these air strike applications in modern combat is well

documented elsewhere, and mention in this particular work is purely incidental to the main focus of strategic air strike.

In studying the specifically small nation utility of strategic air strike, it is desirable to isolate small nation and small coalition campaigning from the influences of larger nation involvement. The assumption of guaranteed superpower intervention tends to make obsolete many of the concerns regarding a given small nation's unassisted capability. Wherever any question over intervention exists, however, then independent small nation and non-superpower coalition potential deserves consideration. As professional contingency planners, we in the military are obliged not only to plan for contingencies within alliance, but to plan for the contingency of alliance failure itself. For the purpose of isolating small nation potential for study in this book, the failure of large nation intervention in small nation crisis is assumed. This assumption is not completely baseless, and Chapter Four will spend some time addressing its likelihood. In any case, contemplation of war without the company of a large third party is reasonable in this paper, because Australia is in the process of making preparation for just such a contingency. In any such situation, New Zealand would almost certainly become involved.

Finally, as a New Zealander, the author naturally writes about combat from a western democratic orientation. Air strike in this book is considered for its utility in *responding* to threat situations, and not for *generating* threat situations. Furthermore, the focus of this author is naturally biased towards *modern* air power states — those handicapped by issues of scale rather than skill, sophistication or adaptability.

This work is intended as a contribution to the doctrine process. The author recognises that nothing is absolute in doctrine (lest it become dogma) and that all premises and preconceptions about air power need to be regularly tested, even back to foundation principles and assumptions. This book aims to test existing beliefs, hoping to reinforce those that withstand scrutiny, and shake those which do not.

This is an investigation into the maximisation of air power potential, through strategy in air strike for small nations.

PART ONE

STRATEGY AND AIR STRIKE

Chapter One

THE NATURE OF STRATEGY

DECIPHERING THEORY

A single popular and precise definition for the noun *strategy* remains elusive. Military and, less commonly, non-military thinkers have speculated on its meaning for centuries; some standing on the shoulders of those who have gone before, and some on the faces. In 1966 Rear Admiral Wylie recorded his discontent with the lack of a general theory on strategy; discontent 'that strategy, which so clearly affects the course of society, is such a disorganised, undisciplined intellectual activity'.[1] He continued, 'as a subject of study, its intellectual framework is not clearly outlined, and its vocabulary is almost non-existent'.[2] Wylie like Andre Beaufre,[3] and indirectly, Basil Liddell Hart[4] (and others) have in relatively recent times written to improve that state of affairs, but in 1999 the intellectual chaos is no less apparent.

The concept of *strategy* has remarkably wide usage. While its origins are military, its modern applications are as common in the fields of government, commerce and social science as in the military. Perhaps ironically, the broad utility and popularity of the word has lead to some blurring of its meaning and diminishment in its value. So general has its meaning become that its removal from most sentences detracts nothing. Its use is often ambiguous, and sometimes confusing.

Even within the military context, one could be forgiven for struggling to make a precise connection between, for example, the NATO defined concepts of *strategic* intelligence, *strategic* air warfare and *strategic* transport aircraft as shown here:[5]

> **Strategic intelligence**: Intelligence which is required for the formation of policy and military plans at national and international levels.
>
> **Strategic transport aircraft**: Aircraft designed primarily for the carriage of personnel and/or cargo over long distances.

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[1] Wylie, J.C., *Military Strategy: A General Theory of Power Control*, Rutgers University Press, New Brunswick, New Jersey, 1967, p. vi.
[2] ibid., p. 8.
[3] Andre Beaufre, *An Introduction to Strategy*, English translation, Faber and Faber Limited, London, 1965.
[4] Liddell Hart, B.H., *The Strategy of Indirect Approach*, Faber and Faber Limited, London, 1941.
[5] *The US Department of Defense Dictionary of Military Terms*, Presidio Press, Novata, USA, 1991.

> **Strategic air warfare:** Air operations designed to effect the progressive destruction and disintegration of the enemy's war-making capacity.

Outside of the military, strategy wins elections, strategy sells car tyres, strategy dictates the placement of street signs, and people have strategies for cleaning their teeth. If a strategy is not simply a plan (and on that at least theorists agree) then what is it?

It is certainly not this author's intention to attempt a contribution to the lofty pursuit of greater meaning in strategy. It has however become professionally frustrating that a concept so fundamental to his *raison d'etre* is so inaccessible to the layman.

There is nothing profound in the following theory; it is merely put as the model by which this particular operator has personally conceptualised strategy for his own practical purposes. Its role in this book is to help situate general strategy for other frustrated laymen, and to detail a system of understanding which will help explain a perspective which re-emerges throughout this work.

There is a particular pattern which seems to recur in both natural and human systems. Figure 1.1 shows a tree made up of nodes (which might represent states) joined by links (which indicate alternatives). The schema has application to sequences in time, and to relationships in space.

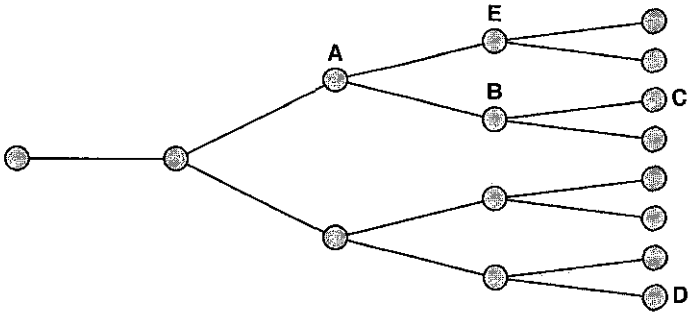

Figure 1.1 **Dependencies Construct**

With respect to time, any single event (say, event 'A'), besides occurring in its own right, will serve as a precursor to a range of possible downstream events. Without 'A' having ever occurred, 'B' can never occur; without 'B' having ever occurred, then 'C' can never occur, and so on.

The model also applies in space, or rather, irrespective of time. For example, nations are composed of states or provinces, which in turn can be composed of counties and cities, which in turn can be made up of townships and suburbs. The condition of a

nation will usually affect the condition of each state; influences on states will usually affect counties, and so on. Conversely, the condition of a county is unlikely to affect a nation.

There is nothing novel in this general concept. It exists in nature in the form of species evolution, family genealogy, and in the simple physical formation of trees themselves. It occurs equally commonly in human constructs such as statistical decision trees and organisational hierarchies. It is ubiquitous, and for want of a better title we might call it our 'dependencies construct'.

All events and states in nature occur within systems of dependencies. Nothing happens in isolation, all things happen as a result of combinations of others, and all things in turn have bearing on other events and states. *Strategy is a corollary of ubiquitous dependency systems. It only exists as a concept because all possible end states are dependent on prerequisite and corequisite conditions. Strategy is ultimately about the creation of those conditions; it is about the manipulation of context.*

The philosophy of strategy is a tempting digression. However, it is deeply and ably debated elsewhere. Our interest is limited to deriving practical value for air power. In this respect the dependencies construct has some important implications for the military strategist.

The first and most fundamental implication is that it suggests a mechanism for control. Strategy in its purest sense is about determinism rather than about control. That is, context occurs naturally. While we recognise that the dependency construct (and the related matters of context) occurs naturally (or by chance), it is its openness to human manipulation which is of great interest. We are interested in the utility of fabricated context.

In Wylie's estimation, '[t]he primary aim of the strategist in the conduct of war is some selected degree of control of the enemy for the strategist's own purpose'.[6] Strategy (or the creation of context) provides a mechanism for control. In the general field of human endeavour, few end states, whether they involve national victory or sexual seduction, are directly or spontaneously achievable. Most require preparatory manipulations of circumstance in order to manoeuvre the desired end state into an accessible position. The concept of strategy, when applied for control, recognises the need for certain conditions to exist before another more highly desired *downstream* situation might ultimately be achieved. If one were able to set the weather pattern for the day, one could control how people would dress; if one could control national interest rates, one could exercise some control over the inflation rate; through controlling hot house light and temperature, one can control the blooming time of flowers, and so on. In the military application, by manipulating the physical, temporal and psychological conditions and circumstances under which the enemy operates, one can influence his decisions.

[6] Wylie, *Military Strategy*, p. 91.

Strategy as a control mechanism provides a system by which desired states and events are facilitated (or even necessitated), and/or within which less desired outcomes are avoided. The mechanism offers particular utility where the ultimate aim is directly inaccessible. Control of accessible *upstream* states and events can produce a measure of control over less accessible *downstream* states or events. At least in theory, control can be achieved on quite grand scales by carefully selecting and manipulating the right upstream variables. *Establishing this link between cause and effect, between means and ends, is at the very heart of the art of strategy.*

The second point of note arising from the discussion above is that strategy, as a general concept, lacks specific meaning without a specific context. The concept is ubiquitous in its nature and, like gravity, its specific value is not so much in its existence as in its effects. For the effects of strategy (and gravity alike) to have meaning, the subject or object of those effects must be specified.

Our meaningful use of the concept of strategy relies on a well defined aim or end state. This aim serves to set a specific point of reference, relative to which all events and states can be generated or evaluated for their strategic relevance. Any state or event can have strategic value, but only relative to some directly or indirectly connected end state. In Figure 1.1, 'A' is of strategic value with respect to 'C', but it is of no obvious strategic value with respect to 'D'.

In the field of national or military strategy, any event or state generated can be evaluated as strategic only in relation to specific aims, normally those enunciated in policy. No event or state is strategic in itself, only in its effects relative to a specified aim. Gray makes a related point:

> Notwithstanding popular and official misuse of the adjective 'strategic', it is an error to think of any weapon as being inherently strategic ... (g)round forces, tactical air forces, naval forces, and long-range nuclear strike forces could all, in different ways, contribute strategic effect.[7]

Our use of strategy in the context of air power action requires an explicit aim to be identified in the first instance.

A third implication of our conceptualisation of strategy is that, relative to the aim, different states and events have different levels of strategic relevance, depending on the extent of their effects within a system of dependencies. This introduces the idea of *orders of strategy* (or strategic order).

In Figure 1.1, both 'A' and 'B' are of strategic relevance to 'C'. 'A' is considered of higher strategic relevance because it sets the context within which both 'B' and 'C' exist in turn. If 'C' is the aim, 'B' is strategic but it is so at a lower level than 'A'.

[7] Gray, C.S., *War, Peace, and Victory: Strategy and Statecraft for the Next Century*, Simon and Schuster, New York, 1990, p. 33.

In chess, the move to 'rook' one's king is a strategic move. The new disposition of the objective for the enemy causes a shift in the range of appropriate attack options and calls for a revised plan. It may even place the opponent in a defensive position. In so far as it affects *all* subsequent events, the move is a *high level* strategic one. The subsequent combinations of moves (whether offensive or defensive) may be no less strategic in *nature*, but will be of a lower order relative to the overarching move which initially made them possible or necessary. Similarly, where the aim might be to enhance national security, separate events involving ICBM procurement and field communications system upgrade are both equally strategic in nature, but the magnitude of their respective downstream effects is quite different. Both may indirectly contribute to the same ultimate aim, but one is carried out within the greater strategic context set by the other. They are of vastly different strategic orders.

A fourth observation, and one which is apparent within each of the above three points, is that *indirectness* is an implicit part of strategy. In essence, Liddell Hart's original theory of the indirect approach was concerned with avoiding frontal assault in land battles.[8] It focused on land attack matching strength with weakness, rather than strength with strength. The indirect approach involves identifying and exploiting options which contribute to the weakening or destabilisation of an enemy regime in preparation for a final decisive frontal assault (if indeed such an assault should still be necessary). In Liddell Hart's words:

> ... the aim of strategy must be to bring about battle under the most advantageous circumstances. And the more advantageous the circumstances, the less, proportionately, will be the fighting. The perfection of strategy would be, therefore, to produce a decision without any serious fighting.[9]

Liddell Hart's ideas have been extended with time to have applicability to general strategy rather than just to the battlefield.

While systems of dependencies were not his focus, there are elements of his 'indirectness' embodied in the model constructed above. Common ground lies in Liddell Hart's supposition that direct control can be economically substituted with less direct means which focus on the same end; and that conditions can be manipulated to weaken barriers to that control.

In many of its applications, the indirect approach separately exploits the same dependencies which make up our model. In our *dependencies construct* in Figure 1.1, any action against 'C' is a *direct* manipulation of 'C'. Manipulations of 'A', and 'B' through 'A', are *indirect* actions on 'C'. Liddell Hart observed that the direct approach was often inefficient or impractical, if not simply impossible. He demonstrated in his own terms, and with significant historical reference, the power of targeting *upstream* states and events to achieve an ultimate aim.

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[8] His original study of the strategy of indirect approach was written in 1929 and published under the title of 'The Decisive Wars of History'. (Liddell Hart, *The Strategy of Indirect Approach*, p. ix).
[9] B.H. Liddell Hart, *Strategy*, 2nd rev. edn, Frederick A. Praegar Inc., New York, 1967, p. 338.

The indirectness in Liddell Hart's strategy of the indirect approach is not so much a strategy in itself as an implicit and defining quality of all strategy.[10] It is not surprising that his observations have found more general use and have risen in popularity to something in the order of a general theory of strategy. For the strategist, *indirectness* (for all the benefits and efficiencies it can offer) is fundamental to business.

A fifth corollary of the dependencies construct is worthy of mention, namely, the collateral dimension to strategy. Context created or manipulated in aid of a greater downstream aim will also affect other events and states which may be outside the focus of the strategist in the same system of dependencies. In Figure 1.1, while 'A' is of interest for the access it affords to 'C', its existence or occurrence could also affect 'E'. As Gray writes, '(p)oor or negative and unintended strategic effect still lies within the scope of strategy'.[11] This presents an extra motivation for working to intimately understand the dependency relationships within enemy systems. In a scattered field of standing dominoes where one is knocked with the felling of one other in mind, how many extras will fall? Will they be desirable or even acceptable falls? International political support and public sensitivity to casualties are but two of the more common dominoes whose position is critical to the air power strategist.

As promised, this conceptualisation of general strategy is very simple. As an intellectual argument, it certainly lacks the detail and rigour which writers of books on this subject have achieved. However, it aims to do nothing more than establish a useful mental framework within which to more adequately understand the nature of strategy in its many applications. The dependencies construct accommodates most of the many diverse modern uses for the word.[12] Furthermore, it offers particular implications for the strategist; implications which will be apparent in our later handling of thought on strategic air strike. While the model is no great revelation, where it is not completely in step with the writings of the dominant thinkers on strategy, it is at least not inconsistent with any of their major directions.

Before we leave this area we might revisit those NATO definitions between which we previously struggled to find an obvious connection. Perhaps, for 'strategic intelligence' the *strategic* quality lies in the overarching and context-setting influence of any intelligence which contributes to the formulation of international policy with all its downstream effects. For 'strategic transport aircraft' the *strategic* quality lies in the mass change in the global disposition of military assets which will precede and, to an extent, predetermine the possibilities for subsequent manoeuvre. For 'strategic air warfare' (as least as NATO defines it) the *strategic* quality lies, perhaps, in the knowledge that air power can employ a top-down rather than bottom-up approach to destruction of an enemy's war making capacity. The connection plainly lies in the exploitation of dependencies: in each case the *downstream* effects (rather than the immediate effects) are the more important part of the operation.[13]

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[10] Liddell Hart, *The Strategy of Indirect Approach*, 1941.

[11] Gray, C.S., *Explorations in Strategy*, Greenwood Press, Westport, Connecticut, 1996, p. xiv.

[12] Although no attempt at accommodating the many loose or erroneous applications of the word need be made.

[13] Some would argue that this conclusion is too generous, and that perhaps NATO's authors never consciously examined the appropriateness of the adjective *strategic*. Again, one does remain aware that *strategy* is an oft misused word, and that in its erroneous applications it will have no relationship to

In summary, the following suggestions have been made regarding strategy:

- Strategy as a term is poorly understood and often misused.
- Strategy is a corollary of ubiquitous dependency systems. It is ultimately about determining outcomes by the creation of context.
- For the military, the concept of strategy offers a mechanism for control. As in any field which exploits strategy for control, correct identification of the linkages between cause and effect is crucial.
- Strategy is a general concept and lacks specific meaning without a specific aim. Within the context of air power, as for any practical field of application, any effective consideration of strategy requires an explicit aim to be identified in the first instance.
- Given a specific aim, different states and events have different *levels* or *orders* of strategic relevance.
- Indirectness is an implicit and defining quality of all strategy. In the sense that we (military strategists) wish to employ it, indirectness involves the manipulation and exploitation of critical relationships in dependency networks to most efficiently achieve the desired ends.
- Strategic actions, by their very nature, will always be accompanied by collateral effects.

As we move on to more specific applications of strategy in the air power context, it will be necessary to leave the schema presented in Figure 1.1 behind. It has served an heuristic purpose only. Without fear of reducing the value of the argument which has been put so far, it is important to note that the dependencies construct presented is a gross simplification of the real world. As a finite two-dimensional diagram in lieu of a complex three-dimensional network, it presents a demonstration of concept only. What is important is the principle that all states and events exist within systems of dependencies, and that those dependencies are available for clever exploitation by humans (especially in competition with others) for their own ends. The actual network for any given situation may be huge, complex and dynamic and quite beyond diagrammatic representation. Nevertheless, exploitation of such networks is the essence of strategy and is the fundamental principle by which military strategists operate.

STRATEGY APPLIED: NATIONAL STRUCTURES FOR CRISIS

Before moving on from the purer theory of strategy, it will be useful to also clarify a couple of specific aspects regarding strategy in practice.

Who makes strategy? There is sometimes confusion about the exact place of strategy-making in the greater business of national crisis management. This stems from the common use of 'strategy' in two separate senses: one describing the higher or 'macro' context-setting levels of the system, and the other describing the approach used within each of the levels to satisfy the particular objectives set.

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foundation theory. However, one is tempted to assume that the party who coined these NATO phrases had some common reason (however subconscious) for them to share the description of *strategic*.

In simplified form, a nation's structure for crisis management can be considered to consist of four levels in a hierarchy: grand strategic, military strategic, operational and tactical (see Figure 1.2). The grand strategic and military strategic levels can be rationalised as 'strategic' because, at those levels, interests are declared and policies are created which set the greater context for all subordinate levels of action. The grand strategic leadership (normally the government) sets policy and overarching objectives for all aspects of national function; the military strategic leadership sets policy and objectives which are subordinate to national objectives but which direct all aspects of military function. Each lower level has its own subordinate policy and objectives set (or at least approved) by the level above.

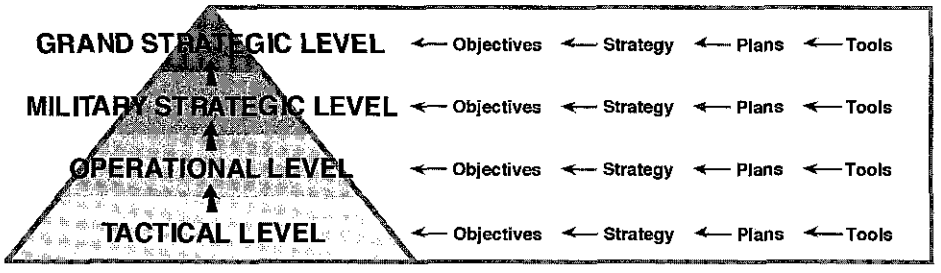

Figure 1.2 **National Crisis Management Hierarchy**

Specific objectives are essential to the provision of focus and for the channelling of energy and activity at lower levels. Strategy, at each level, exists in the service of these objectives (and, by the way, is required regardless of whether objectives are expected to draw opposition). In practical terms, such strategy is simply a description of approach — of generic means to ends — and as a matter of convention tends to be stated quite succinctly without reference to specific times or events. For example, consider Alexander the Great who, while having very strong land forces, was very much weaker than his Persian adversaries at sea. Rather than challenge the Persian navy on the water for control of the Mediterranean, he identified their 'centre of gravity' as the ports and decided that attacks on these would be the best way to overcome Persian sea power. This was his strategy; a simple expression of 'how' a particular manipulation of affairs might indirectly secure the desired objective.[14]

Once strategy is formulated, plans can be devised. These amount to more specific descriptions of 'what' will be done in accordance with strategy to achieve a given objective. There will be many options, or plans, to serve any given strategy. Plans are drawn from competing options for the most effective employment of (invariably) limited resources, or tools.

[14] Colonel John A. Warden III, *The Air Campaign: Planning for Combat*, Pegamon-Brassey's, Washington, 1989, p. 8.

The tools, or playing pieces, for grand strategists include military devices like air forces, economic devices like trade arrangements, and so on. The playing pieces for strategists at the military strategic level feature the likes of strike and airlift. At the operational level, the basic resource units for the strategist exist as wings and squadrons of aircraft. The tools at the tactical level comprise individual platforms and weapons. The lower down the hierarchy, the more narrow the objectives, the more specific the strategy, the more detailed the plans, and the more unitary the tools.

Linkages between the levels occur principally from each successive level setting or influencing the objectives of the level below. There is also a logical linkage between the chosen plan at each layer, and the adopted strategy at the next level down. In the case of Persian sea power, Alexander's plan may simply have involved identifying key Persian ports and deploying his armies to within striking distance. With this plan forming the root of a strategy at the operational level, Alexander's lieutenants could then have planned in turn, and could have chosen between, say, infiltration, sabotage or direct military attack. Their selected plan, in turn, would then have become the root of a strategy for agents at the tactical level. One man's plan is the next man's strategic guidance. The relationship is not perfect in practice: high level military plans seldom translate word-for-word into the next lower level's strategy. The influence of one on the other is nevertheless substantial, and vitally so. As plans become progressively more detailed in the lower echelons of the hierarchy, a consistent thread must be maintained in service of the ultimate grand strategic objective.

There are two major points to take away from this very brief positioning statement on applied strategy.

First, there are two distinct applications of the concept of strategy in national crisis management: one vertical and one horizontal. Vertically, the arrangement of the system is strategic in nature, with each level being of strategic importance — setting context through policy and objectives — for its subordinate level. Quite separately, in the horizontal flow of the schema, 'strategy' is used to describe the process of specifically identifying dependencies, so as to guide planners in the channelling of resources to satisfy the objectives of that stratum. In essence, therefore, strategists exist at every level of the organisation (we could say, in different strategic orders).[15] Second, since the objectives of each successive level are influenced by the level above, and since there is a general consistency between the plans of each layer and the strategy of the next, a continuity of purpose is provided throughout the structure. Energy flows from every part of the structure to its top. Every strategy-making effort or consequent action, no matter how far down the structure, should have some traceable relevance to the service of grand strategic level policy objectives. Every weapon released or fired should have some flow-on effect which contributes to the *ultimate* objective.

[15] Even at the lowest level, tactics can be seen as 'battlefield strategy'. D.M. Drew and D.M. Snow, *Making Strategy: An Introduction to National Strategy Processes and Problems*, Air University Press, Maxwell Air Force Base, Alabama, August 1988, p. 23.

For all this, our basic interpretation of 'strategy' remains unchanged. Even at the highest level of strategy formulation within governments, strategy is nothing more or less than a premeditated approach to goal attainment which features the systematic manipulation of conditions conducive or compulsive to the desired outcome. Air power is simply a tool, and the system of national crisis management simply represents the process by which method is invented for linking the potentials of that tool, and others, to the objectives of the state.

Chapter Two

THE NATURE OF STRATEGIC AIR STRIKE

DEFINING AIR POWER AND AIR STRIKE

What is air power? *Air power* has been described as 'the ability to project military force by or from a platform in the third dimension'.[1] In qualifying that definition it is important to note that the third dimension is used not merely as a medium for transit — as for a bullet or other projectile — but as a medium for manoeuvre, deployment, concealment and surprise.[2] Attempts at succinct definitions for broad concepts like air power always attract protesters, but significant consensus does seem to exist for this basic working definition. A popular working definition for 'strategic air power' would seem more elusive. The challenge is to define precisely what qualifies, as strategic, any one aspect of air power over another.

What is air strike? Air power is credited with many attributes including versatility, speed, penetration, range, pervasiveness and lethality. Collectively, in the role of air strike, these characteristics afford modern air power prosecutors the basic ability to attack and destroy targets with discretion. Air strike, for all its technical intricacies, represents nothing more complicated than the ability to destroy things, with a high degree of choice over timing and location, and with a significant measure of impunity. The expectation has always existed that such a capability might critically contribute to the achievement of national objectives in war. Despite the valuable lessons of aerial conflicts over the last 60 years, however, the age old questions still stand as to the precise connection between selective destruction, and the materialisation of downstream political outcomes. Knowing what and when to strike for maximum effect remains fundamentally problematic, and even controversial.[3]

DEFINING 'STRATEGIC' AIR STRIKE

From the section of Chapter One dealing with applied strategy it is apparent that ('horizontally' speaking) *all* air strike action is employed within some strategy, at whatever level of the process hierarchy. It is also apparent ('vertically' speaking) that *all* air strike action should contribute, however distantly, to strategic level objectives. If no connection can be traced between a given strike and a pursued political end state,

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[1] M.J. Armitage and R.A. Mason, *Air Power in the Nuclear Age: 1945-84*, Macmillan Press, London, 1983, p. 4.
[2] ibid., pp. 4-5.
[3] Squadron Leader S.A. Mackenzie (RNZAF), *Strategic Air Power Doctrine for Small Air Forces*, Air Power Studies Centre, Canberra, 1994, p. 28.

then the strike should not occur. Perhaps these considerations suggest a possibility that *all* air strikes are in some way strategic. However, this is not the common understanding. There is something which, in the common usage of the terms, distinguishes strategic air strike from other air strike. This section is about exploring that distinction, and providing a useful definition for the entity of strategic air strike.

Through history, the term 'strategic air operations' has become popularly synonymous with large numbers of aircraft carrying large weapons payloads over large distances to bomb large targets. As a natural corollary of this understanding it has also become associated with massive levels of destruction and death. The high impact of World War II Allied bombing campaigns on the minds of ordinary people is undoubtedly responsible for many of these lingering misconceptions. In the words of Noble Frankland, 'People have preferred to feel rather than to know about strategic bombing'.[4]

In one definition, strategic bombing has been described as 'the type of bombing which is directed against the enemy's war making capacity as opposed to his armed forces'.[5] In another, it has been described as air action 'designed to disorganise the enemy's internal economy and to destroy morale'.[6] In one curiously light-hearted description to be found in the United States Bombing Survey (collated soon after World War II), the following distinction is made:

> Strategic bombing bears the same relationship to tactical bombing as does the cow to the pail of milk. To deny immediate aid and comfort to the enemy, tactical considerations dictate upsetting the bucket. To ensure eventual starvation, the strategic move is to kill the cow.[7]

The analogy is a little coarse but there is value in it. Indeed, each of these basic definitions is an accurate description of what strategic bombing has been in historical terms: centred around attacks on nations rather than their militaries.

Strategic strike is, however, not necessarily what it once was. Technology and targeting methodology have undergone significant evolution. The grand scale bombing of cities in World War II Europe was Neanderthal air strike, and modern strategic air strike may require new definition.

Strategic Air Strike Defined by Equipment and Targets

During World War I, the role of strategic bombing generally involved striking high value targets deep within enemy territory. Aircraft designed for that task had to be able to carry an adequate 'dumb' bomb load, the fuel required for the entire return trip and the full weight of defensive armaments. The only general design offering adequate

[4] Noble Frankland, *The Bombing Offensive Against Germany*, Faber and Faber, London, 1963, p. 18. As cited in Andrew G.B. Vallance, *The Air Weapon: Doctrines of Air Power Strategy and Operational Art*, Macmillan Press Ltd, London, 1996, p. 109.

[5] Neville Jones, *The Beginnings of Strategic Air Power: A History of the British Bomber Force 1923-39*, Frank Cass & Co. Ltd, London, 1987, p. xi.

[6] *The Concise Oxford Dictionary (7th edn.)*, Oxford University Press, 1983.

[7] As cited in Michael Knight, *Strategic Offensive Air Operations*, Brassey's (UK) Ltd, 1989, p. 1.

capacity at the time was that of the heavy multi-engined bomber. Thus for several decades the role became synonymous with the airframe type.[8] The first exceptions to the stereotype occurred when heavy bombers were used against 'tactical' targets. In the Korean War (1950-1953) for example, the B-29 was used tactically in the interdiction role. Later, in Vietnam (1964-1972), B-52s were used for tactical strikes in the South. The boundaries were further blurred in that campaign when 'tactical' fighters were used in 'strategic' missions in North Vietnam.

It was the Gulf War which most conclusively demonstrated the irrelevance of the platform in the definition of strategic air operations. On the first night of the offensive, nine Army AH-64 Apache helicopter gunships flew in the *strategic* air campaign under the codename Task Force Normandy, destroying two early warning sites well inside Iraq.[9] Featuring more routinely in the Gulf War strategic air campaign were F-117A Nighthawks, F-111Fs and F-15E Strike Eagles. As 'fighter-bombers' these aircraft are principally designed for the bombing of ground targets but are generally no bigger than typical fighter aircraft.

In essence, through modern technology and revised tactics the classical role of bomber aircraft can now be achieved by much smaller airframes. Precision weapons offer the same destructive power on target with markedly smaller weapons loads; air-to-air refuelling negates the need to carry large fuel loads for long missions; and self-protection armaments have increasingly been replaced by electronic warfare technologies, or made largely obsolete by stealth.

The South Atlantic campaign of 1982 offered a demonstration of the versatility of air power and the waning distinction of missions by aircraft type. In that conflict the RAF converted Harriers for operations off ships; Victor tankers for maritime reconnaissance; Vulcan bombers as long-range missile carriers and air-to-air refuellers; Hercules transporters for tanking and maritime surveillance; and Nimrod maritime patrol aircraft even picked up a modest air-to-air combat capability.[10]

The loss of the connection between aircraft type and mission type is also obvious in basic modern aircraft design. The economic imperatives faced by modern defence forces have seen an increase in emphasis on multi-roling. Indeed, the ability to both fight and bomb is now a basic requirement in the world's latest generation of offensive aircraft, including those of the Joint Strike Fighter and Eurofighter programs.

In essence, a modern definition for strategic operations seems unlikely to be found in the specifications of aircraft employed in its execution.

Another possible criterion for the strategic qualification of operations lies in the nature of the target. Unfortunately, this distinction also seems obscure. The tradition of strategic bombing was born in World War I and World War II where target lists

[8] Richard G. Davis, *Strategic Air Power in Desert Storm*, Air Force History and Museums Program, USAF, undated, p. 30.
[9] ibid., pp. 24-25.
[10] Knight, *Strategic Offensive Air Operations*, p. 44.

tended to include cities, ports, factories, raw material supplies and headquarters facilities. Perhaps the unifying characteristics of such targets were that they all generally existed deep behind enemy lines, and that each justified dropping large bomb tonnages. However, more recently, the Gulf War saw bridges and even the fielded Republican Guard included in the strategic air campaign target list.[11] Such inclusion was based, not on the geographical or dimensional qualities of the targets, but on the political-military effects their destruction was anticipated to have. The Republican Guard, for example, was seen as the linchpin of Iraq's political status in the region. Therefore, for Coalition planners, the destruction of its Republican Guard was seen to be consistent, and directly contributive to strategic aims.[12] A target set which might normally have been placed in the BAI or combat support categories was instead seen as strategic through its high level political significance.

In essence, it has become increasingly clear that the strategic quality of particular air operations is defined not by the target, the platform, the weapon nor the distance flown, but by the objective of the mission.[13] This needs to be incorporated in any useable definition of strategic air strike.

Strategic Air Strike Defined by Effect at the Strategic Level of War

Colonel Phillip Meilinger maintains that air power is an *inherently* strategic force. He notes that there was a time when militaries were bound to fight militaries directly — when the vital centres which supported and commanded militaries were well behind enemy lines and were, as such, largely inaccessible. Enemies were forced to pitch their militaries into competition on battlefields as the only means of breaking through to the vulnerable heartland of their opponent. Only when the military defences were broken was an attacker able to access the really vital organs of the enemy.[14]

It was not always necessary for the battlefield victor to actually destroy the vital organs of the enemy state because of the obvious ease with which that might be done after military annihilation. Military annihilation obviated national annihilation. Total victory was conferred by military victory.

Meilinger reminds us that many still cling to the primacy of victory on the battlefield, and he cites a prominent military historian who wrote, 'according to Clausewitz and common sense, an army in wartime succeeds by defeating the enemy army. Destroying the ability of the opponent's uniformed forces to function effectively eliminates what stands in the way of military victory'.[15] Meilinger, in contrast, contends that this particular mechanism for beating another nation has become unreliable. With the increase in the size and sophistication of fighting forces, decisive military victory has for a long time been elusive. More land wars have been indecisive

[11] Davis, *Strategic Air Power in Desert Storm*, p. 38.
[12] ibid., p. 39, footnotes.
[13] Alan Stephens, *Alive and Well: The Air School of Strategic Thought*, APSC Paper No. 49, Air Power Studies Centre, Canberra, 1996, p. 21.
[14] Colonel Phillip S. Meilinger, *Ten Propositions Regarding Air Power*, APSC Paper No. 36, Air Power Studies Centre, Canberra, 1995, p. 5.
[15] Martin Blumenson, 'A Deaf Ear to Clausewitz: Allied Operational Objectives in World War II', *Parameters 23*, Summer 93, p. 16. As cited by ibid.

than decisive.[16] As a mechanism for national influence, land wars have predominantly been bloody failures.

The advent of air power offered a new mechanism. It provided a means of ignoring the battlefield by overflying it to strike at the source of the threat rather than its facade. It is suggested that, 'Air power changed things by compressing the line between the strategic and tactical levels. Aircraft can routinely conduct operations that achieve strategic level effects'.[17] Moreover, less bloodiness and greater decisiveness were promised by the ability to strike at the weaknesses and vulnerabilities of an enemy, rather than its strengths.

How do Meilinger's comments contribute to a possible definition of strategic air strike? Meilinger's proposition about the inherently strategic quality of air power focusses on its potential against targets at the strategic level of war-fighting, that is, the level at which '(w)ar and peace are decided, organised, planned, supplied and commanded'.[18] The vital centres through which a nation coordinates its natural resources, industries and population to raise, equip and sustain its military forces are seen here as the real prizes of war. They are seldom accessible to land and sea forces, but fall well within the ambit of air power.

The suggestion that strategic air operations are those which target the strategic level of war-fighting is an interesting one, and very tempting as a modern definition. However, such a definition would have a couple of shortcomings. The first problem lies in the assumption that there is a useful practical delineation between the levels of war. The difficulty is in distinguishing between targets that are of relevance to the strategic level of war and targets which are not. To illustrate the point, consider the logistics chain. Supply at the front line depends on a system (working backwards) from company stores, to divisional supply dumps, to roads and railways, to transport depots and rail heads, to factories for production, to raw material processing plants, to raw material transportation systems, and eventually to the farms, mines and sea-lanes which represent the sources of basic materials. The chain potentially goes on to incorporate the third party nations which might be the true origin of some raw materials, technologies, or finished products. In looking to apply air strike in a strategic manner, one is faced with a puzzle: at which stage can the target be considered to sit at the strategic level? At which stage of the continuum does the delineation between the operational and strategic level of war occur? While it is tempting to provide guesses, any delineation would be arbitrary and largely meaningless to the Joint Force Commander.

A second but related problem is that definitions centring on the strategic level of war fail to account for what might be called *the strategic application of air power at the other levels of war*. Bearing in mind the observations made in Chapter One, we can illustrate this point by picturing, at the tactical level of war, a friendly land force combat unit with a some specific objective. Where air power is applied to manipulate

[16] For a 'grimly pessimistic view regarding the inherently indecisive nature of land warfare' Meilinger recommends Russel Weigley, *The Age of Battles: The Quest for Decisive Warfare from Breitenfeld to Waterloo*, Indiana University Press, Bloomington, 1991.
[17] Meilinger, *Ten Propositions Regarding Air Power*, p. 6.
[18] ibid., 5.

the *context* within which that unit operates (to increase its advantage) without *directly* involving the unit, the application should be considered strategic with respect to the specific objective. Examples of such manipulations include battlefield reconnaissance and battlefield air interdiction.

Reconnaissance will clarify the nature and disposition of the enemy for the friendly commander in the field. Ideally, it should provide him with a level of 'big picture' awareness which will affect his conduct of the battle with real *downstream* ramifications on the course and outcome of the conflict. Such information is of strategic significance to his aim.

Battlefield air interdiction will be strategic to friendly force manoeuvre through interference with command, logistics, and communications dependencies. It will indirectly affect the strength, or at least the sustainability of an enemy unit in combat, and will thus revise the conditions or the context within which the friendly commander on the ground decides and acts.

In essence, by its very nature, aerial attack lends itself to a predominantly strategic style of application, at all levels of war. The natural qualities and limitations of *any* tool will dictate, to a large extent, the ways in which that tool should be utilised in battle. In combination, many of air power's most basic qualities dictate that its engagement will tend to be strategic in nature. First, it has ubiquity or freedom of movement, providing mobility unimpeded by natural land or sea barriers. Second, it has speed and range, proffering rapid application at great distance. Third, and as a limitation, it suffers impermanence: it cannot maintain a permanent presence and hence is usually applied in a brief and interventionist rather than constant manner. Collectively, these characteristics mean that offensive air power has largely uncensored access to any node in any system of dependencies, but that it can do no more than attack that node and then retire. The real utility of air power does not lie in some ability to produce and sustain a situation, as surface combat forces do. Instead, its value lies in the *consequences* of its action. Like a hand reaching onto a board game, adding or removing vital playing pieces for the players and then withdrawing, air power reshapes conditions and sets context for the downstream advantage of friendly forces. As existing doctrine states, '(A)ir power cannot hold ground in the conventional sense, it can (merely) establish the conditions whereby land and sea can be occupied by friendly surface forces'.[19]

Offensive air power is *indeed* inherently strategic; but this is no less true at the tactical level of war where downstream effects will be strictly military, than at the strategic level of war where effects may be more political in nature.

As an aside, there is one class of offensive air power action which is much more difficult to rate as strategic. This class involves the most direct form of surface combat support, namely close air support. The purpose of close air support is to attack front line enemy forces on the ground. In the most general terms, one of two outcomes is sought by surface contestants at the front line: penetration of the enemy line; or

[19] *DI(AF) AAP 1000: The Air Power Manual (2nd edn)*, Air Power Studies Centre, Royal Australian Air Force, 1994, p. 40.

manoeuvre to its flank (with a view to penetration). The offensive application of air power is to create holes in the enemy line for friendly forces. The defensive application is to stop enemy penetration or lateral manoeuvre by halting attacks, guarding flanks and covering retreats. In either application the role of air power is reduced to a form of flying artillery. Any strategic utility is difficult to identify when air power is applying force directly to the same targets as its corresponding ground forces. It simply becomes a supplement to surface combat power.[20] It is tempting to label such sub-optimal use of air power as a misappropriation. Certainly, it has been said that 'the advantage of air power is lost when it is misemployed on a task more suited to surface combat power'.[21] However, while it is notably less cost-effective than other ground fire options where they exist, it may be indispensable where surface-to-surface weapons are incapable of accomplishing the same task, or where urgency demands all available firepower.[22]

This author agrees strongly with Meilinger's basic proposition, but in an extended fashion. Air power *is* inherently strategic, but not just through its remarkable and somewhat unique utility in accessing organs at the strategic level of war. While the overall leverage may be greater at the strategic level of war, air power is strategic at all levels of war, with few exceptions. The temptation to define strategic air operations as those which relate purely to the strategic level of war, therefore, underestimates the greater inherent strategic utility of offensive air power action. We have not yet, therefore, reached a perfectly satisfactory definition.

Strategic Air Strike Defined by Intended Outcome

In subtle contrast to the definition of strategic air power as that which attacks at the strategic level of war-fighting (that is, supporting industries, populations, natural resources and so on), we might consider it instead as air strike which affects the actual strategic objectives over which war is fought.

In Figure 1.2 we noted that objectives are established at each level of the crisis management hierarchy — that they exist for executives at each of the levels of war-fighting. Within the hierarchy, each unit objective must contribute in some way to the objectives of a higher level unit. Ultimately, within the hierarchy, all objectives are set to make some contribution to the achievement of the ultimate outcome — the strategic objectives (see Figure 2.1).

[20] Robert A. Pape, *Bombing to Win*, Cornell University Press, New York, 1996, pp. 77-79.
[21] *DI(AF) AAP 1000: The Air Power Manual (2nd edn)*, p. 38.
[22] ibid., p. 109.

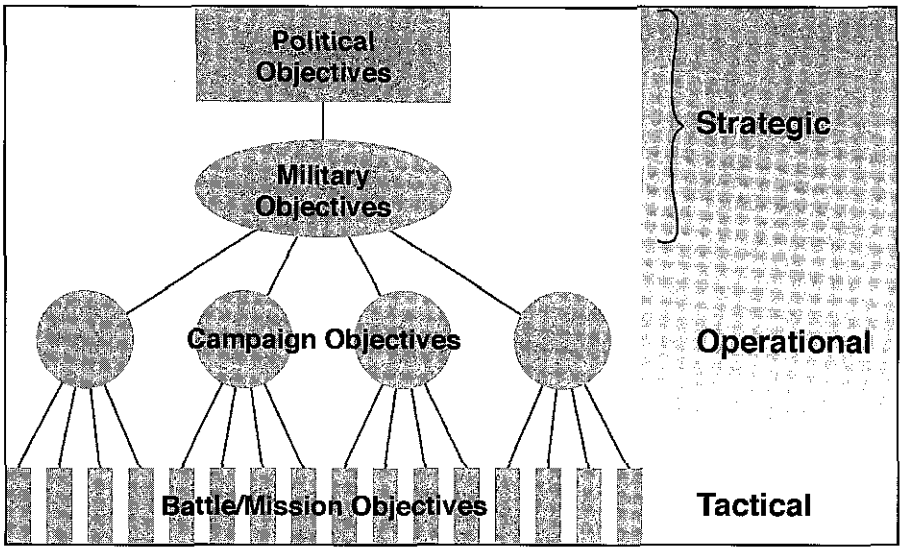

Figure 2.1 **Hierarchy of Objectives**

The degree of directness of the contribution of a particular air action can be judged by an assessment of the level of objective which it serves. While offensive air operations will be, as has been argued, strategic *in nature* at each of the levels, the higher the level of objective served, the more strategic *in effect* it will be. That is, the more direct and immediate the effect on the ultimate purpose of the conflict, the broader the range of related downstream situations affected. For example, in a situation where an enemy force holds a piece of one's sovereign territory, the operational objectives may require bombing to reduce the ability of the enemy force to stand its ground. The strategic objective might be to have the enemy government relinquish the policy underwriting the invasion. If that strategic objective can be achieved by, say, direct actions against the enemy government, then the effects would be truly strategic in that all subordinate level enemy objectives would become obsolete.

Historically, military actions have predominantly promoted friendly and undermined enemy objectives at the tactical or operational levels of war (producing directly military outcomes with later effects on strategic goals). However, air strike has been long credited with the capacity to more directly or immediately affect the greater political objectives, that is, to have direct strategic level outcomes. This is the strategic application of air strike in which we are interested. It is potentially the most potent, and actually the most elusive application of air power.

Alan Stephens summarises the essence of the air school of strategic thought as having been, and remaining 'the search for a combination of ideas and technology which facilitates the *immediate* and *rapid* pursuit of *strategic outcomes* from the very onset of hostilities'.[23] The 'strategic' outcomes are the ultimate political outcomes. The

[23] Stephens, *Alive and Well*, p. 1.

immediacy referred to stresses the directness of the air strike's effects on those political outcomes.

The critical elements of this statement appear in at least one other authoritative description of strategic air operations. The multinational Strategic Aerospace Warfare Study Panel (to which Stephens also contributed) has defined the strategic application of air power as 'the *direct* pursuit of *primary* or *ultimate* political-military objectives through aerospace power'.[24]

This is the definition of strategic air power which will best serve this book's purpose — the search for an approach by which small nations might maximise the utility of a basic air strike capability. It does not focus on the inherently strategic *nature* of air strike, nor particularly on the application of air power against targets at the strategic level of war, but on the use of air strike to generate *strategic effect* — in particular, the direct influence of critical decision-makers.

In view of this work's small nation focus, coverage of the *space* aspect of 'aerospace' (in the above definition) will be limited and consideration of nuclear strategy will not be made. The next chapter is a brief historical review of some landmarks in the evolution of air attack in its higher strategic order applications.

A NOTE ON 'STRATEGIC ORDER'

The concept of *orders of strategy* introduced in Chapter One will be made more use of in following chapters. That is, some air operations will be considered of high strategic order and others of relatively low strategic order. This recognises the need to distinguish between offensive air power actions of *macro* level influence on the overall war, and those of *micro* level influence on the war. The concept of strategic order acknowledges arguments made in Chapter One, but is also illustrated in Figure 2.1 above. Strategies serve objectives. Just as the objectives might be ranked hierarchically, so might the strategies that correspond to each. Higher order strategies serve higher order objectives. The strategic application of air power referred to in the chosen definition above distinguishes only the *highest order* strategic air operations. Interdiction would be an example of a relatively low order strategic air operation. This new terminology will be of significant value.

[24] Strategic Aerospace Warfare Study Panel (SAWS), *Aerospace Power for the 21st Century: A Theory to Fly By*, Unpublished, Maxwell Air Force Base, Alabama, 4 October 1996, p. iv. The SAWS was assembled in late 1995 under the direction of the Chief of Staff United States Air Force and the chairmanship of Dr James A. Mowbray (Air War College). Some 16 international experts participated in a series of meetings to study strategic air warfare in the 21st century.

Chapter Three

SAMPLES FROM HISTORY: RAISING THE STRATEGIC ORDER OF AIR STRIKE OPERATIONS

INTRODUCTION

When man first achieved flight, the nature and patterns of war had already been comprehensively studied and documented for over two millennia. Flight offered vast new strengths to the warrior, but the full potential was not immediately obvious. The basic challenge of how to harness the fundamental characteristics of flight to enhance the prospects for victory in war remains the subject of significant evolution today.

As an offensive capability, air power greatly broadened the target options beyond those of the conventional battlefield. Thus, as much as having to understand how air power could be applied to existing understandings of war, air power inspired the revisitation of war itself — asking whether there might be radical new ways of achieving war's aims. In history we can see a long series of attempts to take air power off the conventional battlefield, and elevate it to higher strategic applications.

The following are synopses of some particularly significant episodes and events regarding strategic air power this century. Our prime interest is in the application of that power at the highest level where it offers the most direct pressure to the political parties and their objectives. Where the high order strategic application of air power was not achieved we might ask why. In such cases we might also ask how air power was used or misused instead. The need for brevity limits the depth of treatment, but this sample should provide a useful refresher on some of the past strategic air power successes and failures which make up the database for contemporary debate.

The pre-World War I period is examined for the origins of air strike. World War I is briefly covered as the crucible for the new and struggling capability. The inter-war period is examined for having delivered the dominant air power theorists and strategists of the century. The Allied bomber offensive of World War II is explored as the first major concerted attempt at concentrated high order strategic bombing. Vietnam and Korea are briefly examined for the high strategic orders of air strike which they did not deliver, or were slow to deliver. The Gulf War is reviewed as the most complex, intense and carefully orchestrated large scale strategic air campaign so far. The air war over Kosovo is examined as the most recent application of strategic air strike, and the first not to be accompanied by significant surface forces. Within the chronological sequence of these events, three smaller and less complex strategic air actions are reviewed for the extra relevance they might have to small nations.

The reader will note in this section that, except where it is unavoidable or of some particular interest, aircraft types and specifications have been omitted in order to raise the discussion above the traditional fixation with technology.

THE ORIGINS OF AIR STRIKE

In 1670 Father Francesco de Lana-Terzi wrote about the feasibility of building an 'aerial ship' and included the prospect of using such a vehicle as a weapon of bombardment. The advent of lighter-than-air flight in 1783 quickly attracted military attention and various 18th and 19th century campaigns (including Napoleon's) were supported by reconnaissance balloons raising observers to better vantage points on the battlefield.

The motivation for the Wright brothers to achieve heavier-than-air powered flight at Kitty Hawk in 1903 was not a military one. They did, however, later proclaim their invention to be 'a certain means of ending war'.[1] Despite that optimism, military developments in aviation were slow to follow and for years aircraft were seen as little more than a fad for engineers, manufacturers and gentry in Britain and France, and a fashion for nobility in Germany and Japan.[2]

Various experiments were carried out with bomb dropping and the mounting of machine guns and aerial cameras, but by the outbreak of World War I aeroplanes were still largely considered by the armies of the world as novelties useful only for reconnaissance. Indeed, when Britain entered the fray in 1914 her total stockpile of purpose-built aerial bombs consisted of 26 twenty-pounders.[3] Most other major European powers were only marginally better prepared: aircraft engines were generally unreliable, weapons were not fitted, and a coherent purpose for the various assortments of monoplanes and biplanes was at the time far from clear.

The Italians were the exception, having already taken their veteran air force to war with purpose in Libya, in 1911. The first application was in 'strategic reconnaissance' with observers travelling up to 260 kilometres per day to locate surface forces and plot enemy fronts. The core business of air power remained observation, but trials throughout the Libyan operations achieved a number of other firsts. Of particular interest, on 1 November 1911 Second Lieutenant Giulio Gavotti became the first aviator to drop bombs. At 4.4 pounds (2kg) each they were little more than hand grenades thrown over the side by the pilot after pulling the pin with his teeth.[4] Nevertheless, the act represented the birth of air strike.

[1] John W.R. Taylor and Kenneth Munson, *History of Aviation*, Octopus Books Limited, London, 1972, p. 122.
[2] Robin Higham, *Air Power: A Concise History*, Sunflower University Press, Manhattan, USA, 1988, p. 1.
[3] Taylor and Munson, *History of Aviation*, p. 122.
[4] Higham, *Air Power*, p. 12.

The new capability was impressive. Indeed, a correspondent attached to the unit recorded the somewhat prophetic thought: 'This war has shown clearly that air navigation [*sic*] provides a terrible means of destruction. These new weapons are destined to revolutionise modern strategy and tactics'.[5]

THE FIRST WORLD WAR — EXPERIMENTS IN AIR STRIKE

The First World War was the first large air war. While bombing capabilities were rudimentary at first they evolved quickly. In just four years they grew from the dropping by hand of 20 pound (nine kilogram) grenades from frail 80 horsepower platforms, to the delivery of up to 4000 pounds (1814 kilograms) of weapons payload over large distances by multi-engine platforms with wingspans exceeding 100 feet (30.48 metres).[6]

In general, the offensive use of World War I air power can be summarised into two orders: those directed at military targets outside the reach of tactical surface forces (including ammunition dumps, supply routes, and factories); and those directed at civilian populations in major cities for psychological purposes.

Examples of purely military targeting include the French and British raids against German rear areas in occupied France. The French were the more advanced in pre-war preparations with several squadrons of Voisin 'pusher' bombers. Within weeks of the outbreak of war they had launched the first bombing attacks (against targets behind German front lines). Within a few months the British (through their Royal Naval Air Service) had also made attacks — theirs against Zeppelin sheds and supply depots. While some attacks enjoyed success, history records some woeful failures. In the first British raid on Zeppelin sheds in Dusseldorf and Cologne, only one of the four aircraft got through, and the one bomb which exploded missed the target.[7]

Italy's entry into the war on the side of the Allies on 24 May 1915 brought with it some significant developments in the field of strategic bombing. While some of the raids were against towns (notably the first against Ljubljana on 18 February 1916), the Italians were noted for the amassing of large numbers of aircraft against individual military strategic targets. These included numerous attacks against Austrian army headquarters behind enemy lines and on the Austro-Hungarian naval base at Pola. The last such raid was carried out on 22 October 1918 by 198 Caproni bombers and flying boats.[8] Of note, under the command of 'Billy' Mitchell in 1918, the French-US armada of almost 1500 aeroplanes (the largest concentration of air power up to that time) also used formations of up to 200 aircraft in the Meuse-Argonne campaign.[9] Nevertheless, limitations in technology — especially weapons size — and delivery accuracy proved significantly constraining and even the largest attacks produced mixed results.

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[5] As cited in Taylor and Munson, *History of Aviation*, p. 122.
[6] ibid., 127.
[7] Iain Parsons (ed.), *The Encyclopaedia of Air Warfare*, Ure Smith, Sydney, 1975, p. 27.
[8] ibid., p. 33.
[9] Encyclopaedia Britannica, 15th edn, Micropaedia Vol VI, 1974, p. 943.

The other category of bombing operation was against populated cities and was considered primarily psychological in nature. It was this type of bombing which became most synonymous with the phrase 'strategic bombing'.

The Germans can be considered to have been the true originators of high order strategic air attack. Even before the war, equipped with an airship fleet and a relatively large aeroplane service, Wilhelm Siegert had conceived of bombing cities and industrial areas in the south-east of England. In later practice these operations involved Zeppelin, Gotha and Giant raids directed at the destruction of urban, industrial and supply centres and the national will to resist.[10]

The bombing of civilians became an increasingly large part of the overall approach. It has been suggested that simple technological limits played an important part in the proliferation of this practice. As air defences improved and bombers were forced to attack by night or from higher altitudes, there was a marked reduction in bombing accuracy. As a kind of defensive thesis, airmen began to justify the results by proclaiming that enemy workers and their homes were relevant military targets.[11]

The Germans attacked Paris in September 1914 and the French retaliated with their first long-range 'heavy' bomber attack deep into Germany in 1915. Under a Capitaine Happe they reached the city of Karlsruhe (13 June 1915) and one aircraft reached as far as Munich (17 November 1915). At first such raids were carried out against predominantly 'military' targets such as munitions factories and marshalling yards, but after the Germans began bombing French towns, a deliberate series of reprisal raids against the German civilian population was carried out.[12]

German Zeppelin attacks on London began later in 1915. On 8 September, one such bombing raid killed 13 people and wounded 87. This produced an enormous outcry; curiously much greater than any response to the thousands of deaths occurring daily on the Western Front. The full psychological utility of air power was still being realised. British air defence measures were improved and after a period of high Zeppelin attrition Germany switched its attention to bombing from aeroplanes; most notably from the Gotha G IV.[13]

In total during World War I, Germany dropped 9000 bombs totalling 280 tons from 51 airship and 52 aeroplane raids. There was a mere 1413 people killed and some three million pounds of damage done.[14] While the air power used did not create sufficient strategic impact to directly change the course of the war, the German bombing of Britain did achieve several indirect effects: it interrupted production during periods of air raid warnings; it initiated the withdrawal of fighters from France which were still required by Haig for the support of his land campaign; and it prevented the

[10] Hanson W. Baldwin, *Battles Lost and Won: Great Campaigns of World War II*, Smithmark Publishers, New York, 1995, p. 50.
[11] Higham, *Air Power*, p. 24.
[12] Parsons (ed.), *The Encyclopaedia of Air Warfare*, p. 31.
[13] ibid. p. 31.
[14] By comparison, it has been estimated that rats produced 70 million pounds of damage *per year* in the same period. As cited in Higham, *Air Power*, pp. 25-26.

deployment of Allied squadrons to the Middle East.[15] These particular downstream affects could not in themselves be considered decisive or even critically important. Even if they were, it would be cheeky of air power advocates to claim them as the intentional outcomes of some strategic calculation. They might more fairly be considered advantages after the fact, rather than premeditated.

A British attempt to establish a dedicated strategic bombing unit had been made in 1916 but the assets of the unit thus established (No 3 Wing of the Royal Naval Air Service) were diverted to the Western Front within a year. However, more determined efforts were raised out of public demand for vengeance in response to the concentrated German Gotha raids of June and July 1917, and within three months of those raids the British had established the 'Independent Force' (under Sir Hugh Trenchard) for the express purpose of conducting reprisal raids against the German homeland.[16] Among the new force's terms of reference was a direction to wage and sustain a bombing offensive against German munitions factories. However, the actual effects of the bombing were considered much more significant on German morale than on physical targets. This realisation was at least partially behind the ensuing British plans to mount a bombing offensive against Berlin using a new group (No. 27 Group) formed expressly for the purpose. The plans, however, never eventuated before the armistice of November 1918.[17]

To conclude, while a great deal of experimentation in air power was achieved in World War I, maturity in any form of strategic attack was not. A significant number of strategic bombing issues and tactics were raised and developed, including night operations; high level operations; fighter escort; formation bombing; air defence; air superiority; crew training; platform maintenance; standardisation; and bombing accuracy. However, in terms of producing political outcomes, it is questionable whether air power offered any major significant influence. Doctrine was lacking and strategy was incoherent; much of the bombing was motivated more by vengeance than by any visionary concept of strategy.[18] Some advocates maintained that attacks on civilians held the potential to break the public will to support the continuance of war. Others such as Churchill maintained that psychological defences to bombing were as quickly built up as physical defences.[19]

Air power was essentially unsuccessful as an independent determinant of central political outcomes, but important foundations had been laid and the attention drawn in political and military circles all over the world had guaranteed a future for strategic air power development.

[15] ibid.

[16] Walter Raleigh and H.A. Jones, *The War in the Air*, Vol V, Clarendon Press, Oxford, 1922-35, pp. 26-32. As cited in Stephens, *Alive and Well*, p. 4.

[17] Taylor and Munson, *History of Aviation*, pp. 125-126.

[18] ibid., p. 125.

[19] Churchill maintained in a memorandum to British Cabinet in 1917 that attacks against civilians actually stiffened their resolve in the war effort. As cited in Higham, *Air Power*, p. 27.

THE INTER-WAR YEARS — ESTABLISHING THEORY

Technological and operational advancements continued to be made throughout the inter-war period, but the era is more notable for having marked the genesis of doctrine. The period also witnessed a growing preoccupation with the potential of air strike as an independent and decisive contributor to future war. While it was control of the air which emerged as the primary air role of World War I, and air support of surface forces that was seized upon by generals and admirals, it was the *potential* of air strike which captured the attention of statesmen and air strategists.[20]

Three dominant personalities emerged in the promotion of air power as the key to victory: Trenchard, Mitchell and Douhet. As Harry H. Ransom described them '... Douhet was the theorist of air power, Mitchell the publicist and catalytic agent, and Trenchard the organisational genius'.[21]

Sir Hugh (later Lord) Trenchard (1873-1956) was the RAF's Chief of Air Staff for most of its first decade. After gaining notoriety as a strong proponent of the tactical air force he emerged through the 1920s as an uncompromising advocate of strategic bombing.[22] In 1929 he wrote of the future role of the air force:

> It is not necessary for an air force, in order to defeat the enemy nation, to defeat its armed forces first. Air Power can dispense with that intermediate step, can pass over the enemy navies and armies, penetrate the air defences and attack direct the centre of production, transportation and communication from which the enemy war effort is maintained.[23]

Post-World War I feuds over the notion of forming *independent* air forces motivated some very enthusiastic assertions about what air power might do. Given the political motives, the purity of Trenchard's doctrinal beliefs might well be questioned. However, even if his claims were exaggerated for political reasons, the gist was entirely consistent with the emerging prophecies of Douhet.

General Giulio Douhet (1869-1930) is generally considered to be the father of strategic air power. Trained as an artillery officer, he commanded Italy's first aviation unit, the Aeronautical Battalion, from 1912 to 1915. It was primarily his effort which brought the three-engine Caproni bomber into use by the time Italy entered World War I. He wrote *Command of the Air* first published in 1921 and, through that document, profoundly influenced the future of air power doctrine.[24] Douhet claimed that air power should have absolute primacy in war; that 'to conquer command of the air means victory; to be beaten in the air means defeat and acceptance of whatever the

[20] Stephens, *Alive and Well*, p. 5.
[21] As quoted in Charles M. Westenhoff, *Military Air Power*, Air University Press, Maxwell Air Force Base, Alabama, 1990, p. 19.
[22] Vallance, *The Air Weapon*, p. 8.
[23] Sir Charles Webster and Noble Frankland, *History of the Second World War: The Strategic Air Offensive against Germany 1939-1945*, Vol IV, Her Majesty's Stationery Office, London, 1961, appendix 2, p. 72.
[24] Warden, *The Air Campaign*, p. 147, endnote 25.

enemy may be pleased to impose'. He claimed that air forces would rise as the dominant agents of combat power and that the characteristics of air power would offer 'swift, crushing decisions on the battlefield'.[25]

Of course, Douhet's battlefield extended far beyond the conventional confines of the surface battle. He expounded an important role for air power in disorganising and annihilating the enemy's war effort.[26] His ideas centred on the concept of an invulnerable bomber force — armed with incendiary, high explosive and poisonous gas bombs — attacking a morally fragile population with the intention of collapsing that target society or, otherwise, forcing an early concession. He maintained that the rapid destruction of 'vital centres' such as 'governing bodies, banks and other public services' would critically weaken a defending population through 'terror and confusion'.[27] Douhet sketched in detail a fantastic prescription for air power which was to drive strategists, technologists and theorists for decades to come.

General William 'Billy' Mitchell (1879-1936) was a US army officer and pioneer advocate for an independent US air force. In contrast to the more subdued style of Douhet, Mitchell's approach to promoting strategic air power was loud and passionate. He did, however, essentially share the same philosophy, centred on a belief in the inevitable dominance of air power through offensive action.[28] He based his advocacy on the technical superiority of air power over other instruments of war, and on the assumed vulnerability of civilian morale to the psychological influences of aerial bombing.[29]

There was, in essence, a high level of accord between the British, Italian and American air power theorists. By the end of the 1920s, international thinking on the employment of air power was dominated by strategic bombing doctrine. The public and political paranoia ran high and was exacerbated in the late 1930s by a series of apparent strategic air power successes. The bombing of Shanghai by the Japanese in 1937; the bombing of Guernica by the Germans in the Spanish Civil War in 1937; and the coercive success of the threat of air power over Prague in gaining Czech concessions for Hitler, all reinforced the fears.[30] According to Harold Macmillan (later Prime Minister of Britain), 'we thought of air warfare in 1938 rather as people think of nuclear warfare today'.[31] So extreme was the concern that some international law and disarmament conferences of the 1920s and 1930s considered the complete banning of aerial bombardment.[32]

History notes that while the mandate for concern was growing, minor demonstrations of how the theory had run away with itself were already being ignored, and greater challenges to the prophecies were yet to come.

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[25] Giulio Douhet, *The Command of the Air* (trans. D. Ferrari), Office of Air Force History, Washington, 1983.
[26] Warden, *The Air Campaign*, p. 147, endnote 25.
[27] Douhet, *The Command of the Air*, 1983.
[28] Stephens, *Alive and Well*, p. 6.
[29] ibid.
[30] Vallance, *The Air Weapon*, p. 10.
[31] ibid.
[32] Webster and Frankland, *History of the Second World War*, Vol I, p. 58.

THE SECOND WORLD WAR ALLIED BOMBER OFFENSIVE — AIR STRIKE EN MASSE

Propelled by Trenchard's organisational legacy combined with political paranoia over what air attack might mean to Britain, the RAF's Bomber Command was formed in the 1930s. The threat from Germany inspired a re-examination of specific strategic plans for the utilisation of a bomber force, and by October 1937 a list of thirteen plans (known as W.A. [Western Air] plans) had been formulated. Three of the plans were identified as priorities in the final pre-war iteration of the list:

W.A.1. Attack on the German air strike force and its maintenance organisation, including the aircraft industry.

W.A.4. Attack on German military rail, canal and road communications; especially during periods of enemy force concentration and invasion.

W.A.5. Attack on the German war industry including the supply of oil with priority to that in the Ruhr, Rhineland and Saar [industrial areas considered critical to war effort].[33]

On subsequent pre-war examination, however, the plans were recognised as far more grandiose than Bomber Command's means of the time were ever likely to satisfy. At the outbreak of World War II and for the first two years of the war, Bomber Command was small and ill-equipped. It initially comprised only five groups and a total of just 200 aircraft.[34] This was a fraction of the number estimated necessary for the planned task, and limitations in speed, payload, altitude and weapons efficiency all made the ambit target list even less realistic.

Political constraints were also at play. Due to the bombing restrictions observed by many nations of pre-World War II Europe (and the reluctance of France to relinquish these restrictions, even after the absorption of Czechoslovakia by Germany in March 1939), the British and French staffs agreed that both nations should avoid an all out bombing offensive. This was also in accord with President Roosevelt's appeal that the belligerents should refrain from a full scale air war. It was decided that the object of all available bombers should be to attack lines of communication and the bases of the German army and air force.[35] Much of the early light bomber force tasking was directed at the tactical support of armies in France. The remainder of Bomber Command was ordered not to fly over Germany, and not to drop weapons on anything but strictly military installations.[36] The ensuing operations consisted of a series of largely ineffectual attacks against various German naval installations across the North Sea and eventually flights over Germany were carried out for the purpose of propaganda leaflet drops.[37]

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[33] ibid., p. 94.

[34] Two groups had light/medium bombers (Blenheims and Battles) and three had heavy/medium bombers (Whitleys, Hampdens and Wellingtons).

[35] Webster and Frankland, *History of the Second World War*, Vol I, pp. 104-105.

[36] Taylor and Munson, *History of Aviation*, p. 304.

[37] The first such land based target was attacked on 19 March 1940 in direct response to the first German bombing raid of the war on 16 March 1940.

This 'kid-glove' approach was continued until the German army, supported by the *Luftwaffe*, swarmed across the Low Countries towards France on 10 May 1940. Bomber Command then moved into a low order strategic bombing role, working behind enemy lines to relieve pressure on the battlefield. On 15 May 1940, after years of debating, planning and hesitating on bombing policy (especially over concerns of morality and non-provocation) Bomber Command hit oil and railway targets in the Ruhr. This was the first strike considered *strategic* in the air offensive against Germany.[38]

While reports of success in the early missions were positive, the tension continued over whether the strategic offensive was justifiable, and whether the assets were better applied in support of land and sea forces. Indeed, the French generals regarded the heavy bomber as 'merely a weapon of army co-operation' and, in any case, the immediate defensive needs of surface forces continued to draw heavily on all bomber resources.[39] France eventually fell on 17 June 1940 and, with increasing concern over the security of Britain itself, a higher order strategic offensive was undertaken in the form of strikes against forward air bases and build-ups of invasion forces.[40]

While the basic capability to bomb targets was well developed by the commencement of World War II, an effective doctrine for producing military and political outcomes by bombing was not. There had never previously been, after all, a strategic air offensive of this potential magnitude in which to seek precedence. The historical record on the making of early World War II bombing strategy reads as a long and controversial debate between well informed strategists over unknown variables.[41] Early calculations indicated that oil installations would be the most vulnerable, critical, and therefore fruitful high order strategic targets. For long periods these became the prime objective. For a while at least, aircraft factories were identified as a valuable alternative where the 'oil campaign' targets were not accessible or locatable. And if neither could be seen by night-bombing crews, then 'any self-illuminating target or targets which were otherwise identifiable' were to be attacked.[42] Some stress was placed on avoiding indiscriminate bombing but the distinction may have been somewhat moot in cases.

For all the shifts and inexactitudes in strategic targeting emphasis, the central early aim remained to 'bring about continuous interruption and dislocation of German war industry'.[43] The matter of which targets would be the best specific means to that end was widely, hotly and continuously debated (indeed, *throughout* the war). The simple fact was that no one knew what targets Bomber Command could hit. It was a matter of finding out by trial and error. The best plans, at least initially, amounted to little more than recommendations on the order in which the experiments might be made, and the circumstances which might influence that order.[44]

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[38] Webster and Frankland, *History of the Second World War*, Vol I, p. 144.
[39] ibid., p. 137.
[40] Taylor and Munson, *History of Aviation*, p. 305.
[41] Webster and Frankland, *History of the Second World War*, Vol I, pp. 133-188.
[42] ibid., p. 145.
[43] ibid.
[44] ibid., p. 143.

During the first two years of the war, strategic bombing attacks were variously launched against airframe plants, railway systems and marshalling yards, oil related targets, ports and shipping, and communications lines and facilities. Effort was widely dispersed and damage was often too sparse to actually put any targets out of action for very long. A subsequent shift in policy served to concentrate the effort so that concerted attacks became more destructive in nature than purely harassing. However, the navigational and technical limitations of the time meant that a significant degree of dispersion remained inevitable.

A coherent strategic bombing policy was not properly organised until the breathing space afforded to planners by the successful Battle of Britain in late September 1940.[45] The immediate threat of Britain's invasion had passed and attention could be redirected from the lower order targets of invasion ports and forward airfields to higher order concerns.

The morale of the German people became a new focus of consideration. The inevitability of killing civilians when pursuing embedded targets had become understood. Some believed that what was inevitable was also desirable, as long as it was only a by-product of bombing 'military' targets. A new possibility arose: that the by-product should become the *main* product. In a new concentration of effort, the two new primary objectives became oil and morale; a policy which persisted for some time.[46] Oil targets were the first choice but whenever they were unavailable, attacks were launched against Berlin and other towns in central and western Germany.

Notwithstanding the refreshing clarity of the new direction in the 'oil plan', the political maintenance of that direction required constant attention. Transport infrastructure, submarine construction plants, and gas and electricity supplies, for example, were all mooted as worthy targets in competition with the oil plan. Nevertheless, the priority on the oil offensive was maintained until problems began to arise. The most significant of these was the effect of weather. The northern winter effectively halved the number of achievable sorties to a rate which was a small fraction of what was originally estimated necessary for the task. Further, photographic battle damage assessment showed that, even after hundreds of aircraft strikes, the damage on some oil plants was negligible. This called into question the original calculations on bombing effort required.

Meanwhile, the Battle of the Atlantic was brewing and Bomber Command was again drawn from its attack on Germany to the defence of Great Britain. Targets were of lower order strategic relevance and included facilities associated with German submarines and German bombers employed against shipping.

In the ongoing attack on Germany, the 'oil plan' was being much less enthusiastically defended. Evidence of the inaccuracy of night precision bombing was mounting. The chief of air staff decided that the oil plants were 'strategically desirable' but not 'tactically vulnerable'.[47] The weapon dropping accuracy in night bombing (not to

[45] Taylor and Munson, *History of Aviation*, p. 305.
[46] Webster and Frankland, *History of the Second World War*, Vol I, pp. 154, 156.
[47] ibid., p. 168.

mention significant difficulties with navigation in getting over the target in the first place) was not up to the demands of the 'precision' philosophy: the technology did not meet the requirements of the theory.[48] Even while precision bombing was in vogue, its failings were implicitly acknowledged in the preferred selection of targets embedded in high value areas. Isolated pinpoint targets tended to be avoided.[49]

The search for larger targets was afoot. Again, German towns carried great appeal and the vulnerability of Germany through the morale of its civil population gathered favour as a strategy. An official directive in late October 1940 decreed that the focus in the cities should become the propagation of fires. With this, '(T)he fiction that bombers were attacking "military objectives" in towns was officially abandoned' and what would become known as 'area bombing' was born.[50] At the same time, transportation systems were increasingly seen as the weak point of the German machine and in July 1941 a new directive recognised the morale of the civil population and the inland transportation system as the priority target types.[51]

Subsequent operations focused on the destruction of the Reich's main rail centres for the relief that might offer the Soviet allies on the eastern front. The second priority was to disrupt war production with attacks on large cities and industrial populations. However, significant and continuing problems with night bombing accuracy drove the second priority to increasingly become the first. At one stage it was suggested that less than one crew in ten was dropping its bombs within five miles of the Ruhr targets. Bomber Command's only remaining choice was to conduct area attacks on German towns.[52] The erosion of the German population's will to continue hostilities became the primary aim through the wholesale destruction of their amenities and services.

This approach to strategic bombing continued with renewed vigour with the 'spring offensive' in February 1942. The *military* strategic aims were effectively to undermine German strength on the eastern front, and to work towards the establishment of a western front. However, under Air Marshal A.T. 'Bomber' Harris — the new Commander-in-Chief of Bomber Command and a renowned champion of psychological bombing — targeting continued to increasingly centre on the morale of the civil population and, in particular, of the industrial workers.[53]

A number of coincident shifts and improvements contributed to the bombing campaign. Various new navigation and targeting technologies were introduced including the 'Gee' (a radio aid for improved navigation), and blind bombing radar devices such as the 'H2S' and 'Oboe'. The Pathfinder Force was established: a small force manned by specially selected bombing crews and tasked to find the targets and lay markers with the greatest possible accuracy. The task of the main bomber force was to aim at the Pathfinder markers with the greatest possible precision. Other significant enhancements to viability included the arrival of the first elements of the

[48] Some estimates of the time suggested that only about one in five aircraft were successfully finding their way to the target. See ibid., p. 156.
[49] Taylor and Munson, *History of Aviation*, p. 305.
[50] Webster and Frankland, *History of the Second World War*, Vol I, p. 157.
[51] ibid., p. 174.
[52] ibid., p. 180.
[53] Taylor and Munson, *History of Aviation*, p. 306.

US Eighth Air Force, the bringing into service of improved bomber types (including the Lancaster), and the increased use of incendiary weapons.[54]

The Americans had prepared for day bombing and persisted with this in the face of devastating early opposition from German fighters. Once established, however, their operations complemented the British night bombing to produce a 24-hour a day strategic campaign. Large formations were already in vogue with Harris's raids of 1942 involving up to 1000 bombers (although more typically involving 200). Targeting priority was afforded to the German aircraft industry. The Americans flew precision missions against industry by day and the British flew area bombing missions against towns supporting production by night.[55] A variety of lower order strategic targets were also part of the regular program.

Through 1943 and 1944, day bomber survivability was improved with developments in fighter escort tactics, the introduction of various basic electronic warfare equipments and practises, and the development of outsized bombs. With the pattern of operations set, efforts were ramped up. The centre of effort varied, moving from the destruction of V-weapon sites, to communications, to the support of the invasion of Europe, and then back to large raids attacking the higher priorities of oil production and civilian morale.[56] Specific target selection was always the stuff of much examination and controversy.

On 8 May 1945, victory was declared.

Of major significance to the improving results of the strategic bombing campaign was the growth in bomb tonnages dropped through the conflict (as shown in Table 3.1).

Annual Bomb Tonnages Dropped in the Combined Bomber Offensive							
	1939	**1940**	**1941**	**1942**	**1943**	**1944**	**1945**
Bomber Command	31	13 033	31 704	45 561	157 457	525 518	181 740
US Eighth Air Force	Nil	Nil	Nil	1 561	44 185	389 119	188 573
Total	31	13 033	31 704	47 122	201 642	914 637	370 313 (note 1)

Note 1: 1945 figures include up to 0001 hours on 9 May (one third of a year)

Table 3.1 **World War II Annual Bomb Tonnages**[57]

[54] ibid.
[55] The US Eighth Air Force fleet was equipped with the Norden bomb-sight and also had the benefit of daylight for aiming.
[56] Taylor and Munson, *History of Aviation*, pp. 306-307.
[57] Figures extracted from data in Webster and Frankland, *History of the Second World War*, Vol IV, appendix 44, pp. 454-457.

It is not widely appreciated by those critical of the slow results from the Allied bombing offensive that much of the *operative* destruction did not start until 1944. More than 80 per cent of the bombs dropped on Germany and Central Europe fell in the last 18 months of the war.[58] While precision and target selectivity had improved throughout the campaign, the sheer mass of achievable effort overcame many of the early campaign failings.

There has been much scholarly conjecture over the effects of higher order strategic bombing in World War II. The continuing debate centres over whether the huge outlay of money, manpower and equipment was justified in the outcome. The case against strategic bombing principally involves the assertions of John Kenneth Galbraith, a director of the post-World War II United States Strategic Bombing Survey (USSBS), who argued, for example, that through the destruction of civil infrastructure and the loss of associated employment options, Allied bombing forced 'a wholesale conversion of Germany's scarcest resource, that of manpower, to war production'. He argued also that the strategic air campaign strengthened rather than undermined German morale and that, as an overall result of these factors, Allied area bombing actually increased Germany's military effectiveness.[59]

Galbraith's analysis has been rigorously criticised. One of its more authoritative critics, Richard Overy, points out that the USSBS was prepared in haste within weeks of the war's conclusion; that it was based largely on the opinions of German officials; and that it was only ever commissioned as a damage survey and not to make judgements about German strategy and military effort. Overy argues compellingly that the physical and psychological influences of Allied bombing were decisive in their effects on the German war effort. He concludes after detailed analysis that the physical destruction of productive capacity; the indirect effects of attacks on oil, raw materials and transport; and the demoralisation of the German work force, all collectively and critically undermined the German effort. These effects were compounded by the significant diversion of resources needed to defend against bombing, repair damage and evacuate affected families. Three-quarters of the fighter force and 56 000 guns were tied up with defence against bombers; millions of men and women were committed to associated equipment production and damage repair; and the rehousing of 4.8 million people also drew significantly on human and material resources. Overy estimates that the resultant economic and social disaster reduced German war production to as little as half in 1944-45.[60]

If the Allied bombing offensive was not decisive, it would certainly seem to have been a significant contributor to the eventual demise of Germany. However, despite the advancements in the field, air bombardment in World War II was, in application, a fairly blunt instrument.[61] Quantity was certainly not lacking in the latter part of the conflict, but the quality of delivery in both strategic and technical terms was only as

[58] R.J. Overy, *The Air War 1939-1945*, Papermac, London, 1987, p. 120.
[59] John Kenneth Galbraith, *The Affluent Society*, Hamish Hamilton, London, 1958, pp. 16-18; and *A Life in Our Times: Memoirs*, London, 1981, pp. 219, 239-240. As cited in Stephens, *Alive and Well*, p. 1.
[60] See Richard Overy, 'World War II: The Bombing of Germany' in Alan Stephens (ed.), *The War in the Air: 1914-1994*, Air Power Studies Centre, Canberra, 1994.
[61] Overy, 'World War II: The Bombing of Germany', p. 136.

great as the circumstances of the era made possible. For much of World War II, strategic air power practitioners continued to use their forces as battering rams for capital cities in a curious style of civilian frontal assault. Sophistication was lacking in both *strategic calculus* and the technical aspects of *targeting*. Indeed, those areas are still the subjects and beneficiaries of much science.

WAR IN KOREA — AIR STRIKE CONSTRAINED

Under Air Chiefs of Staff Carl Spaatz and Hoyt Vandenberg, America's post-World War II air power development was focused heavily on the establishment of a credible strike force of intercontinental bombers. These gentlemen were strongly of the belief that the next war would be with the Soviet Union and that, armed with nuclear weapons, air power would be independently decisive.

With the emergence of the crisis in Korea, American air power found itself in a particularly poor position. Prepared for a strategic bombing campaign, the air force was faced with a limited war in a relatively undeveloped agricultural country. Korea had few cities or large industrial centres, and the source of most of its manufactured goods — China — was to be placed politically out of bounds. Allied air power was forced to adapt, retiring to a much lower order of strategy than planned for, and an even lower level than had been applied in World War II.

The early application of air power was in the CAS role. To the air leadership at the time, after a long struggle for the independence of its air force as a service, this represented an unwelcome relegation to the simple support of surface forces — flying artillery.[62] As a result, air power exponents looked to air interdiction for adoption as their primary role. Whilst there may, therefore, have been a measure of politics in this decision, of interest here is that it represented a ramping up in the strategic order of air application.

The degree to which the strategic order of operations could be raised was severely capped by the need to avoid provoking China's direct intervention in the war. While Vandenberg stressed to his Far East Air Forces (FEAF) Commander at the time the 'vital necessity of destruction of North Korean objectives north of the 38th parallel', the Supreme UN Commander, General Douglas MacArthur explicitly forbade non-battlefield air operations.[63]

Notwithstanding this, air interdiction did eventually become the primary air role of UN forces in Korea. While in the first few weeks of the war 74 per cent of combat sorties were CAS,[64] by war's end the interdiction program had dominated. In total over 47.8 per cent of all the US (that is; USAF, USN and USMC) combat sorties

[62] John Darrell Sherwood, *Officers in Flight Suits: The Story of American Air Force Fighter Pilots in the Korean War*, New York University, New York, 1996, p. 169.
[63] ibid., p. 170.
[64] *Close Support Operations*, USAF Operational Report, 9 March 1951. As cited in Jeffrey Grey, 'Definite Limitations: The Air War in Korea 1950-1953' in Alan Stephens (ed.), *The War in the Air: 1914-1994*, Air Power Studies Centre, Canberra, 1994, p. 144.

flown were interdiction, compared to only 0.2 per cent for sorties dedicated to *strategic* bombing.[65]

The few attempts at higher order strategic air power application came late in the conflict. With the political handicaps to targeting, air power was struggling to identify a focus which might prove decisive. In April 1952 a new study was carried out to determine the campaign's future direction. The primary challenge was to 'encourage' North Korea in negotiations which were being stalled by the larger and less accessible Chinese and Soviet influences. The task may have seemed beyond anything that air power might fairly aim to achieve. Nevertheless, a concept was developed called 'air pressure through selective destruction'.[66]

The next two years saw a number of strategic air power attempts at this task. In three days in June 1952 the North Korean hydroelectric plants and power transmission grid were more than 90 per cent destroyed. Ensuing attacks on specific targets (including command posts, supply depots and barracks) within the capital of Pyongyang involved several thousand sorties. Other attacks were carried out against the likes of mines, cement plants and factories and, unavoidably, the towns that contained them.[67] These actions served to support the ongoing offensive on the ground as well as attempt to independently pressure those parties stifling the talks.

In 1953 the stakes were raised with attacks against five of twenty dams which were vital to the North Korean rice irrigation system. Besides causing obvious potential disruption to the North Korean war effort, these attacks were intended to apply pressure to China who would be called on to assist Korea from within its own struggling economy.[68] At least technically, the attacks were extremely successful causing extensive flooding of rice crops and much secondary damage.

Pressures were indeed applied to the communists through air action. However, the degree to which these pressures were operative in the final signing of the armistice on 27 July 1953 is still argued. While the war was not won by anyone, let alone air power, many believe that the manoeuvre which air power maintained was essential to the final resolution of the ugly stalemate. In the end, one particular threat of higher order strategic air power undoubtedly played a role in the solution. This came in the form of the well timed suggestion through diplomatic channels that a full-scale war and perhaps *nuclear attack* might eventually be unavoidable.[69]

High order strategic air strike opportunities were restricted in Korea. The operations that did go ahead, both of high order and (more commonly) of lower order interdiction varieties were of apparently limited strategic influence on the outcomes. This lack of success in overview can be attributed to a number of factors. The first is that the Asian style mass armies (largely reduced to a non-mechanised state by early air attacks) were able to fight with a great deal less logistics support than the United Nations Command

[65] Other missions included close air support (18.5 per cent), counterair (18.6 per cent), reconnaissance (13.1 per cent) and anti-submarine patrols (1.8 per cent). Sherwood, *Officers in Flight Suits*, p. 170.
[66] Armitage and Mason, *Air Power in the Nuclear Age*, p. 39.
[67] ibid.
[68] ibid., p. 41.
[69] David Rees, *Korea, The Limited War*, St Martins, New York, 1964, p. 167. As cited in ibid., p. 42.

(UNC) air planners had calculated.[70] This factor was compounded by the extraordinary resourcefulness of 'coolie labour' in maintaining supply lines.[71] As one British report noted, the 'ability of the enemy to repair [rail] bridges was just short of miraculous'.[72]

The second factor influencing air power performance was that of target inaccessibility. On top of the support industries which were politically out of reach in Chinese Manchuria, support is also now understood to have been sourced directly from the Soviet Union and eastern Europe. The Soviet air corps provided a significant link between these remote international supply sources and the Chinese and North Korean fielded forces. This air support was crucial, and significantly eroded the in-country deep interdiction efforts of UN air power. Successful attacks on the North Korean industrial targets made little overall difference to the sustainability of their military effort.[73]

Another factor involved the irrepressibility of communist air attack on UNC bombers. Enemy fighters were able to retreat to safe airspace throughout the war, often preferring to avoid engagement with other fighters, but constantly presenting a threat to bombers. As a result, many bombers were lost and attacks could eventually only be made in bad weather.[74]

A further factor was the failure to achieve effective command and control arrangements for air power. There was no joint staff at Far East Command headquarters, nor any unity of command when it came to the control of joint air operations. The control of air assets was divided and coordination between authorities was poor.[75] Even at the lowest strategic order of interdiction there was failure to appreciate that ground force pressure had to be coordinated with interdiction so that the enemy was not free to simply regulate the intensity of the battle to match their reduced logistics effort. The art of close coordination with ground forces was never properly achieved.[76]

Other factors undermining the middle order strategic success of air power included the shortage of trained photographic interpreters for intelligence functions, the lack of precision weapons and the lack of an effective night attack capability.[77] Also of note at the higher level was an international backlash over the bombing of the 'non-military' electricity supplies which actually led to a temporary reduction in pressure on the communists.[78]

[70] Grey, 'Definite Limitations: The Air War in Korea' p. 148.
[71] Armitage and Mason, *Air Power in the Nuclear Age*, pp. 38, 43.
[72] R.F. Futrell, *The United States Air Force in Korea*, Duell, Sloan and Pearce, 1961, p. 526.
[73] Grey, 'Definite Limitations: The Air War in Korea', pp. 148-149.
[74] Armitage and Mason, *Air Power in the Nuclear Age*, p. 40.
[75] Grey, 'Definite Limitations: The Air War in Korea', p. 143.
[76] Armitage and Mason, *Air Power in the Nuclear Age*, p. 43.
[77] ibid., p. 43.
[78] ibid., p. 39.

Korea showcased the sub-optimisation of air power. High order strategic air power application was not permitted. Some lower order air power capabilities were subsequently called on to produce high order political results. But the greater majority of offensive air power action was simply constrained to the lower orders of business. The full potential of lower strategic orders of interdiction was not reified, and a host of reasons for that are now understood. As the first major post-World War II limited war, Korea provided air power with a great many lessons. With respect to high order strategic air power, the most graphic lesson was the consequence of not being able to access the decision-makers who actually sustained the conflict.

THE VIETNAM WAR — METHODOLOGIES IN CONFLICT

The year 1965 saw the 'Americanisation' of the Vietnam War. Years of American *non-combat* support to South Vietnam had failed to curb the advance of the Viet Cong, and in February 1965 US President Lyndon B. Johnson ordered the bombing of North Vietnam.[79] The war ground on for another eight years under two presidents until, devoid of any prospect of American victory, it was ended with a cease-fire agreement in January 1973. The Paris talks which produced that solution had themselves dragged on for over four years.

All in all, from the perspective of the Free World Military Forces, the campaign had been highly unsuccessful despite a substantial land and air power effort. On the air side, American's alone had flown more than 1,248,000 fixed-wing and 37,000,000 helicopter combat sorties between 1965 and 1973.[80] A greater tonnage of bombs had been dropped on Vietnam than in the Korean War and World War II combined.[81] Subsequent years of investigation and debate have dealt and re-dealt with the apparent failure of air power to prove decisive in Vietnam. Perhaps the most dominant and enduring theme of this analysis has been the one incorporating the political-level failure to set objectives, and the political-level interference in military operations. The strategic application of air power as envisaged by politicians was certainly different to that bid for by military chiefs.

Military Preference

From the beginning of the conflict to its conclusion, the air force wanted to use air power in the concentrated bombing of North Vietnam. That nation had been identified early (by most of the Joint Chiefs of Staff in 1964) as the real source of the conflict and the imperative was to undermine the support it offered to forces in South Vietnam. The repeated call was for a high order strategic air campaign.[82]

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[79] A previous but isolated low order case of American bombing against North Vietnam occurred in August 1964 in the form of an attack against torpedo-boat bases and oil storage facilities in reprisal for attacks against US destroyers. *Encyclopaedia Britannica, 15th edn, Macropaedia Vol 19, 1974, p. 130.*

[80] Armitage and Mason, *Air Power in the Nuclear Age*, pp. 112-113.

[81] Leslie H. Gelb and Richard K. Betts, *The Irony of Vietnam: The System Worked*, The Brookings Institution, Washington, 1979, pp. 169-170. As cited in Colonel A.L. Gropman, 'The Air War in Vietnam, 1961-73' in Air Vice-Marshal R.A. Mason, *War in the Third Dimension: Essays in Contemporary Air Power*, Brassey's Defence Publishers, London, 1986, p. 40, footnote 32.

[82] Gropman, 'The Air War in Vietnam', p. 41.

There were two apparent elements to such a strategic campaign. The first involved the undermining of the North Vietnamese *will* to support the war. It was believed that a comprehensive bombing campaign against the heartland of Vietnam would convince Hanoi that South Vietnam was not worth the effort.[83] This recognised that, for as long as North Vietnam paid no major price for the war, its participation was likely to remain unchecked.[84]

The second element involved the destruction of the North Vietnamese *capacity* to support the war. This was tied in with the obvious role of North Vietnam in passing Chinese and Soviet supplies to the guerrillas and North Vietnamese regulars fighting in the south. North Vietnam had to be sealed off in order to break the logistics chain. The Joint Chiefs and Pacific Command consequently planned for the mining of harbours, operations against shipping, and the bombing of ports, railroad marshalling yards and other choke-points for major rail and road systems. Essential to the plan was the identification of Hanoi as the *centre* of industry, transport and administration for North Vietnam. Attacks against the easily restorable 'capillary-sized' lines of communication well to the south were to be avoided.[85]

The Air Force Chiefs of Staff themselves were among the most outspoken advocates of high order strategic bombing. General Curtis E. LeMay consistently argued for a concentrated attack against strategic targets in the Hanoi-Haiphong area. He believed that interdiction elsewhere was not likely to be decisive. His successor, General J.C. McConnell, also strongly advocated the destruction of central North Vietnamese logistics points when the campaign tended instead towards peripheral targets.[86]

Political Preference

The principle political players of the war — President Johnson, Defense Secretary McNamara, and John T. McNaughton (a key adviser to McNamara) — consistently rejected the proposed military strategy.

President Johnson maintained total control of air strikes. For the complete duration of his tenure he personally attended to the selection of targets 'in the Tuesday luncheons to which no military officer was regularly invited until late 1967'. Johnson and McNamara 'regulated the pace of escalation personally by minimising autonomy in the field and discouraging the development of comprehensive campaign plans'. Even when a more concerted air campaign did go ahead in March 1965 (Operation *Rolling Thunder*) its targeting of lines of communication was restricted to areas south of the 19th parallel — well clear of Hanoi and Haiphong.[87]

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[83] William W. Momyer, *Air Power in Three Wars*, edited by A.J.C. Lavelle and J.C. Gaston, US Government Printing Office, Washington, 1978, p. 19. As cited in Gropman, 'The Air War in Vietnam' p. 37.
[84] Gropman, 'The Air War in Vietnam' p. 38.
[85] ibid., p. 34.
[86] ibid., p. 38.
[87] Gelb and Betts, *The Irony of Vietnam*, p. 137. Also Momyer, *Air Power in Three Wars*, p. 17. As cited in Gropman, 'The Air War in Vietnam', p. 38.

McNamara continued to maintain that the prime role of air power was to support ground forces in the south. He effectively reduced the air campaign to one of limited interdiction and CAS (avoiding high order strategic bombing), but still retained the hope of convincing the North Vietnamese regime that South Vietnam could not be taken.[88] The task for air power was reduced to the interruption of the supply system at its terminal phases — an expensive and ultimately impossible job with most of the bombs falling in empty jungle.[89] America was fighting the war with 'one hand tied behind its back'.[90] McNamara had set a strategy for attrition and protracted war.[91]

A 1966 memo by McNaughton offers an important insight into how the Defense Department of the day considered offensive air power. He suggested that bombing served to interdict against infiltration, to provide bargaining collateral in negotiations and to sustain South Vietnamese and US morale.[92] These roles, unsupplemented, translated into a policy of gradualism. McNaughton advocated bombing 'only as frequently as is required to keep alive Hanoi's fear of the future'.[93] Between 1965 and 1968, Johnson stopped bombing sixteen times and promulgated 71 peace initiatives.[94]

In essence, the politicians saw air power as a means of providing political *signals*, rather than as a military means to a political end.[95] They reserved the asset for their own poorly calculated use and air power became the 'major unplayed trump card' of the conflict.[96]

Despite the consistent rejection of their air strategy, the Joint Chiefs of Staff persisted with the development of a list of North Vietnamese strategic targets — those considered to have direct potential effect on the will or ability of that nation to sustain war. The list incorporated 94 targets in its first iteration, and 244 by 1967.[97]

Linebackers I and II

The spring of 1972 saw the first substantial lifting of restrictions on strategic air power. President Nixon was angered by recent large scale surface attacks from the north and frustrated by the continuing fruitlessness of the Paris negotiations. In Operation Linebacker I, which began with the mining of Haiphong Harbour on 9 May

[88] US Department of Defense, *United States — Vietnam Relations 1945-1967, IV.C.7(a), Volume I, The Air War in North Vietnam*, The Pentagon Papers, US Government Printing Office, Washington, 1971, p. 21. As cited in Gropman, 'The Air War in Vietnam' p. 40.
[89] Gropman, 'The Air War in Vietnam', p. 40.
[90] C.D. Coulthard-Clark, 'The Air War in Vietnam: Re-evaluating Failure' in Alan Stephens (ed.), *The War in the Air: 1914-1994*, Air Power Studies Centre, Canberra, 1994, p. 172.
[91] Gropman, 'The Air War in Vietnam', pp. 38, 40.
[92] ibid., p. 40.
[93] US Department of Defense, *United States — Vietnam Relations 1945-1967*, pp. 33-39. As cited in ibid.
[94] Gelb and Betts, *The Irony of Vietnam*, p. 140. As cited in ibid.
[95] US Department of Defense, *United States — Vietnam Relations 1945-1967*, p. 5. As cited in Gropman, 'The Air War in Vietnam' p. 38.
[96] Alan R. Millett and Peter Maslowski, *For the Common Defense: A Military History of the United States of America*, The Free Press, London, p. 542-544. As cited in Gropman, 'The Air War in Vietnam', p. 34.
[97] Momyer, *Air Power in Three Wars*, p. 15. As cited in Gropman, 'The Air War in Vietnam', p. 37.

1972, he ordered the first comprehensive bombing of supply systems throughout the heart of North Vietnam. Most of the original 94 targets were approved.[98]

Contemplating the failure of its spring offensive and now facing air attack at home, Hanoi bid for the revitalisation of peace negotiations. President Nixon's subsequent reduction in bombing effort in aid of those talks was, however, met with renewed stalling at the peace table. In December 1972 he called for an all-out campaign against North Vietnam — discarding the previous interdiction focus and pursuing, instead, the disruption of the country's economic and political life. The aim was to force North Vietnamese acceptance of terms in order to allow a peaceful US withdrawal.[99]

This was Operation Linebacker II, and after 11 days of concentrated bombing (more than 700 B-52 sorties alone)[100] the US achieved its terms. It was the first time since the war had begun that the unrestricted strategic use of air power was cleared. Although the Linebacker campaigns were called *interdiction* by the Americans, they were only so in so far as they were still unable to attack the truly original sources of the conflict in China and the Soviet Union. The de facto heart of the enemy regime was accessed and the effect of that process was a key factor in bringing about the North Vietnamese acceptance of cease-fire terms.[101] Experts speculated that similar action in 1965 could have brought about the withdrawal of communist forces from South Vietnam at the beginning of the conflict.[102] In the words of General Westmoreland:

> (T)he kind of bombing that should have been started as soon as a strong military and political base had been established in South Vietnam did in fact induce the Communists to make concessions that were considerably less attractive [to them] than those they had striven for at enormous cost for seventeen years ...[103]

OPERATION BABYLON — DISCRETE STRATEGIC AIR ACTION I

On 7 June 1981 the Israelis launched an eight-ship of Etzion air base F-16 'bombers' bound for Baghdad. Each of the aircraft carried two 2000 pound bombs and the formation was escorted by six F-15 fighters for protection. The target was the Osirak nuclear reactor, and the political objective was to avert the acquisition of nuclear arms by the hostile Iraqi Government.[104]

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[98] Gropman, 'The Air War in Vietnam', p. 55.
[99] ibid., pp. 55-56.
[100] Carl Berger (ed.), *The United States Air Force in Southeast Asia*, US Government Printing Office, Washington, 1977, p. 166. As cited in ibid., p. 56.
[101] Armitage and Mason, *Air Power in the Nuclear Age*, p. 110.
[102] Douglas Pike, 'The Other Side' in Peter Braestrup (ed.), *Vietnam as History: Ten Years After the Paris Peace Accords*, University Press of America, Washington, 1984, p. 72. As cited in Gropman, 'The Air War in Vietnam', p. 57.
[103] General Westmoreland, *A Soldiers Report*, Doubleday, New York, 1976, p. 413. As cited in Armitage and Mason, *Air Power in the Nuclear Age*, p. 112.
[104] Dennis M. Drew, 'Air Power in Peripheral Conflict: From the Past, The Future?' in Alan Stephens (ed.), *The War in the Air: 1914-1994*, Air Power Studies Centre, Canberra, 1994, p. 252.

Evidence that Iraq was trying to develop an atomic weapon had been mounting for some years under the watchful eye of Mossad, the Israeli intelligence organisation. In 1974 Iraq approached France about purchasing a gas-graphite power reactor — a technology much better suited to generating weapons-grade plutonium than electricity. In 1975 Saddam Hussein declared such actions as 'the first Arab attempt at nuclear arming'; and in 1977 a senior Iraqi official commented in public that '(t)he Arabs must get an atomic bomb'.[105] In 1976 Iraq's Atomic Energy Commission budget increased from $5 million to $70 million per year. Subsequently, France and Italy were approached for more sophisticated nuclear technology, and eventually France signed a $275 million contract to build the Osirak reactor and bring it into service by 1981. A nuclear military capability for Iraq was imminent.[106]

While the involvement of Mossad cannot be confirmed, that organisation was suspect in a series of attacks against the French manufacturing process. On 5 April 1979, saboteurs attempted to blow up the core of the Iraqi reactor at its French assembly point — damage reports vary. Other attacks included the assassination of the Egyptian-born head of Iraq's nuclear program in Paris, and the subsequent death of a key witness to that attack by a hit-and-run driver. Later an Italian nuclear company working in Iraq was bombed.[107]

While the project was arguably stalled by the alleged Israeli activities, the reactor did eventually reach the Osirak site in Iraq. In response, and possibly as early as 1979, Israeli planning for an air attack of the site was initiated. The accumulation of accurate intelligence was the first vital ingredient to planning. Other essential activities included the development of techniques and tactics that would be necessary to avoid detection in transit through neighbouring Arab airspace en route to the target. The detailed mission preparation of selected aircrews is reported to have extended to the construction of a concrete model of the reactor facility in the Negev Desert.[108]

At 1710 hours on 7 June 1981 the package entered Iraqi air space. Twenty minutes later the F-16s each made a single pass at the target under negligible anti-aircraft fire, and the formation headed for home unpursued. Sources disagree over whether 'smart' weapons or iron 'dumb' bombs were used, but the strike was considered highly successful. Significant damage was estimated at the time, and after ten years of little detectable Iraqi activity in this area, it was considered that the reactor had been completely destroyed.[109]

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[105] Lucien S. Vandenbroucke, 'The Israeli Strike against Osiraq: The Dynamics of Fear and Proliferation in the Middle-East', *Air University Review*, September-October 1984, pp. 36-37. As cited in ibid., p. 250.

[106] Editors of *Newsweek*, 'What Israel Knew', *Newsweek*, 22 June 1981, p. 25. As cited in ibid., p. 249.

[107] ibid., p. 250.

[108] Editors of *Newsweek*, 'Two Minutes Over Baghdad', *Newsweek*, 22 June 1981, p. 22. As cited in Drew, 'Air Power in Peripheral Conflict', p. 249.

[109] Efraim Karsh and Inari Tautsi, *Suddam Hussein: A Political Biography*, Brassey's (UK), London, 1991, p. 128. As cited in Drew, 'Air Power in Peripheral Conflict', p. 253.

While Hussein's *desire* to acquire a nuclear capability was beyond the reach of air power, his *ability* to do so was not. Operation Babylon provided a serious setback to the program. Without it, the Iraqis would have had a nuclear capability by the time they invaded Kuwait in 1990.[110]

This operation was truly strategic by any definition. While it may not have affected the will of the adversary, it certainly affected his capacity for future war. In the broader sense of the word, the suspension of Iraqi nuclear weapons prospects altered the context of Middle Eastern politics for decades to come. In a doctrinal sense the operation is well described as 'the *direct* pursuit of *primary* or *ultimate* political-military objectives through aerospace power'.

OPERATION EL DORADO CANYON — DISCRETE STRATEGIC AIR ACTION II

The early to mid 1980s saw a marked increase in international terrorism. Through its political support of established leadership regimes, and its extensive political, military and economic interests around the world, the US found itself a frequent target of terrorist aggression.[111]

Evidence mounted that one particular state sponsor of terrorism was responsible for a significant proportion of actions against America. The involvement of Libya's Colonel Muanmmar al-Qaddafi was corroborated by a host of intelligence sources and he was slow to dismiss the charges. He openly taunted the West with a series of public statements, boasting that '(w)e are capable of exporting terrorism to the heart of America', and claiming as 'legitimate and sacred' the right of his nation to 'liquidate its opponents at home and abroad in plain daylight'.[112]

The list of bombings, kidnappings, hijackings and assassinations which targeted Americans or otherwise directly affected them during this period is a long one. It culminated in three particularly disturbing attacks in 1985 involving the seizure of a cruise ship in the Mediterranean, and two attacks on airports in Rome and Vienna. These led to a show of US naval force in the Mediterranean which produced some Libyan military losses and served to intimidate Qaddafi on the international stage. Unrepentant, Qaddafi allegedly sponsored the 5 April 1986 bombing of the La Belle Discotheque, a popular gathering place for US troops in Berlin. Two American servicemen died, and 79 of the more than 200 people injured were also American. The scene was set for a stronger US response.[113]

President Reagan called for air strikes against Libya. The political objective (however inexplicitly stated) was to send a strong, clear message to that country and others that the US would not tolerate the state sponsorship of international terrorism. The military objective was the infliction of a significant and highly visible degree of damage against selected targets. US aircrew losses, unnecessary casualties on the ground and a

[110] Drew, 'Air Power in Peripheral Conflict', p. 253.
[111] ibid., p. 254.
[112] Brian L. Davis, *Qaddafi, Terrorism, and the Origins of the US Attack on Libya*, Praeger, New York, 1990, pp. 66-67. As cited in ibid., p. 255.
[113] Drew, 'Air Power in Peripheral Conflict', pp. 255-256.

failure to create adequate damage were all recognised as outcomes to be avoided for the potential they held to seriously undermine the political aim.

The resulting plan was for night attacks against five 'high visibility' military targets; three in the vicinity of Tripoli and two in the Benghazi area. One of the Tripoli targets was a command centre sometimes used by Qaddafi as a residence — unclassified sources differ on whether the attack was also supposed to kill Qaddafi.[114]

On the afternoon of 14 April 1986, a core attack force of 18 F-111Fs departed RAF Base Lakenheath for Libya. Most were armed with four 2000 pound laser guided bombs, and some with twelve 500 pound bombs. In loose company were four electronic warfare platforms (F-111As), an assortment of six spare aircraft to cover technical failures en route, and an armada of tankers required for the long route which would avoid territorial overflights. An assorted force of 70 Navy and Marine Corp aircraft were meanwhile preparing for a coordinated launch from their aircraft carriers in the Mediterranean. Surprise against Libya was achieved. In just eleven minutes the coordinated multi-element attack was over and the US aircraft were outbound.[115]

The raid inflicted significant 'high visibility' damage against buildings, runways, SAM systems and a number of aircraft on the ground. Qaddafi further raised the visibility by claiming that his 15 month old adopted daughter had been killed in the attack. There was significant collateral damage in both target areas. This included bomb damage and casualties in civilian residential areas and, perhaps just as notably, damage to the French Embassy. One F-111 and its crew were lost and never recovered, but there is some speculation that they never actually made to the target area.[116]

From a military point of view the operation achieved its objective; creating the high visibility damage intended. Analysis of the success of the operation in achieving its political objectives, however, is more complex. If the political objective was simply to send the message, then the message was sent and the operation can be considered a success. If the political objective was, however, to reduce the frequency of terrorist attacks against the US, then the analysis is more difficult. What is known is that Libyan sponsored terrorist activity, particularly against US targets, declined significantly in the remainder of 1986 and through 1987. What is also known is that the American example was quickly followed by a firming up of anti-terrorist measures by a number of European governments.[117] As favourable primary and secondary political effects, these outcomes can be argued to constitute success. However, it is also known that Libyan sponsorship of terrorism did continue under the guise of surrogate groups, and also that in December 1988 Libyan agents bombed PanAm flight 103 over Lockerbie, killing 273 people.[118]

[114] ibid., pp. 256-257.
[115] ibid., pp. 258-260.
[116] ibid., pp. 260-261.
[117] ibid., p. 261.
[118] Pape, *Bombing to Win*, p. 355.

The actual degree to which El Dorado Canyon improved the situation can never conclusively be known. Any analysis would be counter-conditional — one cannot know what change was caused as one does not know what state would have existed without the operation. Success is certainly claimed by those who advocated the action, and the philosophy of at least one expert on international terrorism makes a appealing point:

> Clearly the bombing of Libya changed the equation. It suggested to nations that use terrorism as an instrument of policy that they risk retaliation. They may choose to dismiss that risk or to accept it, but they're going to have to take it into account.[119]

El Dorado Canyon was a strategic air operation. It was *immediate* and *direct* with respect to political aims, rather than military aims. While three of the five bombed areas were directly linked to terrorist activities, there were another 30 training facilities throughout Libya.[120] The operation was certainly never aimed at eradicating the actual terrorist capability. The strategic calculus focused instead on the creation of a long term political and psychological effect. The greater part of the operation lay in its longer term consequences. The real target was the mind of the chief decision-maker (and other decision-makers who might contemplate the same terrorist offences). It served to set a new context or set of conditions under which Qaddafi's future consideration of violence would be made. In these respects, Operation El Dorado Canyon represented a good example of what might be considered a high order strategic air operation.

THE GULF WAR — MODERN AIR STRIKE ORCHESTRATION

On 2 August 1990, Iraq invaded Kuwait. The annexation of that small state increased Saddam Hussein's control of oil to a total 20 per cent of the world's reserves, with further prospects just across the border in Saudi Arabia.[121] Despite substantial international pressure, Iraq refused to abandon its conquest.

An early offer to deploy US troops was accepted by Saudi Arabia, and within six days of the invasion the first fighters (F-15s) and AWACS aircraft arrived in theatre. Work began on building an American-led international coalition to operate under the aegis of the UN, and an examination of offensive military options was ordered. The overarching objectives set by President George Bush were:

- immediate, complete, and unconditional withdrawal of all Iraqi forces from Kuwait;
- restoration of Kuwait's legitimate government;

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[119] Brian Jenkins, quoted in the *Los Angeles Times*, 11 October 1987, in Brian L. Davis, *Qaddafi, Terrorism, and the Origins of the US Attack on Libya*, Praeger, New York, 1990, p. 169. As cited in Drew, 'Air Power in Peripheral Conflict', p. 261.

[120] US Senate, Committee on the Judiciary, Subcommittee on Security and Terrorism, *Libyan Sponsored Terrorism*, 99th Cong, 2nd Sess, 1986, pp. 88-91. As cited in Pape, *Bombing to Win*, p. 356.

[121] Davis, *Strategic Air Power in Desert Storm*, p. 9.

- security and stability of Saudi Arabia and the Persian Gulf; and
- safety and protection of the lives of American citizens abroad.[122]

The initial air plan was drafted by Colonel John A. Warden and his Checkmate directorate operating within USAF Air Staff. The draft was initially proposed as a 'stand-alone' option. However, it was ultimately refined by the CENTAF (Central Command Air Forces) Special Planning Group and then incorporated as Phase I in General Schwartzkopf's final integrated air-ground campaign.[123] The four phases of that campaign were:

Phase I:	Strategic Air Campaign Against Iraq;
Phase II:	Air Campaign Against Iraqi Air Forces in Kuwait;
Phase III:	Ground Combat Power Attrition to Neutralise the Republican Guard and Isolate the Kuwait Battlefield; and
Phase IV:	Ground Attack to Eject Iraqi Forces from Kuwait.[124]

The first three phases were exclusively air power phases and the last was a combined air and ground phase. In actuality, the abundance of Coalition resources allowed these to be conducted simultaneously rather than in sequence. Collectively the operations were scheduled to address the following Coalition *air* objectives:

- Gain and maintain air supremacy to permit unhindered air and ground operations.
- Isolate and incapacitate the Iraqi regime.
- Destroy Iraq's known nuclear, biological and chemical warfare capability.
- Eliminate Iraq's offensive military capability by destroying key military production, infrastructure, and power capabilities.
- Render the Iraqi army and its mechanized equipment in Kuwait ineffective, causing its collapse.[125]

The first four of these objectives tied up less than a quarter of the air effort, and were principally the responsibility of the 'strategic' air campaign. The last objective absorbed around 75 per cent of the total Coalition air effort, making up the 'tactical' campaign. The objectives of the strategic campaign led it to the heartland of Iraq, while the tactical campaign was confined substantially to the Kuwaiti Theatre of Operations (KTO). The latter's function was to suppress Iraqi air defences in the theatre; to prepare the battlefield for Coalition ground attack; and to provide actual support for the ground forces when that became necessary.[126]

The objectives for which the strategic campaign was responsible were to be addressed by attacking twelve sets of targets (already identified within the original Checkmate-CENTAF plan). While these twelve were all collectively and officially referred to as

[122] Department of Defense (DoD) Final Report to Congress, *Conduct of the Persian Gulf War*, DoD, Washington, DC, unclassified edn, April 1992, p. 91. As cited in ibid., p. 10.
[123] Davis, *Strategic Air Power in Desert Storm*, p. 14.
[124] DoD Final Report to Congress, *Conduct of the Persian Gulf War*, p. 66. As cited in ibid.
[125] DoD Final Report to Congress, *Conduct of the Persian Gulf War*, p. 75. As cited in Davis, *Strategic Air Power in Desert Storm*, p. 24.
[126] Davis, *Strategic Air Power in Desert Storm*, pp. 1-2.

'strategic targets' some were not particularly typical of strategic targets in a traditional sense. Seven of the target sets can be considered 'core strategic' considering their fundamental importance to the support of the Iraqi regime's ability to sustain a fielded military effort. These included:

- national leadership;
- military and civil command, control, and communications;
- electric power generation;
- oil refineries, distribution, and storage;
- nuclear, biological, and chemical weapons research, development, and production;
- military support (R&D, production, and storage of conventional armaments); and
- Scud ballistic missiles.[127]

Of the other five sets of the strategic campaign, three filled the functions of facilitating and safe-guarding the strategic air campaign itself. These included the Iraqi air defence system, the Iraqi Air Force and the Iraqi Navy — all capable of harming Coalition air and sea forces, or of protecting 'core' strategic targets.[128] The other two non-core strategic targets were the rail and highway bridges, and the Republican Guard (Iraq's elite fighting forces). Neither target type was classically strategic, but the destruction of each had important political as well as military ramifications. The Republican Guard, as the backbone of Hussein's regional influence, was considered a centre of gravity; the bridges and highways were seen as pivotal to the likelihood of them escaping.[129] Continuing debate within academic circles over the categorisation of various target sets is symptomatic of the greater lack of consensus on the criteria for what is 'strategic'.

In the early hours of darkness on 17 January 1991 the strategic air campaign was launched, featuring F-117As ('Nighthawks') attacking key air defence, command, and communications targets within Iraq, including Baghdad.[130] Counter air and strategic attack operations were conducted concurrently from the outset.[131]

In the first two days of operations the Coalition dedicated approximately 2400 sorties to its strategic targets. By day five the total had shrunk to 550 for the day and by day nine the rate had slowed to parity with the tactical campaign. By day 13 the number of strategic sorties had settled at around 250 (of which about 75 were tied up with elusive Scud related targets)[132] where it stayed for the remaining two-thirds of the war.[133] As the number of remaining strategic and offensive counter air (OCA) targets reduced,

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[127] ibid., p. 39.
[128] ibid., p. 46.
[129] DoD Final Report to Congress, *Conduct of the Persian Gulf War*, p. 158. As cited in ibid., p. 49.
[130] Davis, *Strategic Air Power in Desert Storm*, p. 24
[131] Gary Waters, *Gulf Lesson One - The Value of Air Power: Doctrinal Lessons for Australia*, Air Power Studies Centre, Canberra, 1992, p. 164.
[132] James P. Coyne, *Air Power in the Gulf*, The Air Force Association, Washington, DC, 1992, p. 57, table. As cited in Davis, *Strategic Air Power in Desert Storm*, p. 32.
[133] DoD Final Report to Congress, *Conduct of the Persian Gulf War*, p. 101, chart. As cited in Davis, *Strategic Air Power in Desert Storm*, p. 32.

increasing offensive weight was lent to the isolation and attrition of the fielded forces in the KTO.[134]

While not without its complications and deficiencies (the subjects of much post-war analysis) the strategic air campaign was conducted substantially as it had been planned. A massive concentration of force had been achieved and sustained across the strategic-to-tactical spectrum of war until finally the fighting potential of Iraq had been critically undermined. Iraq was effectively paralysed and on 28 February 1991, after six weeks of air war and 100 hours of ground war, President Bush announced an end to hostilities.[135]

The strategic air campaign had been pivotal to victory through the destruction of Iraq's military power at its source. Air power enabled the Coalition to target Hussein's strategic military capability without invading the country. It provided a means of reducing the war-making potential of Iraq to the point where the inevitable land battle was assured of producing a favourable outcome, and with minimal friendly casualties.[136] Iraq had been beaten by the brute force reduction of its capacity to wage war, simultaneously across all levels of its crisis management structure, from government to fielded unit levels.

OPERATION DELIBERATE FORCE — FIELDED ACTION FOR STRATEGIC OBJECTIVES

Background

By August 1994 the crisis in Bosnia had been dragging on for 40 months. In 1992 the declaration of independence by Bosnia-and-Herzegovina (more commonly known as 'Bosnia') had resulted in a civil war with the emergence of three separate groups — Bosnian Serbs, Croats and Bosnian Muslims. The war intensified and all three sides became involved in genocide or 'ethnic cleansing'. Already peacekeeping in Slovenia and Croatia, the UN deployed peacekeeping forces into Bosnia as UNPROFOR (United Nations Protection Forces) in service of sanctions, safe havens and humanitarian relief. The intention for UN participation was, of course, nonpartisan in nature. However, when the Bosnian Serbs emerged as the vastly stronger party and the Bosnian Muslims suffered most significantly as the weakest, UN participation had to become increasingly asymmetric. Eventually, the situation turned from one of peacekeeping to one of peace*making* and offensive air power was deployed to the region in service of that process.[137]

Despite a number of UN/NATO air operations during 1994 and early 1995, Bosnian Serb offensive action continued largely unabated. UN mandates regarding Safe Areas and weapons exclusion zones (EZs) were regularly abused, NATO and UN aircraft and ground forces were occasionally attacked and there had been an increase in factional fighting during the autumn and winter of 1994. The Bosnian Serb Army

[134] Waters, *Gulf Lesson One*, p. 127.
[135] ibid., p. 98.
[136] ibid., p. 123.
[137] Wing Commander P.N. Wood (RAAF), 'Bosnia — Air Power Implications for the Future' (unpublished) a presentation to the RMAF, Malaysia, 30 June 1997, pp. 3-4.

(BSA) retaliated against air strikes, at one stage taking UN hostages and later shooting down a NATO F-16.

After meetings in July and August of 1995 the North Atlantic Council (NAC) decided that 'further Bosnian Serb offensive action must be met with a firm and rapid response with the aim of deterring attacks on Safe Areas and responding, if necessary, through the timely and effective use of air power ... until attacks on or threats to the Safe Areas have ceased'.[138] Under the NAC guidance, NATO planners refined some of their air protection and air attack contingency plans and incorporated them under the single codename — Operation Deliberate Force.

Execution

Detailed planning had been underway for some two months when, on 28 August 1995, the BSA made a mortar attack against the Sarajevo marketplace killing 38 civilians.[139] Operation Deliberate Force was subsequently set in motion. The first bomb impacted just after 0200 local time on the morning of 30 August 1995.

Day one of the campaign featured strikes on 23 specific targets with 90 planned impact points on and around those targets.[140] The first strike had the objective of destroying all of the fixed and truck mounted integrated air defence system (IADS) capability in eastern Bosnia.[141] Day two brought attacks from another three strike packages, again into the vicinity of Sarajevo and again targeting the air defences, but also hitting ammunition depots and equipment storage and maintenance facilities. On day three a 24-hour suspension was called for by the UN commander (COMD UNPROFOR) in support of negotiation efforts. Strike packages were placed on alert status but mission support flights continued unabated.[142] On day four the suspension was extended indefinitely to further assist the pursuit of diplomatic solutions, but another eight strike packages were planned and placed on alert status.

On day seven the negotiations were deemed by the UN to have failed and the NATO air strikes were resumed. For the next eight days air strikes pummelled new surface targets in accordance with the old plan, and re-struck old targets in accordance with BDA (battle damage assessment). The original target categories were supplemented with various key bridge and choke point targets in response to the emerging needs of UNPROFOR in the ground campaign.[143]

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[138] Internet source http://www.hri.org/docs/nato/background.html, 10 July 1997.

[139] Craig Covault, 'Air Power Alters Bosnia Equation', *Aviation Week & Space Technology*, Vol 143, 4 September 1995, p. 22.

[140] ibid.

[141] Sixteen of the twenty-three targets were key air defence communications nodes, command and control facilities, early warning radar sites and SAM and gun sites. See ibid.

[142] The numerous other air roles of the campaign included pre- and post-strike reconnaissance, SEAD (suppression of enemy air defences), CAP (combat air patrol), AAR (air-to-air refuelling), AEW (airborne early warning), ABCCC (airborne battlefield command, control and communications), ELINT/ESM (electronic intelligence/surveillance) and CAS (close air support). Artillery fire from the RRF (Rapid Reaction Force) against threatening BSA positions was also continued. Internet source http://www.hri.org/docs/nato/execute.html, 10 July 1997.

[143] ibid.

Except for the sometimes significant weather-induced breaks, operations ran throughout the day and night. However, on day twelve attacks were directed away from the immediate Sarajevo area to allow an assessment of BSA intentions to move heavy weapons. The shelling of Tuzla airport by the BSA also called for slight adjustments to an otherwise mainly preset air play (with new approvals being given to attack ammunition storage depots in the Tuzla area).

By 14 September 1995, 16 days after the campaign began, Bosnian Serb command and control and logistics infrastructures had been crippled, and warring factions agreed to the conditions set out in the UN-brokered Framework Agreement.[144] Offensive air operations were suspended. Within six days the UN and NATO concluded that all Deliberate Force objectives had been met and that the Safe Areas were no longer considered under threat. In total there had been 1026 bombs dropped against 48 target complexes during the 11 days approved for bombing.[145] Combined with the simultaneous European Rapid Reaction Force artillery effort the campaign, at that stage, marked the largest offensive military action in Europe since World War II.[146] The objective was achieved and the campaign was declared a success.

After three and a half years of piecemeal action, Operation Deliberate Force represented the first concerted air campaign against Bosnian Serb military superiority. Notwithstanding this, there was considerable unease amongst participants about the freedom of action some planners preferred for the job. Target sets most commonly associated with higher strategic order offensives were not cleared. These included factories, roads, bridges, fuel supplies, power plants and airports. Instead, predominantly operational and tactical level targets were used in the pursuit of political objectives. This approach was made effective by the pivotal role played by Bosnian Serb military superiority in the crisis. The removal of that impediment was seen as strategically necessary to the progress of greater UN objectives. The precision bombing of a wide range of logistics and command and control nodes throughout Sarajevo, Mostar, Gorazde and Tuzla areas created a context in which options became limited for the Bosnian Serb decision-makers, and concession became attractive. The result was the Dayton Accords, a set of agreements between warring factions which remain the foundation of the continued rebuilding of Bosnia today.

OPERATION ALLIED FORCE — AIR POWER GOES SOLO?[147]

On 24 March 1999 NATO attacked the Federal Republic of Yugoslavia (FRY). In a campaign with its origin dating back to 1878, Kosovo had bid for her independence

[144] John D. Morrocco, 'Bombing Compels Serb Withdrawal', *Aviation Week & Space Technology*, Vol 143, 25 September 1995, p. 36.

[145] 708 precision and 318 non-precision. Internet source http://www.hri.org/docs/nato/summary.html

[146] Covault, 'Air Power Alters Bosnia Equation', p. 22.

[147] At the time of the final editing of this study, official information on Operation Allied Force was scarce, statistics unconfirmed and analyses accordingly tentative. However, two early works are notable and form the primary sources for this section. Namely Alan Stephens, *Kosovo, Or the Future of War*, Paper No. 77, Air Power Studies Centre, Canberra, August 1999, and Joel Hayward, 'NATO's War in the Balkans: A Preliminary Analysis', *New Zealand Army Journal*, No. 21, July 1999, pp. 1-17.

from the Republic.[148] Conflict that had been standard currency in the Balkans for hundreds of years again bubbled to the surface. The main protagonists were the Kosovo Liberation Army (KLA, or Ushtria Clirimtare e Kosoves - UCK) who had become synonymous with the Albanian nationalist movement, and the Serb military and paramilitary forces. As the Serbian campaign to suppress the independence bid unfolded, evidence of genocide began to emerge.

After the deaths of hundreds of civilians and the displacement of tens of thousands, the United Nations Security Council issued Resolution 1199 on 23 September 1998 calling for the immediate end to hostilities in Kosovo. On 13 October 1998, frustrated by the ongoing violence, the NAC ordered a phased campaign of limited air strikes against the Serbs and the threat served to forestall Serbian aggression. Diplomatic efforts eventually led the warring Balkan factions to negotiate the Rambouillet documents which mapped out the conditions for peace. These were eventually signed by the KLA but the Serbian government walked away. The threat of air strike was again raised, this time in an attempt to bring President Milosevic back to the negotiating table, but to no avail.

On 23 March 1999 — on the eve of the air campaign — President Clinton stated as his 'first' objective, a political aim 'to demonstrate the seriousness of NATO's purpose' so that Milosevic would return to negotiations over the future of Kosovo. His other stated objectives were to deter the further repression of Kosovars and, if necessary, to damage the Serb military's capacity to harm the people of Kosovo.[149]

NATO made five pre-war demands:

- Verifiable withdrawal of all Serb forces from Kosovo.
- The deployment of an international military force.
- The return of all refugees.
- The establishment of an interim political solution.
- The immediate and verifiable end to violence and repression in Kosovo.

The campaign was to be short, intense and decisive. As Kenneth Bacon (Pentagon spokesman) announced on the eve of the NATO offensive:

> We have plans for a swift and severe air campaign. This will be painful for the Serbs. We hope that relatively quickly ... the Serbs will realise that they have made a mistake.[150]

[148] The Prizren Program of 1878 called for the union of all Albanians living in the vicinity of Yugoslavia. Kosovo eventually became the centre of a dream for an ethnically pure Albanian state. For a concise history on the rise of Kosovo's independence movement see Stephen R. Bowers and Marion T. Doss, Jr., 'Low-Intensity Conflict in the Balkans: Evolution of the Albanian Independence Movement', in *Armed Forces Journal International*, May 1999, pp. 28-34.

[149] President Clinton's Address to the Nation, 24 March 1999. As cited in Hayward, 'War in the Balkans', p. 5.

[150] Television Broadcast, PBS 'Newshour', 24 March 1999. As cited in Hayward, 'War in the Balkans', p. 2.

However, as history now testifies, NATO seriously underestimated Milosevic's resolve. Despite the stated aspirations for a swift and severe campaign, the first wave was launched on 24 March 1999 from a stable of just 120 strike aircraft (one-fifth of the total strike aircraft employed in the early stages Operation Desert Storm). NATO's early military effort was significantly constrained, not just by the relative lack of aircraft but by significant weather problems and, perhaps above all, by political constraints.[151] Political factors demanding early caution included the untested commitment of many of the 19 NATO members (Greece, for example, had religious and other ties with Serbia), the unpredictable response of the non-NATO international community, and the proven casualty sensitivities of the American public.

The integrity of the alliance was paramount. These were the opening days of NATO's first ever offensive campaign against a sovereign nation and while mass and tempo had proven preferable to gradualism in the Gulf, the political realities called for restraint. As Meilinger has pointed out, no military action can be separated from the prevailing political climate and the situation dictated a 'measured and steadily increasing use of air power'.[152]

For at least the first four weeks of the eleven-week campaign, operations were heavily influenced by restrictions on coalition casualties and collateral damage. With the requirement for all 19 nations of the coalition to agree on target selection, the early intention of the Joint Force Air Component Commander (Lieutenant General Michael Short) to 'go down town' against power, telephone, C2 and bunkers was significantly curbed. Political micro-management continued throughout the campaign and horse-trading to side-step political blocks on targets remained a significant preoccupation for General Wesley K. Clark (Supreme Allied Commander Europe – SACEUR).[153] Further to this, the SACEUR had himself insisted that the levels of collateral damage previously seen in Operations Desert Storm and Desert Fox were not to be repeated, and the NAC had imposed the remarkable requirement on the SACEUR for 'no loss of aircraft'.[154]

Operation Allied Force began with an average of just 48 strike missions per day, not counting sea-launched cruise missiles.[155] The early offensive comprised air- and ship-launched cruise missile strikes from stand-off positions to minimise risk. These were primarily directed at Serbia's integrated air defence system. Within three days the offensive included strikes from aircraft using precision guided munitions (PGMs) against a range of targets, but still in small numbers and with minimal apparent effect.

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[151] By the 21st day of the Operation there had been only seven days of favourable weather and there were 10 days when more than 50 per cent of sorties had to cancelled. The International Institute for Strategic Studies, 'Airpower – The Lessons from Kosovo', *The Strait Times*, 4 September 1999, p. 74. In fact, in the final analysis only 15 of the first 72 days of the campaign saw clear skies.

[152] Phillip S. Meilinger, 'Gradual Escalation: A Return to the Future?', in *Armed Forces Journal International*, (yet to be published September 1999).

[153] Michael Ignatieff, 'The Virtual Commander: How NATO Invented a New Kind of War', *New Yorker*, 2 August 1999, p. 30.

[154] *Washington Post*, 16 May 1999. As cited in Hayward, 'War in the Balkans', p. 2.

[155] John T Correll, 'Assumptions Fall in Kosovo', *Air Force Magazine*, Vol 82, No. 6, June 1999, p. 4.

Even with the campaign effort rising, the first month's daily rate averaged only 92 strike missions.[156] Despite the early and continuing work against enemy air defence systems, the Serbian AAA and SAM threat persisted and drove pilots to operate above 15 000 feet, significantly complicating the requirement for flawless target identification. Mistakes were inevitable and where they occurred they were highly publicised, drawing attention beyond proportion.[157] Military commanders eventually brought pressure to bear on NATO's higher authorities and operations were ramped up to include more aircraft against a broader target list.

By early May there were 400 strike aircraft in theatre, the average activity rate had risen to over 300 missions per day, and with some relaxation in ROE opportunity strikes significantly increased to make up 10 per cent of the total.[158]

Targets included energy sources (electricity and petroleum), key war industries (such as vehicle and weapons factories), logistics systems, and more air defence elements. The intensified operations continued for the next month and on 4 June 1999 General Michael Ryan (Chief of Staff) was able to claim:

> Serbia's air force is essentially useless and its air defenses are dangerous but ineffective. Military armament production is destroyed. Military supply areas are under siege. Oil refinement has ceased and petroleum storage is systematically being destroyed. Electricity is sporadic, at best. Major transportation routes are cut. NATO aircraft are attacking with impunity throughout the country. With the continued build-up of our aircraft and better weather, the attacks are intensifying and the effects are mounting.[159]

Victory was 'inevitable' he added. The final six-week phase of the operation had taken on a 'Wardenesque' complexion. As Joel Hayward correctly identifies, simultaneous attacks were being waged against target sets across the spectrum from Serbia's leadership through system essentials and national will to fielded forces. By late May 1999, Slobodan Milosevic was looking for a way out and welcomed the peace proposals offered by non-NATO countries Russia and Finland. On 10 June 1999, after 78 days of bombing, Serbia agreed to terms for peace set out by the G8.[160]

Operation Allied Force confirmed three emerging trends in aerial bombing: campaign brevity, low casualty rates and a swing to precision. For duration, at a mere 78 days in length it mimicked Operations Desert Storm and Deliberate Force at 40 and 22 days respectively.[161] Like Operation Deliberate Force and after a great many more sorties (some 35 000 in eleven weeks), Allied Force produced not a single allied combat casualty. Two aircraft were lost but both crews were rescued. In Operation Allied Force, more than 35 per cent of weapons dropped were precision munitions. Prior to

[156] John A. Tirpak, 'The First Six Weeks', *Air Force Magazine*, Vol 82, No. 6, June 1999, p. 28.
[157] Despite the fact that, by war's end, only 20 of some 23 000 bombs and missiles had gone astray, each event drew enormous public attention.
[158] Tirpak, 'The First Six Weeks', p. 28.
[159] *Washington Post*, 4 June 1999. As cited in Hayward, 'War in the Balkans', p. 11.
[160] The 'G8' comprises the seven most industrialised nations (the 'G7') plus the Russian Federation.
[161] Alan Stephens, *Kosovo, Or the Future of War*, p. 8.

that, Operation Desert Storm had set high new standards at eight per cent precision, and Deliberate Force had spectacularly confirmed the trend through the use of 90 per cent precision ordnance. Perhaps the more remarkable feature of Operation Allied Force was that it involved only air power (from naval, land and air forces). Unlike previous campaigns there was no significant concurrent surface battle.

In the post-war analysis it is clear that the campaign did not immediately achieve *all* of NATO's five pre-war demands. Indeed, it is apparent that the offensive, while *in progress*, did little to deter the Serb campaign of genocide. It appears that as many as 10 000 Kosovar Albanians may have died during Operation Allied Force.[162] More than 800 000 people were expelled from their country with another 600 000 internally displaced.[163] It is however apparent that Serbian aggression in Kosovo was finally brought to a halt, that a verifiable withdrawal of all Serbian forces was achieved and that the UN was ultimately unopposed in deploying a stabilisation force.

Operation Allied Force was a high order strategic air campaign. It did not address the continuing expulsion and displacement of Kosovar Albanians from their homes, but instead more directly pursued the political objective – to have Milosevic's offending policy of human rights abuses suppressed. The short term effect was an apparent failure to make any difference in the field. The longer term effect of the bombing was to negate any need for direct intervention in the field. Serb forces abandoned their campaign of ethnic cleansing because Belgrade ordered them to do so, not because NATO had made it any less possible for them to continue.[164]

At the time of writing, the repatriation of Kosovars continues in a state of relative peace under UN supervision.

The campaigns and conflicts summarised in this brief recap of history provide trends and themes which can now be drawn into small nation air strike analysis in Part Two. It is perhaps noteworthy that within this history section, the use of 'strategic' to define various forms of strike has remained somewhat loose — as indeed has been the historical inclination. If anything, the most consistent tendency has been to apply the term wherever air attacks have been directed at targets of a less than purely military nature. Thus, attacks on production industry, energy generation, communications facilities, ports and so forth, are often amongst those considered strategic. However,

[162] Stephens, *Kosovo, Or the Future of War*, p. 9.
[163] According to UN and State Department figures quoted in 'Within Two Months Bombs Will Prevail, General Says', *Washington Post*, 24 May 1999, p. 1.
[164] The International Institute for Strategic Studies, 'Airpower – The Lessons from Kosovo', *The Strait Times*, 4 September 1999, p. 74.

also noted is the indisputably strategic relevance of attacks against fielded forces — including the Republican Guard and BSA in respective campaigns.

In Part Two, we will more consistently recognise the full scope of strategic possibilities and make greater use of the strategic strike definition involving the *direct* pursuit of *primary* or *ultimate* political-military objectives.

PART TWO

STRATEGIC AIR STRIKE FOR SMALL NATIONS

Chapter Four

SMALL NATIONS

SMALL NATIONS — A DEFINITION

Size

What is meant by 'small nations'? The phrase is routinely used along with references to 'medium powers' and 'superpowers' in the lexicon of international affairs — yet there is no precise definition. If it were possible to measure national power in quantitative terms, one would probably do so by calculating and summing values for the likes of population, economic strength, geographical resources and military might. Nations could be ranked with the 'large' ones at the top of the scale and 'small' ones at the bottom. In ideal terms, somewhere on the continuum there would a discrete point below which nations might be categorised 'small'. In practice however, any such point would be purely arbitrary and could never be declared without delineation disputes defeating the exercise. Singapore is a small nation; France is not. Defining the exact 'cut-off' is neither possible nor important. What *is* important is that we have a generic concept for nations which lack large nation resources, at least in quantity, so we can contemplate air strategies appropriate to limited means. We can write meaningfully about this class of nation without attempting to specifically and publicly identify the individuals. Small nations know who they are!

This work avoids quibbling over definition boundaries and means to distinguish small nations only for the purpose of casting limelight on the utility of offensive air power for nations *other than* America, China, Russia and the 'larger' of the European nations. The intention is to encourage focus on a category of nation which may be poorly served or misled by *popular* offensive air power doctrine.

While basic air power doctrine has general applicability, air strategy distilled from the doctrine needs to draw in the characteristics and limitations of the nation or nations at the helm. Not all air strategy or strategic bombing doctrine derived internationally will have automatic relevance to the unique circumstances of small nations. America's strategic bombing doctrine, for example, may be of limited practical utility to Finland with its 122 offensive air platforms, or to Laos with its 40. Many principles within the doctrine — technological, tactical and logistical — will have universal applicability, but overall air strategy should be expected to vary with the constraints associated with size. Small nations should be as much interested in how Peru and Ecuador have or might have harnessed offensive air power in their territorial disputes as how an American-led coalition might conduct operations in a European theatre. In actuality, little attention is paid to the former.

Relative Size

It is surely simplistic to deal with the air power of a small nation in any contest without considering the size of the competition. After all, war between nations is a test of *relative* strength. If a small nation is only to contest issues with other small nations, then one must wonder whether the shortage of resources (a mutual problem) is really all that relevant as a constraint. Indeed, relative to a *smaller* state, a given small nation might be considered quite large.

In fact, there are certain characteristics of smallness which are absolute rather than relative. Relative largeness does not necessarily confer on a small nation the ability to employ major power war-fighting strategies. There are thresholds of critical mass below which certain approaches are simply not achievable. Small nations do not necessarily fight small nations in the same way that large fight large.

Consider, for example, the practice of invasion as carried out through history by both offending nations (for example, Iraq in 1990) and defending nations (for example, the Allies against Germany in World War II). With exceptions, invasion is a large nation strategy. As a simple matter of resource requirements, it is usually beyond small nation capacity. It is estimated, for example, that the invasion of Australia would require some 15 to 20 army divisions along with vast quantities of air and sea power to transport, protect and resupply such a large land force.[1]

Small nations do not have the means to impose their will in this way. Instead the strategies they employ must be matched to limited means. Thus, the potential threats from any small nation acting against Australia are more likely to involve events short of full-scale invasion. These have been considered to include major military lodgements on Australian territory (either permanently or to provide temporary leverage during negotiations over some broader dispute).[2] Lower level intrusions of sovereign sea and air spaces, and assaults in the forms of raids and harassments are also methods well within the means of small nations — methods by which very real pressure can be brought to bear on decision-makers holding power on other issues.[3] The point is that small nations employ small nation strategies. In many respects smallness is absolute, and an important determinant of strategy.

Generic Small Nation Constraints

What features generically distinguish small nation air power and, as such, influence the development of offensive air strategy? The main limitations are economically based. Small nation afflictions include low mass, low sustainability, limited technology, low tolerance to casualties and low capacity for platform attrition.

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[1] It is notable that, even in 1942 when the population of Australia was around seven million compared with the current 19 million, the Japanese Army General Staff estimated invasion forces to require the main body of the Combined Fleet, 12 infantry divisions, and at least 1 500 000 tons of shipping. Ross Babbage, *A Coast Too Long: Defending Australia Beyond the 1990s*, Allen & Unwin, Sydney, Australia, 1990, p. 20 and footnotes.

[2] ibid., p. 26.

[3] ibid.

Mass equates, effectively, to platform and weapon numbers. The inability of small nations to achieve high levels of air power mass is straightforward. In general, most western nations tend to spend around two to three per cent of their gross domestic product on defence. Two per cent of a superpower's budget provides for a great deal more in weapons systems than does two per cent of a tiny Pacific Island economy.

Sustainability of war effort is also a significant impediment to small nations. Large nations tend to have large amounts of 'hi-tech' industry, often supported by high levels of self-sufficiency in raw materials and accompanied by extensive research and development infrastructures. The ability to indigenously produce war materiel coupled with an efficient logistics infrastructure can produce a war-fighting system capable of operating at high intensities for indefinite periods. Small nations, on the other hand, depend on the peacetime storage rather than wartime production of military stocks — and the size of this stockholding is constrained by economics. With less of an organic war production capability and limited stockholdings, small nations are logistically dependent on external sources and therefore acutely more vulnerable to interruptions in supply. Unsupported, a small nation with finite resources and known contingency parameters can calculate to the day when the first critical provisions will run out. Except where small nations can secure substantial and reliable third party support, or alternatively dictate the pace of the conflict, war may be a critically finite affair. As a result of sustainability questions, small nations within war will generally expect difficulty in reaching and maintaining the kind of operational tempo seen in the major 20th century air campaigns. Operations are more likely to be sustainable when conducted on a selective and regulated rather than continuous and intense basis.

Limits in technology again result from defence budget limitations and mean that small nations tend to carry, at best, the earlier marks of newer generation equipments. Certain relatively complex or expensive capabilities including space-based systems, *active* electronic warfare (EW) and the suppression of enemy air defences (SEAD) may not be carried by small nations at all. They may also lack the sophistication in C4I (command, control, communications, computing and intelligence) systems that the largest nations have achieved, and are therefore bound in terms of pure management capacity to simpler, lower intensity operations. The coordination of complex, high tempo campaigns may be beyond small nations, but then so are the quantities of aircraft and the sustainability demands for such a mode of operation.

Sensitivity to casualties and equipment attrition is certainly not unique to small nations. However, extra to the moral, media and mandate concerns of large nations, attrition for small nations more critically affects sustainability. The loss of one small nation strike pilot represents a greater than two per cent loss in strike capability for some small nations. If the loss involves one of few experienced senior pilots, then the effect on combat potential may be even greater than the figure alone suggests. Each individual aircraft lost would similarly represent a much larger percentage of the total force than for large nations. To further amplify the problem, small nations may lack the large nation capacity to create and maintain reserves for the replacement of losses in wartime. Whatever the air strategy adopted by small nations in conflict, it must observe the imperative to preserve precious resources. Risk must be managed with special care. While avoidance of attrition is important for all military forces, it is critical for small air forces.

These constraints are all very real in the determination of air strategy in conflict. As the Australians note in their air power doctrine:

> There will always be some economic restriction on size and capability; therefore, the RAAF must be able to operate within these constraints whilst accepting some decrease in effectiveness.[4]

Small nations must make do with what they can afford. They must play the hand they are dealt in the cleverest possible way. Their doctrine needs to be customised towards amplifying the value of their limited means.

SMALL NATIONS, THE GLOBAL POWER BALANCE, AND THE NEED FOR INDEPENDENT AIR STRATEGY

What need do small nations have for air strategy — especially when aligned with America who is bound to come to the rescue and bring its own?

The Cold War produced complacency in the developers of small nation air strategy and doctrine. For more than forty years international (and even intra-national) conflicts were virtually guaranteed the attention of one of the superpowers, with the other promptly to follow. Small nations lost (and often gladly relinquished) 'ownership' of military problems as superpowers took control, vying to promote or defend their respective and diametrically opposed ideologies. Thus, the war between South Korea and North Korea became a war between the US and China/Russia. The war between South Vietnam and North Vietnam similarly became a proxy war for the same superpowers. Reliable superpower representation removed the need, and thus the prospect, of any ability for small nations to plan and apply air power with autonomy.

With the implosion of the Soviet Union came the end of the Cold War. It marked not only the collapse of communism in its most powerful manifestation, but more importantly the disappearance of the ideological conflict which had polarised the world and dominated international politics for almost half a century. The ramifications of this change are still emerging and the likely shape of the new world order is widely debated.

The particular aspect of interest to this study is the significance of the post-Cold War global power balance to small nations. On the one hand, the collapse of the Soviet Union has largely defused (or at least demoted) the 'communism versus democracy' stand-off and arguably produced a more benign global environment. Significant reductions in defence expenditure for the major power stakeholders in the conflict certainly contribute to this perception. The US Air Force decreased the number of men and women in uniform by a third and cut in half the size of its

[4] *DI(AF) AAP 1000: The Air Power Manual (2nd edn)*, p. 60.

forward stationed force.[5] Similarly, since 1990 the UK's defence budget has fallen in real terms by 22 per cent. At just under 2.8 per cent of GDP, it is at its lowest since the mid-1930s.[6]

Small nations might be forgiven for sharing in the apparently more relaxed outlook on global security issues. Those struggling to fund social, health and education policies at home have eagerly welcomed 'major power' down-sizing as a signal that reductions are generally appropriate.

On the other hand, however, the dissolution of the bipolar world has led to a great deal of uncertainty. The disengagement of superpowers has had some tangibly destabilising regional effects. Ancient regional animosities have re-emerged in places where they were previously suppressed, such as in the former Yugoslavia. Regional power vacuums have emerged with local players bidding for dominance, such as in the Middle East.[7] Simmering regional conflicts have erupted without Cold War constraint, as illustrated in the India/Pakistan nuclear competition. The 1990s have witnessed 37 armed conflicts so far.[8]

The prognosis is that future conflict will be much more localised. 'Regionalism is on the rise'[9] with global war now seen as a 'very, very remote possibility'.[10] If anything, those nations which enjoyed the security of strongly motivated superpower alliances in an ideologically polarised world should now feel a measure *less* secure with their respective 'umbrellas' gone, and with old and new local issues on the rise. It could be contended that what has been appropriate for superpowers in the wake of the Cold War (namely military down-sizing) has not actually been appropriate at all for small nations.

For small western democracies planning to handle crisis, the end of the Cold War does not, of course, necessarily translate to the terminal withdrawal of support from the US. The promotion of democracy is still an objective in US foreign policy. However, an important change lies in the shift from ideology to economics as the central

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[5] General M.E. Ryan, 'New World Vistas: USAF Air and Space Power for the 21st Century' in Shaun Clarke (ed.), *Testing the Limits*, 1998 RAAF Air Power Conference Proceedings, Air Power Studies Centre, Canberra, March 1998, p. 14.

[6] Air Chief Marshal Sir John Allison, 'Future of Air Power — A European Perspective' in Clarke (ed.), *Testing the Limits*, p. 99.

[7] Miller, B., 'International Systems and Regional Security: From Competition to Cooperation, Dominance or Disengagement', *The Journal of Strategic Studies*, Vol 18, No. 2, Frank Cass, London. June 1995, p. 81.

[8] Armed conflicts (excluding humanitarian operations and natural disasters) have occurred in the 1990s in the following areas: Afghanistan, Algeria, Angola, Azerbaijan, Balkans, Burundi, Cambodia, Chad, Chechnya, Colombia, Congo, East Timor, El Salvador, Eritrea, Georgia, Ghana, Guatemala, Haiti, Iraq, Kashmir, Liberia, Mexico, Moldova, Nigeria, Peru, Rwanda, Sierra Leone, Sindh, Somalia, South Africa, Sudan, Tajikistan, Tamil, Turkey, Uganda, Yemen, and Zaire. Lieutenant Colonel D. Snodgrass (USAF), unpublished lecture, Australian Defence Headquarters, Canberra, 1 April 1998.

[9] Dibb, P., 'International Security and Australia' in Alan Stephens (ed.), *New Era Security*, Air Power Studies Centre, Canberra, 1996.

[10] General Colin Powell, speech to The Atlantic Treaty Association, 9 October 1991, transcribed in *Current News Supplement*, American Forces Information Service (10 October 1991), A-13. As cited in Martha Maurer, *Coalition Command and Control: Key Considerations*, National Defence University, Washington D.C., 1994, p. 3.

motivation for the extension of US helping hands. There is a quality in *ideologically* motivated intervention which makes it much more reliable than *economically* motivated intervention. Economic motives can change more quickly and less predictably than ideological ones. Relationships are shallower when based on mutual market advantage than on a shared ideology under threat. There was no price put on protection of ideology in the Cold War. The US and the USSR were each, at least theoretically, prepared to risk the planet itself through the nuclear defence of their political ideals. 'Better dead than red' encapsulated the pervading American sentiment. On the other hand, purely economic threats (by definition) *do* have a price. In the post-Cold War political environment, superpower intervention in small nation contingencies will surely only occur where the large nation cost-benefit analysis proves it to be warranted. In exactly this way, oil-producers Kuwait and Saudi Arabia were extended assistance in 1990 while East Timor's loss of sovereignty in 1975 remained militarily unchallenged. Intervention may not occur where an economic incentive does not exist.

The bottom line is that, regardless of whether the post-Cold War global security situation is to be considered better or worse, the prospect of US military intervention in any small nation crisis should not be taken for granted. There are three themes to this rationale. Firstly, even before the end of the Cold War the US had indicated a desire to have nations in the region take responsibility for their own defence. In what has become known as the 1969 'Guam Doctrine', US President Richard Nixon declared that:

> ... as far as the problems of international security are concerned, as far as problems of military defense except for the threat of a major power involving nuclear weapons [are concerned] ... the United States [is] going to encourage and had a right to expect that this problem would be increasingly handled by, and the responsibility for it taken by, the Asian nations themselves.[11]

While stopping short of stating plainly that the US would not always respond to requests for assistance, Nixon clearly indicated that the US expected small nations in the region to increasingly take care of their own defence needs.

Secondly, and as alluded to already, the US as a sovereign nation must fairly be expected to act predominantly in its own interest. For the US to intervene in another party's dispute certain self-centred criteria must logically be fulfilled. Perhaps the most succinct enunciation of the conditions under which the US would choose to enter someone else's war was made by Secretary of Defence Caspar Weinberger in November 1984. Weinberger set guidelines for deciding on the involvement of US combat forces abroad, as follow:

[11] Extract from *The New York Times*, 26 July 1969, as reported by the Australian Embassy, Washington, to the Australian Department of External Affairs by cablegram, 27 July 1969. As cited in *ANZUS After 45 Years: Seminar Proceedings 11-12 August 1997*, The Joint Standing Committee on Foreign Affairs, Defence and Trade, Canberra, September 1997, appendix 2, p. 217.

- The conflict should be of vital national interest to the United States and its allies.
- Intervention must occur wholeheartedly with a clear intention of winning.
- The country must have clearly defined political and military objectives.
- The relationship between the objectives and the forces must be continually reassessed and adjusted if necessary.
- There must be a reasonable assurance that the American people and Congress will support intervention.
- Commitment of US forces should be the last resort.[12]

Notwithstanding the subsequent election of a Democrat president in 1992, the Weinberger doctrine remained extant as the basis for US military involvement.[13] In May 1994, for example, President Clinton signed a directive on policy reforming multilateral peace operations. The directive's key concepts for US participation bear a close resemblance to the Weinberger principles. One significant addition addresses the issue of finance, and implies that 'resources should be expended on action that will bring the highest return on investment'.[14]

The point is that the involvement of the US in the crises of small nations is highly conditional. The US cannot afford 'to be the world's policeman; it needs to pick its fights carefully'.[15] Choices are the product of American cost-benefit analysis and intervention should never be assumed. As Colin Powell has written in summarising Weinberger's rules, 'In short, is the national interest at stake? If the answer is yes, go *in, and go in to win. Otherwise, stay out*'.[16] What defines the national interest for the US at any one time is a complex set of political, governmental, civil/domestic, diplomatic and economic factors. Assistance is decided case by case. Despite the 'spirit' of ANZUS, there is no obligation for American military assistance.

A third and related factor which should not be overlooked by small nations assessing the reliability of longer term US military intervention is the growing isolationist movement in that country. The fact that a character like Patrick J. Buchanan with his right-wing 'America First' campaign of 1992 could gain the mandate for a Republican presidential nomination is evidence enough that isolationism is squarely on the American political agenda. Buchanan mounted a significant challenge to George Bush in 1992, and was Robert Dole's chief rival for the nomination in 1996.[17] Buchanan's

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[12] Caspar W. Weinberger, 'The Use of Military Power', speech, National Press Club, Washington, D.C., 28 November 1984, p. 3. As cited in Susan E. Strednansky, *Balancing the Trinity: The Fine Art of Conflict Termination*, School of Advanced Airpower Studies, Air University Press, Maxwell AFB, Alabama, February 1996, p. 8. See also Weinberger, 'The Uses of Military Power', pp. 2-10.

[13] John Teager, *Blessed Be The Peacemakers: Conflict, Peace and Air Power*, Air Power Studies Centre, Canberra, 1996. p. 26-27.

[14] Douglas Bennett, Jr., (Assistant Secretary for International Organisation Affairs), 'Peace-keeping and Multilateral Relations in U.S. Foreign Policy', address, UN Association, Princeton University, 29 November 1994, in *US Department of State Dispatch, 5 December 1994*, p. 810. As cited in Strednansky, *Balancing the Trinity*, p. 12.

[15] Strednansky, *Balancing the Trinity*, p. 17.

[16] Colin Powell (with Joseph E. Persico), *A Soldier's Way: An Autobiography*, Hutchinson, Random House, London, 1995, p. 303.

[17] See *Keesings Record of World Events*, News Digest for February 1992, p. 38756; and News Digest for February 1996, p. 40943.

campaign stressed political and economic isolationism, and while he ultimately failed to win presidential candidacy, his policies represent an important underlying sentiment in the US population. In a 1988 survey, 77 per cent of the US public supported the American use of nuclear weapons if attacked by the USSR; but only 34 per cent supported such action in response to Soviet attack of US allies.[18] Self-interest is a real and reasonable US preoccupation which could quite conceivably leave small 'aligned' nations needing alternative arrangements in an emergency.

There are other miscellaneous factors which might complicate and ultimately preclude superpower intervention in small nation crises. For example, conflicts of interest may occur. Military intervention would surely only happen where it did not significantly compromise a *more* important relationship with some third party. Furthermore, intervention could only occur where the resources were available. US policy is to structure defence forces to handle only two concurrent contingencies. In exceptional circumstances this alone could preclude US assistance. Temporarily soured relationships could also interfere with the provision of American military assistance. The ongoing impasse between the US and New Zealand in which the latter finds itself suspended from the ANZUS alliance over the exclusion of nuclear ships from its ports offers an example. The ramifications of this rift in peacetime are certainly real for New Zealand, and the likely effects of such problems during times of crisis must also be assumed to be serious.[19]

Small nations need to ensure that the assumption of superpower military intervention is constantly and critically examined. Where any apprehension exists, force planning in peacetime must accommodate scenarios involving non-superpower coalitions and (for appropriately low level contingencies) autonomous operations. The current prospect of American participation in serious Australian defence contingencies is high. New Zealand has a great deal more reason for conservatism but also assumes a high chance of attracting American assistance should a serious need arise. Confidence in such assessments, however, could decay with no more notice than the period of a US election campaign. In any case, confidence failures can occur with far less notice than would be adequate for dependent small nations to restructure or re-orientate for alternative alliance arrangements. The building of air forces takes decades; shifts in politics and popular opinion take months.

Small nations with a mature understanding of the nature of alliances and alliance failure adopt a strategy of self-reliance. Australia and New Zealand are such countries. Australia's self-reliance is a central feature of its strategic posture. It recognises that

[18] Andrew Mack, 'The Strategy of Non-Provocative Defence: The European Debate' in Desmond Ball and Cathy Downes (eds.), *Security and Defence: Pacific and Global Perspectives*, Allen and Unwin, Sydney, 1990, p. 164.

[19] Note that US intervention has been considered here, but UN intervention has not. The rationale for this is that it is the involvement or the non-involvement of the US which most especially influences the position of small nations in war — whether that involvement be under the auspices of the UN or otherwise. UN sympathy in a small nation predicament without the support of the US would still be extremely important but would amount to much less in real terms. For a start, UN Security Council Resolutions in support of a small nation's plight could not be passed without the vote of the US (as one of the five permanent member states), and even if the US did vote favourably, its military abstinence would vastly undermine the power of any subsequent UN coalition.

'the threshold for direct US combat involvement in defeating a threat to Australia — outside of the context of a global war — could ... [be] quite high'.[20] Consistent with this policy, Australia has been developing apparatus for independent war-fighting in the form of its own operational level theatre command system. As mentioned in the introduction to this book, according to the Australian Minister for Defence:

> Australia has an integrated and increasingly self-reliant Defence Force focused on the protection of our national interests. We aim to acquire and to maintain the ability to deal with possible military threats to Australia without relying on the assistance of combat forces from another country. This includes the US.[21]

New Zealand's stated strategy is one of 'self-reliance in partnership'. It too aims to maintain the capability to act independently. However, while 'greater self-reliance' is realistic and achievable for certain low-level tasks in and around New Zealand waters and in the South Pacific, the simple mismatch in size between New Zealand's resources and its often far-flung interests demands that independent credibility within wider sets of partnerships is the preferred method of pursuing aims.[22] While New Zealand, like Australia, has a vested interest in cultivating US favour wherever possible, it also cultivates regional bilateral and multilateral defence relationships which do not directly involve the US.[23]

This study is not about politics but doctrine. The one point which the above discussion seeks to make is that small nations planning air strategy for their defence must consider — besides superpower coalition scenarios — independent action in small contingencies and combined action in non-superpower coalitions. Of course, sympathetic superpower intervention remains the hope of all small democracies, but other scenarios must be seriously anticipated.

As this book goes to print Australia and New Zealand are mobilising for peace operations in a very unstable East Timor. US President Bill Clinton has announced that the US will provide support units only, and not troops.[24] The UN has declared Australia the lead nation for a coalition which will apparently not include superpower combat forces. History is being made and the notion of small nations planning the application of combat power in a non-superpower coalition is suddenly brought to life.

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[20] *Australia's Strategic Policy*, p. 29.

[21] McLachlan, *Australia and the United States into the Next Century*, address; see also *Australia's Strategic Policy*, pp. 29-30.

[22] *The Defence of New Zealand 1991: A Policy Paper*, New Zealand Government White Paper, 1991, pp. 52-53.

[23] A notable example is the Five Power Defence Arrangement with Singapore, Malaysia, Australia and Britain.

[24] Ross Peake, 'Habibie Agrees to UN Troops', *The Canberra Times*, Monday 13 September 1999, p. 1.

SEEKING GOOD ADVICE: AIR STRIKE DOCTRINE AND SMALL USERS

The emerging suggestion here is that small nations need to be able to build air strategies of their own, and that there are peculiarities of the generic small nation condition which have to be accommodated in that process. The problem is that most of the world's celebrated air strategy is written by and for large nations. The source material for small nation air strategy is arguably, therefore, somewhat limited. Strategic strike, as planned and executed by superpowers, may offer limited advice to small nations contemplating their own potential in strategic strike.

Strategic Paralysis: For Small Nations?

If there is a single set of concepts which has dominated superpower strategic bombing doctrine, then it includes: *high mass, high speed, high tempo and high sustainability; all brought together in parallel to achieve the unconditional surrender of an enemy through the single-handed application of air power.* The evolution of this paradigm has been visible through the major conflicts of the century and has culminated in the air campaigns of this decade. It is perhaps now commonly accepted as being as classically representative of 'strategic bombing' as was the World War II Allied bomber offensive in its time.

The new archetype for 'strategic bombing' was established in 1991 in the Gulf War. The methodological basis for that air campaign was the now well known strategic targeting model composed by Colonel John Warden III (retired). The model commonly referred to as 'Warden's Rings' or the 'Five Ring Model' (Figure 4.1) comprises five concentric circles depicting a hierarchy of systems within a national system. It suggests a means of prioritising targets by identifying generic centres of gravity for an enemy's sustainment of a national war effort.

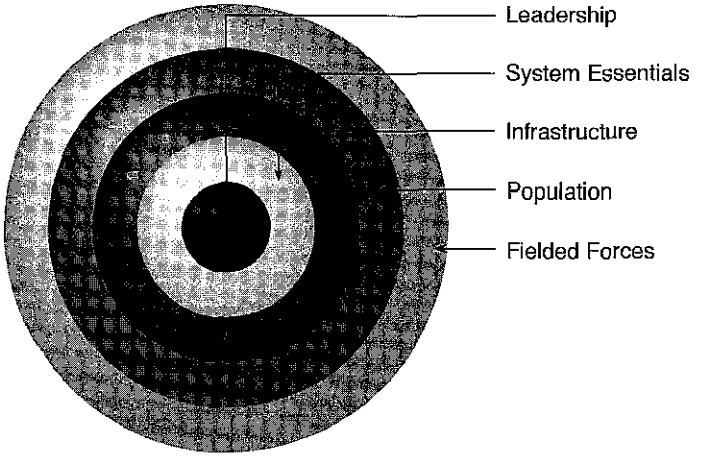

Figure 4.1 **Warden's Five-Ring Model**

The model has become popular among both large nations and small since its inception. What is sometimes overlooked by small nations in the crowd, however, is that the theory presumes a superpower (or superpower coalition) level of resourcing. It centres on achieving *strategic paralysis* — the large scale destruction of critical functionality within the enemy war making machine through the felling of entire sub-systems. In doing so it assumes military capability and capacity well beyond the normal means of small nations.

Small air forces do not do strategic paralysis; in the same way that small nations do not do invasion (as discussed above). The effort customarily required to collapse (and keep collapsed) entire enemy systems makes it large nation or large coalition business. The approach requires an immense quantity and concentration of resources (military and economic) for often indefinite periods of time.

Operation Allied Force offers some insight here. That campaign has been widely criticised for its apparent lack of effect in the first month of operations. It could be argued that the early failure was attributable to strategists pursuing a large nation air strategy with the equivalent of a small nation air fleet. During the first month the Operation achieved an average rate of just 92 missions per day (probably about the maximum tempo that an Anzac alliance could generate). Yet even within the first week of the air campaign (when the Allied strike aircraft numbered just 150 and the sortie rate was much lower than 92 per day) the range of targets being attacked was broad. Serbia's air defence system, command and control infrastructure, industries and military/paramilitary forces were under simultaneous attack in a style reminiscent of the Gulf in 1991. NATO was effectively attempting strategic paralysis with a small nation rate of effort. Such a strategy was spectacularly successful in the Gulf War but required an average of 1250 sorties per day, and only when NATO resources over Serbia and Kosovo were finally matched to the strategy did the tide begin to turn.

In contrast, Operation Deliberate Force pursued a more limited strategy. Scarce energy was directed at pinpoint objectives for maximal effect rather than at anything like strategic paralysis for *total* effect. This limited approach was quite viable (and indeed successful) with just 175 sorties per day.

Strategic paralysis is not for small nations. The classic bombing campaigns of the century have, each in its own way, attended to the collapse of whole enemy systems — social, industrial, military, logistic or otherwise. They each involved rates of effort well beyond the means of small nations. Bomb tonnages shown at Table 4.1 are indicative of that effort.

Campaign Bombing Rates		
Campaign	**Bombing Rate per Month**	**Total Bomb Tonnage Dropped**
World War II	47 777 tons	2 150 000 tons
Korean War	12 270 tons	454 000 tons
Vietnam War	44 014 tons	6 162 000 tons
Gulf War	40 416 tons	60 624 tons

Table 4.1 **Historical Air Campaign Bombing Rates**[25]

Whatever the specific air strategies were that demanded such effort (and they were not all fruitful even after such effort) they are plainly not for small nations. Even given adequate bomb supplies, an Anzac force of 100 assorted bombers could achieve only a tiny fraction of the rate shown here. Any perception that such a force might obtain victory by interrupting major enemy systems — by *strategically paralysing* the enemy — would be plainly misguided. Does that mean that strategic bombing is just not something that small nations do? Or does it just mean that the particular methodologies used for strategic bombing in the above cases are not the ones small nations would adopt?

If one were to read the Gulf War strategic air campaign as the modern archetype of *strategic air strike*, one would quickly discount small nation interest in the whole concept. However, it is notable that precedent exists for other forms of strategic strike operation. While less heralded, Operations Babylon, El Dorado Canyon, and Deliberate Force each represent forms of strategic air attack which might be considered far less exclusive of small nations. The Gulf War strategic air campaign was an important demonstration of maximum superpower offensive air potential, but may in the final analysis offer little to the independent small nation or non-superpower coalition seeking the maximisation of its offensive air fleet. Paralysing an enemy nation by dropping thousands of tons of bombs per month on vital parts of its heartland is in fact a very narrow application of air power for strategic outcomes.

The Mandate for Alternative Strategies

Let's look at the market for small nation air strike strategy. While we have promised not to try and identify specific nations as small, it may be pertinent to look at the range of nations by their air strike assets. This will have two purposes. First, it will expose the chasm that exists between nations with large air power resources (including doctrine writing and strategy formulation resources) and those with limited air power resources (and a corresponding paucity of customised doctrinal material and related strategic thought). Second, it will show the huge number of nations with air strike capability who should, perhaps, in the post-Cold War environment described above,

[25] *Reaching Globally, Reaching Powerfully: The United States Air Force in the Gulf War*, A Department of the Air Force Report, September 1991, p. 29. As cited in Waters, *Gulf Lesson One*, p. 163.

be more thoroughly contemplating strategies for the maximal employment of limited resources.

There are 129 nations in the world with an air strike capability of some description. Appendix I lists these nations and totals the number of strike platforms held by each. The data is presented in graphical form at Figure 4.2. It must be conceded that this census is a grossly simplistic way of comparing offensive air power holdings by nation. No attempt has been made to account for the relative sophistication of the platforms, nor the differential complexity of the weapons, navigation and support sub-systems which amplify their potency.

Similarly problematic is the fact that no allowance has been made for aircraft role optimisation — air defence interceptors with basic surface attack potential, for example, are counted as equals with dedicated bombers.

Furthermore, some of the platforms counted are extremely basic in *absolute* terms. This, though, is at least partially defensible when one remembers that the strategic nature of an attack is not dictated by aircraft or weapons type, nor by the extent of the potential destruction, but rather by the attack's effect on strategic objectives. Well placed minor damage can have major consequences (such as in the case of assassination). Thus, no air strike platform, simple or complex, is excluded from consideration as a strategic weapon. All offensive aircraft have strategic potential. The strategy is in the application rather than in the glass, electrons and rivets.

Notwithstanding its methodological deficiencies, the census does offer value. It illustrates, first, that the USA, Russia and China are in a quite separate school from the rest of the world in terms of their offensive air power holdings. No other nation comes close. The next largest total — held by India — is a mere quarter the size of the American arsenal. Between the three of them, America, Russia and China hold over 40 per cent of the world's platforms and (at least in the case of the US and Russia) these include many of the more advanced systems.

Second, and as a corollary to the first point, the census shows that almost 60 per cent of the world's surface attack aircraft are owned by smaller nations. Even if one were to discount medium powers like France, Germany, the United Kingdom and Japan, one would still be left with over 50 per cent of the world's offensive air power accounted for by smaller shareholders.

The simple aim of this census is to point out that a great many small nations are stakeholders in the business of air strike. While *some* have quite significant offensive air power fleets, none even closely resembles, in size or content, the air fleets of the large nations, for and about whom doctrine is predominantly written.

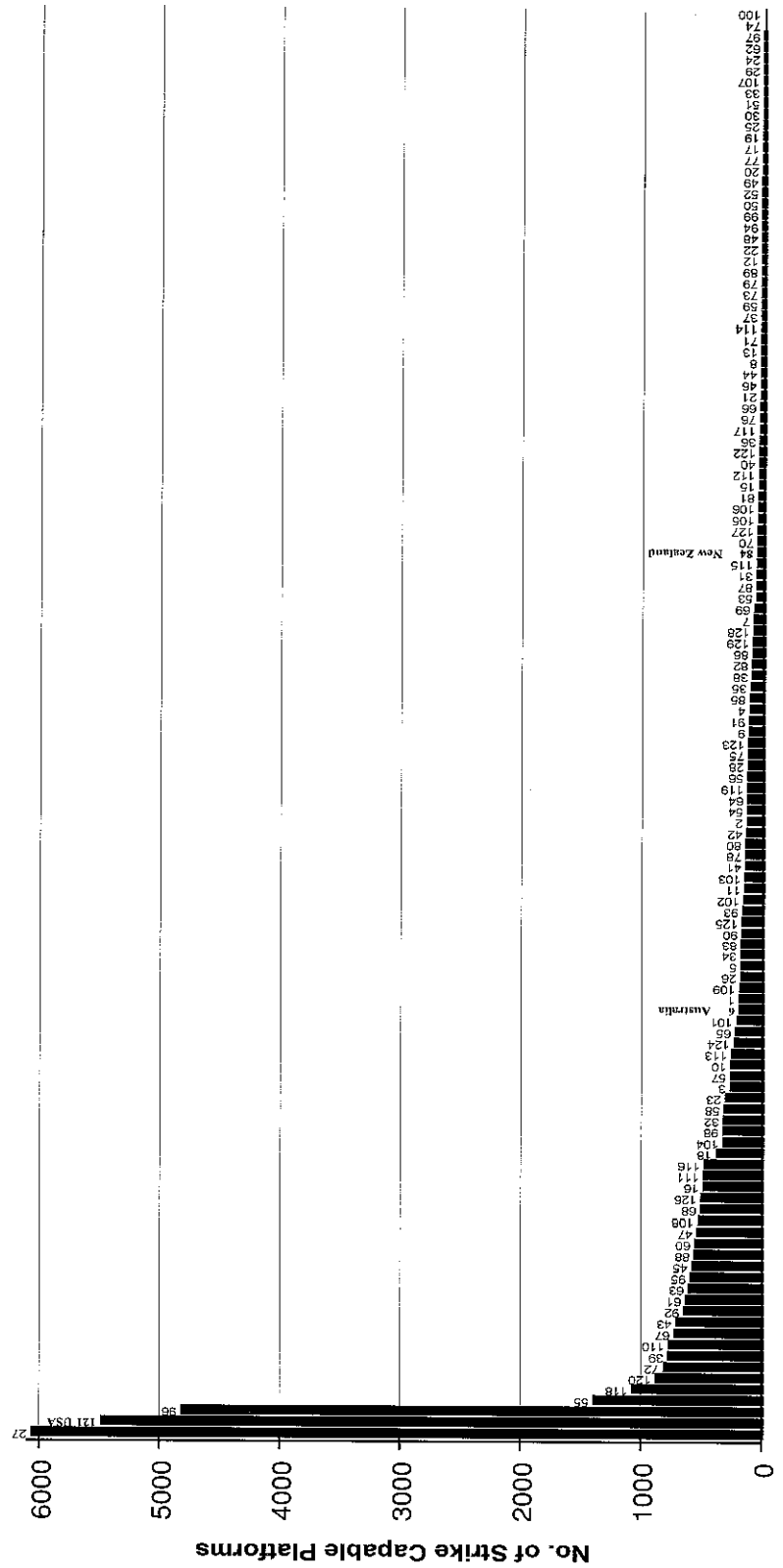

Figure 4.2 **Air Strike Census: Aircraft by Nation**

Nation		No. of F/W Aircraft with Air Strike Capability
Afghanistan	1	179
Albania	2	120
Algeria	3	253
Angola	4	102
Argentina	5	167
Australia	6	180
Austria	7	70
Bahrain	8	17
Bangladesh	9	104
Belarus	10	247
Belgium	11	137
Belize	12	14
Bolivia	13	16
Bosnia and Herzegovina	14	0
Botswana	15	31
Brazil	16	475
Brunei	17	6
Bulgaria	18	366
Burkina Faso	19	5
Burundi	20	7
Cambodia	21	19
Cameroon	22	14
Canada	23	292
Central African Republic	24	2
Chad	25	5
Chile	26	168
China	27	6051
Colombia	28	115
Congo	29	27
Costa Rica	30	3
Cote d'Ivoire (Ivory Coast)	31	5
Croatia	32	45
Cuba	33	307
Cyprus	34	4
Czech Republic	35	167
Denmark	36	92
Dominican Republic	37	15
Ecuador	38	83
Egypt	39	762
El Salvador	40	28
Ethiopia	41	132
Finland	42	122
France	43	694
Gabon	44	18
Germany	45	565
Ghana	46	19
Greece	47	524
Guatemala	48	14
Guinea	49	10
Guinea-Bissau	50	11
Guyana	51	5
Haiti	52	11
Honduras	53	47

Nation		No. of F/W Aircraft with Air Strike Capability
Hungary	54	119
India	55	1381
Indonesia	56	116
Iran	57	251
Iraq	58	300
Ireland	59	15
Israel	60	543
Italy	61	616
Jamaica	62	2
Japan	63	595
Jordan	64	117
Khazakhstan	65	210
Kenya	66	23
Korea (North)	67	712
Korea (South)	68	494
Kuwait	69	65
Laos	70	40
Lebanon	71	16
Libya	72	799
Madagascar	73	15
Malawi	74	1
Malaysia	75	112
Mali	76	26
Mauritania	77	7
Mexico	78	131
Mongolia	79	15
Morocco	80	131
Mozambique	81	32
Myanmar	82	82
Netherlands	83	165
New Zealand	84	43
Nigeria	85	100
Norway	86	80
Oman	87	47
Pakistan	88	546
Paraguay	89	15
Peru	90	157
Phillipines	91	103
Poland	92	631
Portugal	93	153
Qatar	94	12
Romania	95	578
Russia	96	4806
Rwanda	97	2
Saudi Arabia	98	311
Senegal	99	12
Seychelles	100	1
Singapore	101	199
Slovakia	102	145
South Africa	103	135
Spain	104	312
Sri Lanka	105	35
Sudan	106	33

Nation		No. of F/W Aircraft with Air Strike Capability
Suriname	107	4
Sweden	108	514
Switzerland	109	178
Syria	110	754
Taiwan	111	472
Tanzania	112	31
Thailand	113	243
Togo	114	16
Tunisia	115	44
Turkey	116	465
Uganda	117	27
Ukraine	118	1059
United Arab Emirates	119	117
United Kingdom	120	867
United States of America	121	5472
Uruguay	122	28
Venezuela	123	109
Vietnam	124	222
Yemen	125	157
Yugoslavia	126	491
Zaire	127	39
Zambia	128	71
Zimbabwe	129	74

Of the 129 countries with an offensive air capability, only a handful produce indigenous air power doctrine. A very large number of small nations rely on the doctrine of a very small number of large nations. The world's library on the how, what and why of air strike for strategic effect is largely American. The catch for small nations reading from that library is that America predominantly writes doctrine for superpower-sized air resources, and formulates strategy for large American-led forces? There is a demand for small nation orientated doctrine which attends to methods for conflict resolution realistic to extant small nation orbats.

Much energy is spent understanding superpower strategies while, perhaps, far too little is channelled into understanding what subset of the superpower example small nations might reasonably expect to achieve within their own specific capabilities and limitations.

Low order air strike such as CAS and BAI is routinely practised, and these are roles quite indispensable to any modern surface force. But the potential for higher order strategic applications of small air strike forces is relatively unfathomed territory.

Chapter Five

WAR AND THE SMALL NATION PERSPECTIVE

INTRODUCTION

Is small nation air strike strategy doomed to the trenches? Can the tiny scale of air strike operation executable within small nation means ever hope to be directly influential on strategic objectives? What strategy might be employed to that end? What aspects of high strategic order superpower air strike, if any, are within reach of small nations?

In order to understand whether a high order strategic orientation to air strike could be beneficial to small nations, it will be useful to first clarify and expand on some basics regarding small nations in war. It is important to note that one's 'smallness' does have inevitable impact on the way in which one views and fights war. Establishing some understanding of this small nation perspective will help answer the question of strategic air strike relevance.

Three propositions on small nation perspective follow. They are suggestions on how small nations view, or rather *should* view, conflict and the application of offensive air power. First, in contrast to the stereotyped superpower pursuit, the aim of small nations in war should not always be seen as the unconditional surrender of the adversary. Efficiency can be lost through poorly selected aims and the poor subsequent direction of energy. It is the large nation quest for total victory through the complete collapse of the enemy state which has seen strategic air power used on such a massive scale. Whether the large number of aircraft available begets the strategy, or the strategy begets the acquisition of large numbers of aircraft is beside the point to small nations. The business of collapsing enemy states is simply not one for the small nation league. Such collapse, in any case, may be only one means of achieving the end state required. War when distilled to its essence is about achieving the abandonment of the enemy's political aims. The collapse of his war effort is only one means to that end. The specific aim becomes the enemy's resolve rather than the whole nation's ability to function and support war. This is a much more precise target, which brings us to the second proposition for the guidance of small nations in war.

The ultimate target of the war-fighting process is the supreme enemy leadership. The supreme decision-making body is the party which formulates offending policy, and within whose responsibility the dissolution of such policy rests. All roads lead to Rome. Whether attacks are made on populations, militaries or political systems, their value is solely dependent on the subsequent effects on supreme leadership resolve.

The third proposition for small nations is that air power need not, and should not, be employed in a single-handed capacity. Despite the proliferation of superpower literature arguing the unilateral utility and decisive nature of strategic air power, there is no obligation for small nations to attempt its *solo* application, nor to abandon it when such promise is not offered.

These three propositions are now examined in more depth. They will help us understand where and for what purpose small nations should direct their energy in war. Such an understanding is basic to air strategy design. Before doing this, however, we will briefly set the context for the propositions with some thought on the nature of war and the importance of 'good strategy'.

THE NATURE OF WAR AND THE PLACE OF STRATEGY

All individual nations have their unique sets of national interests. These interests tend to fall into four general categories: defence of the homeland, economic well-being, favourable world order and the promotion of values.[1] The pursuit of national interests pervades all interactions between nations on the international playing field. Each nation bids with its own specific agenda and each acts to dominate those parties whose interests are pursued in conflict or competition with its own. This process is continuous; as active in peacetime as in war.

The ability of any one nation to have its own way is a function of its 'national power'; otherwise usefully considered to be the capacity of a nation to either influence or force other nations to act in a manner required.[2] The instruments of national power have been variously described, but can be considered to exist in three basic categories: political/diplomatic, economic and military.

It is much simpler to discuss national power in qualitative than quantitative terms. However, the magnitude of any one nation's power might be considered to be determined by two interacting factors. The first factor involves the actual *assets* and *capabilities* of a given nation. The vast array of these includes the likes of gross national product, population, education system, industrial development and weapons sophistication. The second factor acknowledges the importance of relations between governments and involves the techniques by which the assets and capabilities are brought to bear in the pursuit of national interests.[3] That is, the orchestration and application of the elements, or the *strategy*. Thus, capabilities alone constitute only half the picture. What is equally important is the way in which those capabilities 'are mobilised in support of the act of influencing'.[4] National power, then, is a product of capability and strategy.

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[1] Donald Nuechterlein, *America Overcommitted: United States National Interest in the 1980s*, University of Kentucky Press, Lexington, 1985. As cited in Drew and Snow, *Making Strategy*, p. 28.
[2] *Strategic Concepts: National Power and Influence* (unpublished), Strategic Studies Study Folder 11, Royal Australian Air Force Staff College, Canberra, 1996, p. 1.
[3] K.J. Holsti, 'The Concept of Power in the Study of International Relations', *Background*, The Institute for Research on International Behaviour, University of British Colombia, February 1964, p. 56.
[4] ibid., p. 60.

Power = Capability x Strategy

The military element of national power cannot be perfectly isolated from the peacetime processes of inter-governmental manipulation and coercion which make up international politics. The perceived military power of a nation is a silent but ever-present factor in the way it behaves, and in the way other nations respond to it in peacetime. However, war can be distinguished as the point at which violence becomes a legitimate form of conflict resolution; at which the military element of national power is brought physically into play. When more pacific options for influencing an opponent have been exhausted, war becomes the final arbiter.[5] In Clausewitz's words, 'War is thus an act of force to compel our enemy to do our will'.

Military power is itself produced, not purely by summing capabilities, but by multiplying capability by strategy. Thus, while technology — its operation, and its supporting infrastructure — may be the usual fixation of modern militaries (or at least their air forces), half the formula for success rests with the human process of developing strategy for the fullest exploitation of existing capability.

Small nations have small assets and capabilities: small GDP, small populations, small industrial bases, small air forces etc. Where such limitations are reasonably fixed, the obvious route to the enhancement of national power is through superior strategy. This means using the resources in hand to the most potent effect. It is true for all elements of national power, but especially true in the application of military power.

Given a basic air strike capability, the challenge for a small nation is to achieve the maximisation of its potential. Air strike is simply a capability. The right strategy for the application of air strike will determine its final effectiveness. For small nations with small militaries (who must contemplate a longer list of *larger* potential threats than other countries), understanding and achieving superior strategy is imperative to overcoming relative weakness. The main issue is how to maximise the use of a limited air power resource. The superior offerings of the highest order strategic application of air power are discussed later. Meanwhile, let us look at the three propositions.

PROPOSITION ONE: IN LIMITED WAR, SMALL NATIONS NEED NOT ASPIRE TO UNCONDITIONAL SURRENDER OR THE COLLAPSE OF THE ENEMY REGIME

Limited war is fought for limited objectives. It is seldom fought (especially by a defender) for the annihilation of the other party. Limited objectives do not necessitate an actual or even feigned attempt at the survival of the enemy nation. Such war is, in fact, usually settled by means well short of utter victory for either party.

[5] *DI(AF) AAP 1000: The Air Power Manual (2nd edn)*, p. 5.

The sorts of limited policy objectives which, after an escalating chain of non-military measures, might conceivably result in armed conflict include:

- the displacement of lodgements on sovereign territory;
- the protection of offshore resources against state sponsored plundering;
- the interruption of foreign government sponsorship of domestic insurgency;
- cessation of politically motivated human rights abuses;
- the undermining of a totalitarian regime having critically destabilising regional effects;
- securing the release of nationals held hostage by an overseas state;
- preventing the regional acquisition of weapons of mass destruction, and so on.

None of these objectives call for overthrow of the offending nation. Indeed, a captured nation can be a significant unwanted liability. The objectives actually demand nothing more than a simple change of policy in the offending nation. This should preferably be achieved by means which allow the restoration of post-war independence and the rebuilding of a healthy functional relationship between belligerents. There is no benefit in creating a liability, or a permanent enemy.

In contemplating the potential of small nations in strategic strike, the definition of the task needs special attention. Despite the historical precedent of large nations, alliances and coalitions in general war, the aim for small nation air power does not involve generating adequate combat power to hold an enemy nation's sovereignty to ransom. The types of war likely to be faced by small nations and their small coalitions will be limited, and will involve forcing decision changes where the stakes often fall far short of national sovereignty.

The illusion of a greater requirement to completely paralyse the enemy in all situations has been produced by the high profile, high stakes, large nation air campaigns of the century. Japan, Germany, and even North Korea have all had air power assisted attempts made on their very existences. The stakes were high (foreign sovereignty in each case), and immense combined offensive resources were available for employment against them.[6] The resulting air strategies were wide ranging and intense. Air power in each case was evaluated on its ability to crush or completely paralyse the enemy nation. Small nations could, in general, never pursue such high intentions without the resource support found in large and/or superpower-led coalitions. However, a whole range of possible scenarios exist where more limited objectives are still worth the fight. The role of small nation air power might be considered more constructively in this light.

The final objectives fought for, even in general war, are usually much more limited than is perceived. The war comics of our youth would have us believe that war is only concluded when one side waves the white flag. Indeed, up until the Korean War, it

[6] There is no doubt that the availability of resources itself plays some role in dictating strategy. It is arguable that the Gulf War birth of 'parallel warfare' doctrine was accidental in this respect. America had adequate resources to execute its strategy unassisted. The massive amount of extra air power provided by coalition partners demanded gainful employment and provided for the simultaneous rather than sequential execution of planned attacks.

was a widely held conviction in the west that 'modern war was about the absolutes of unconditional surrender and of total victory'.[7] However, very few modern wars have actually concluded in such conditions. While unconditional surrender may represent one of the highest possible prizes of war there are, in actuality, a variety of conditions which otherwise represent the satisfactory conclusion of hostilities. Figure 5.1 suggests a simplified hierarchy of war termination states, and the brief case studies which ensue illustrate some of the levels.

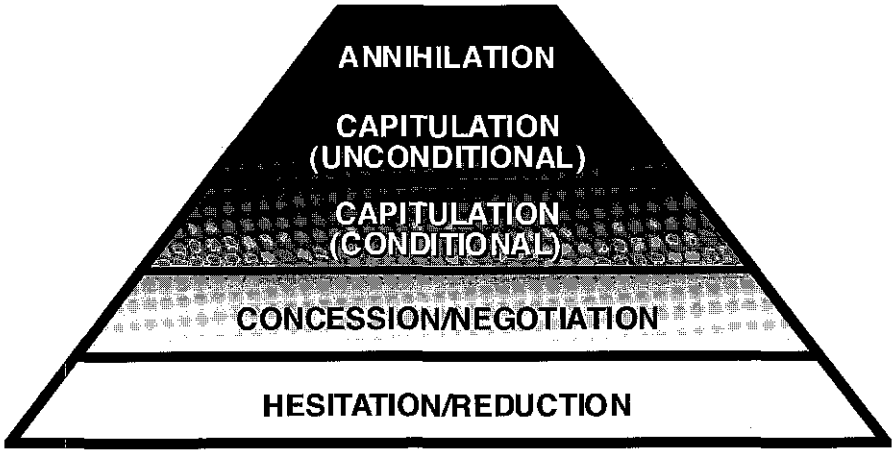

Figure 5.1 **Hierarchy of Generic Conflict Termination Conditions**

a. For Germany, World War II did not end until the regime was completely *annihilated*. The Allies sought the unconditional surrender of Germany but, even after completely undermining its military strategy, surrender was still not achieved. Germany continued fighting against vastly dominant surface forces on all fronts and under continuous air bombardment until it could no longer field coherent military operations and was completely occupied.[8] The Allied objectives were ultimately achieved but at the cost of enormous financial and military effort.

b. World War II ended for Japan through surrender. She agreed to American occupation, *capitulating* before an American invasion and a decisive defeat of her home army. Japan bid for *conditional surrender*; namely in seeking permission to retain its emperor but (while the issue is still somewhat controversial) the Americans made no such commitment and the final surrender was effectively *unconditional*.[9]

[7] Armitage and Mason, *Air Power in the Nuclear Age*, p. 44.
[8] Pape, *Bombing to Win*, p. 254.
[9] Leon V. Sigal, *Fighting to a Finish: The Politics of War Termination in the United States and Japan, 1945*, Cornell University Press, Ithaca, 1988. As cited in Pape, *Bombing to Win*, p. 88.

c. The cessation of hostilities in the Vietnam War was achieved through *concession* and *negotiation*. However, it is worth noting that the concessions were preceded by an important *reduction* in American aims. It was America which gave up chasing a surrender and so vigorously pursued a negotiated settlement. The first significant concession was won from Hanoi through Nixon's Linebacker I campaign (10 May to 23 October 1972) which persuaded the enemy to accept US terms for peace accords.[10] American bombing operations proved effective once ambitions were reduced.

While the Hanoi concession allowed negotiation to go ahead and marked the beginning of the end of the war, it is noteworthy that strategic air power continued to be applied in pursuit of smaller objectives. When South Vietnamese stalling at the table produced waning enthusiasm for peace in the North, Linebacker II (the 11 day bombing campaign of December 1972) achieved the restoration of the negotiation process.

Thus, in summary, while strategic air power was apparently ineffective in securing surrender, it did succeed in producing concession and maintaining negotiations. These were the processes which signalled the end of the war, ultimately producing the 1973 Paris Accords.

d. Again, the cessation of hostilities in the Korean War (1950-1953) was achieved via a process of *concession* and *negotiation*. These were pre-empted by an American *reduction* in terms. While Truman's initial goal had conservatively been the restoration of pre-invasion boundaries, the later UN thrust north was carried out under an expressed intention to destroy the North Korean army and unify Korea under a single democratic government. In essence, full North Korean surrender was sought. Subsequent war-fighting culminated in a see-sawing stalemate near the 38th parallel; the original border dividing North and South Korea. In February 1951, the UN announced a *reduction* in its aims to the maintenance of an independent non-communist South Korea. While the reduction in terms did not of itself terminate the war in this case, it provided the basis for the *negotiations* which eventually did.

The negotiations themselves became the crux of the war. Much of the remaining fighting was for *concessions* including boundary refinements and Communist permission for foreign troops to stay in South Korea. It has been suggested that the war would have finished in late 1951 if the Americans had been prepared to concede on issues involving the repatriation of POWs.[11] While true high order strategic bombing could not be applied in Korea because of perceived political constraints, the negotiations were conducted in an environment of 'air pressure though selective destruction'.[12] Bombing, and the threat of less limited bombing, no doubt contributed to the acceptance by the Communists of the armistice terms.

In summary, the Korean War did not end in surrender, but in a negotiated settlement assisted by strategic bombing.

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[10] Pape, *Bombing to Win*, p. 175.
[11] ibid., p. 139.
[12] Armitage and Mason, *Air Power in the Nuclear Age*, p. 39.

e. The final solution in the Iran-Iraq war (1980-88) grew out of a *hesitation* or temporary cease-fire. The war-fighting effectively stopped before any negotiation for concession over issues was entered into. After a series of 1988 offensives in which Iraq recaptured the Fao Peninsula and other territory, the Ayatollah Khomeini formally agreed to a cease-fire in July 1988.[13] While many forces remained fielded on both sides, the cease-fire held under the supervision of the United Nations until events were overtaken by the Iraq-Kuwait conflict of 1990. It was essentially the last in a series of *hesitations*, or truces which evolved into a solution. Surrender was not on the agenda for either nation; but offensive action produced a pause for consideration of options which eventually grew into terms for peace.

Note in the model that the levels are very closely related. While *hesitation* may amount to nothing more than perhaps a decrease in the rate of advance or the intensity of fighting, when it represents a true pause in hostility it will often occur only to facilitate *negotiation*. Within negotiations, *concession* can be closely related to conditional surrender: the more substantial any one side's concessions, the more like a conditional surrender is the result.

While the model at Figure 5.1 is imperfect, as a continuum it does demonstrate a range of situations under which nations actually achieve war's end. It is only an approximation of fact but serves to suggest that conflict termination is now a great deal more sophisticated than the traditional expectation of simple and total victory. This particular area of war termination is worthy of more attention. However, with respect to small nations, the only point the author wishes to demonstrate is that war is often ultimately fought for limited objectives; that war termination does not necessarily involve forcing of surrender; and that the collapse of the enemy regime need not be aspired to or achieved. *The significance of this is that it effectively lowers the threshold of viability for size-limited strategic air forces.* Small nations can anticipate productive employment of strategic air power without envisaging the ownership of adequate resources to completely destroy an enemy nation.

As Clausewitz points out, there is a whole category of war where *defeating* the enemy is simply unrealistic. When the enemy is formidable, such an objective may be simply unobtainable, and in fact unnecessary.[14] The Arab/Israeli 'Six Day War' offers one example of how war can be won by a relatively small nation with sensibly limited and focused objectives. Total enemy surrender was not on the agenda, only the reduction of its perceived political aims.

A man with a $1000 in his pocket is in no position to bid for a new car, but once he realises that a bicycle will satisfy his transport requirements, he can and must then fully register in the auction to make it happen. A small air power nation is in no position to bid for enemy annihilation, but once it is realised that this is *not* actually what is required to satisfy national security requirements, then the small nation will inherit the justification to become fully participant in the business of strategic air

[13] Douglas A. Kupersmith, *The Failure of Third World Air Power: Iraq and the War with Iran*, Air University Press, Maxwell Air Force Base, Alabama, June 1993, p. viii.
[14] Carl von Clausewitz, *On War*, translated and edited by Michael Howard and Peter Paret, Princeton University Press, New Jersey, USA, 1984, p. 91.

strike. Recognising the adequacy of a limited task elevates the potential significance of small nation capability.

There is a further point of relevance here to the small nation threshold of strategic air power viability. While not all scenarios for small nation offensive air employment will necessarily involve territorial defence, this scenario does incorporate a natural advantage of some relevance. Wherever small nations play a purely defensive role they enjoy the natural defender's advantage. According to Liddell Hart:

> The underlying difference of aim between an aggressor and those he attacks offers the latter a potential advantage for economy of force, and thus for superior power of 'staying the course'. For him to succeed, he has to conquer. For them to succeed, they have only to convince him that he cannot conquer, and that continued effort will bring more loss than gain. They are thus able to wage a far less exhausting kind of war. (April 1939)[15]

The significance of this is that (consistent with the discussion above) in the sovereign defence scenario, small western democracies like New Zealand and Australia need not be shaped to overthrow the aggressor; only to prohibitively raise the cost of his objectives.

In essence, earlier termination of expensive conflict can be forced or encouraged by various means, including strategic bombing, with residual issues being addressed through more normal and less violent processes. Some of the examples above also demonstrate that, while total surrender may have historically been the ambit claim of strategic bombing campaigns, they bore more fruit when lower objectives were set and diplomatic interplay was involved. This matter will be discussed again later.

Limited means, such as those characteristic of small nations, demand limited objectives. As Clausewitz notes, 'If the enemy is to be coerced you must put him in a situation that is even more unpleasant than the sacrifice you call on him to make'.[16] There are two parts to this equation. The first involves the amount of force or stress you can bring to bear, but the second recognises that this force is only relevant in its relativity to the size of your own objectives. 'The smaller the penalty you demand of your opponent, the less you can expect him to try and deny it to you ...'.[17] Thus the limitation of objectives in a small nation's war can be an important compensator for a lack of mass and sustainability. What *is* required is the ability to apply *sufficient* force, as directly as possible, to the party who makes the decisions and concessions. This brings us to the identification of the *subject* of war.

[15] B.H. Liddell Hart, *Thoughts on War*, Faber & Faber, London, 1944, p. 47.
[16] Carl von Clausewitz, *On War*, translated and edited by Michael Howard and Peter Paret, Princeton University Press, New Jersey, USA, 1984, p. 77.
[17] ibid., p. 81.

PROPOSITION TWO: THE ULTIMATE SUBJECT OF WAR IS THE SUPREME DECISION-MAKING BODY

> Supreme excellence consists of breaking the enemy's resistance without fighting.[18]
>
> *Sun Tzu*

> Machines don't fight wars. Terrain doesn't fight wars. Humans fight wars. You must get into the minds of humans. That's where the battles are won.
>
> *Colonel John Boyd*[19]

A student of Mao Tse-tung's war-fighting methods described the target of his 'indirect approach' thus:

> The mind of the enemy and the will of his leaders is a target of far more importance than the bodies of his troops.[20]

Vice Admiral Sir Peter Gretton observed during the Cuban missile crisis that:

> In the military operation off Cuba, President Kennedy did not look for military victory, he sought to change Mr Khruschev's mind, and he succeeded.[21]

The pivotal nature of the psychological contest between leaders in war has long been recognised. In pre-air power days, with battle confined principally to oceans and fields, the subject minds were those of military commanders. However, with air power having removed the fixation with the battlefield, and taken the war to wherever it might otherwise be fought, the mind of the fielded military commander is no longer the main focus of military effort. It is still, in many cases, the immediate subject of military effort, but it was arguably never the ultimate subject. Nations do not fight against militaries; they fight against other nations.

The distinction between military and political minds as the focus of war was more difficult to define in the days of 'warrior kings' such as Frederick the Great and Napoleon, where the military leader *was* the political leader.[22] Obviously, to win over the mind of the military commander in the field was to simultaneously win over his nation's leadership. However, with the obvious exceptions of Iraq and a few other modern statocracies, this is no longer prevalently the case. Even where nations *are* ruled by military regimes, the leader of the regime is more usually the political

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[18] Sun Tzu, *The Art of War*, Shambala, Boston, 1988, p. 67. As cited in Brigadier Peter Cosgrove, 'War in the Information Age: An Australian Approach' in J. Mohan Malik, *The Future Battlefield*, Deakin University Press, Victoria, Australia, 1997, p. 154.

[19] Colonel John Boyd, quoted in Teager, *Blessed Be the Peacemakers*, p. 151.

[20] Brigadier General S.B. Griffith II in his 'Introduction' to Mao Tse-tung and Che Guevara, *Guerrilla Warfare*, Cassell, London, 1961, p. 20. As cited in Cosgrove, 'War in the Information Age', p. 155.

[21] Vice Admiral Sir Peter Gretton, Lecture, Royal United Services Institution, London, 7 April 1965. As cited in Cosgrove, 'War in the Information Age', p. 157.

[22] Drew and Snow, *Making Strategy*, p. 5.

figurehead than the functional military commander in conflict. Thus, a division exists between the national leadership and the military one.

Where such a division exists, the military decision-maker and his objectives are subordinate to the political decision-makers and theirs. 'The military objective is only a means to a political end.'[23] Therefore, the coercion of the military decision-maker is only pursued for the influence it will ultimately achieve on the political or supreme decision-maker. Surrender of a nation's military leader was only ever pursued for the consequences it held for the perseverance of the political leader in the pursuit of his objectives. With the advent of air power — and the choice thus presented to overfly rather than overwhelm military forces — the possibility arose that the ultimate subject of war could be more directly influenced; not by destroying the military, but by destroying *other* targets which also had great worth to the political leadership. Indeed, at the very core of the modern strategic air power debate is the degree to which air power action can directly influence the supreme decision-making body and the pursuit of its objectives.

The supreme decision-making body is the ultimate subject of war. The military objective is governed by the political objective, and any change that can be directly induced in the political objective (through the mind changes of those who set and maintain such objectives), will therefore negate the military objective.[24] Any means which provides access to the supreme decision-maker's opinion, behaviour or resolve regarding its objectives has the potential to solve crisis (or change its form) without the conventional clash of military force.

'War is merely the continuation of policy by other means'.[25] '(W)ar is only a branch of political activity ... it is in no sense autonomous'.[26] Supreme decision-making bodies make the policy over which war is fought, and they make the decisions by which war is ceased. By whatever indirect means, the supreme decision-making body is the ultimate focus of war.

Warden certainly acknowledged this in his work on the Gulf War strategic air campaign. He recognised as the most critical ring, that enemy element in the position to make concessions — 'whether a civilian at the seat of government or a general directing a fleet'.[27] He noted that wars through the centuries have been fought with the basic intention of changing the mind of (or actually changing the individuals in) command. He recognised the value demonstrated through history of capturing or killing the command element and, where such direct threats were not possible, of applying pressure to such groups to force concessions.[28] He stressed that:

[23] Liddell Hart, *Strategy*, p. 351.
[24] ibid.
[25] Clausewitz, *On War*, p. 87.
[26] ibid., p. 605.
[27] Colonel John A. Warden III, 'Employing Air Power in the Twenty-first Century' in Richard H. Shultz, Jr. and Robert L. Pfaltzgraff, Jr., (eds), *The Future of Air Power in the Aftermath of the Gulf War*, Air University Press, Maxwell Air Force Base, 1992, p. 65.
[28] ibid.

> All actions are aimed at the mind of the enemy command. Thus, one does not conduct an attack against industry or infrastructure because of the effect it might or might not have on fielded forces. Rather, one undertakes such an attack for its effect on national leaders and commanders who must assess the cost of rebuilding, the effect on the state's economic position in the postwar period, the internal political effect on their own survival, and on the cost versus the potential gain from continuing the war.[29]

The popularly accepted means by which strategic air operations gain their effect — by destroying the *national capacity* and the *national will* for war — have been in actuality, *de facto* foci. Typically, the *national capacity* for war incorporated, for example: factories, raw materials, communications, manpower and energy sources. The *national will* principally involved the support of the population for the continuance of the war. This was considered to be affected by the likes of blockade, electricity supply interruption and, most significantly, the area bombing of civilian targets.

Importantly, the mechanism for each of these approaches in securing victory was substantially the effect each could have on the resolve of the supreme decision-making body. It was surely never assumed possible that national capacity and will for war could be completely wiped out. This proved far from possible in Germany and Iraq for even moderately complex enemy systems. The mechanism instead, although poorly enunciated, was intuitively that if *sufficient* damage could be done to either of these essentials then concession from the decision-makers would be likely. The greater significance of reducing war-making capacity lay in undermining the confidence of the regime leadership (by reducing its apparent prospect of success). Similarly, the assumption that the destruction of civilian morale should bring about victory was based on the Douhetian premise that a dissatisfied population would rise up against the supreme decision-making body and insist on it making peace.[30] The ultimate subject of both plans was the mind of the supreme decision-maker.

According to Clausewitz:

> (T)he aim of disarming the enemy (the object of war in the abstract, the ultimate means of accomplishing the war's political purpose ...) is in fact not always encountered in reality, and need not be fully achieved as a condition of peace ... (m)any treaties have been concluded before one of the antagonists could be called powerless — even before the balance of power had been seriously altered.[31]

What has been more important than the destruction of physical or wider moral war potential is the creation of a perception in the higher enemy decision-making echelons that the objective is no longer worth pursuing. At the highest level of war, strategic air

[29] ibid., p. 68.
[30] Meilinger, *Ten Propositions Regarding Air Power*, p. 13.
[31] Clausewitz, *On War*, p. 91.

operations can be focused on this critical perception — the perception of the supreme decision-making body.

NATO's Operation Allied Force re-demonstrated the importance of targeting leadership perception. While air strikes were waged against both political leadership related targets and fielded military, the role of the latter action in the final solution is increasingly criticised by post-war analysts. According to General Short, the massive and laborious tank plinking effort in Kosovo was a waste of air power. The aim was to compel Milosevic to accept terms and the correct focus was against pivotal targets in Belgrade. Short wanted to target 'everything that Milosevic held dear, and make it very clear to him that was exactly what we were doing'.[32] This was eventually achieved and NATO prevailed.

Where 'energy' is at a premium (as is especially the case for small nations) it needs to be applied in the places and times where the greatest leverage can be anticipated. With respect to air power, energy expended on various low strategic order targets may represent sub-optimisation when the power grid of a major industrial city is within reach of the same weapon systems. The death of one trooper at the front line will hardly be known to the supreme decision-makers, let alone influence their resolve in pursuing policy objectives. The interference with production and communications produced by an electrical blackout will, however, likely make a much greater impression on a supreme decision-making body's perception of prospects, calculation of costs, and erosion of resolve.

Military versus Political Effects

The relationship between political and military minds, and the political and military objectives they respectively pursue, is worthy of some expansion. Political and military objectives are different but not separate.[33] There is no discrete switch-over between political targeting and military targeting in terms of strategic outcomes. The transition is gradual and continuous with any one strike having both political and military elements to its consequences. Figure 5.2 illustrates the point.

As has been established, the traditional preoccupation of militaries has been with other militaries, national leaderships being somewhat removed from the actual *process* of war. This has generally been a matter of means: leaderships and the non-military organs critical to their thinking have simply not been directly accessible. There was no choice but to batter down the opposing army before the vital organs of the state could be exposed. The key focus has thus been the military decision-makers, with little attention to the fact that these were only ever means to an end.

[32] John A. Tirpak, 'Short's View of The Air Campaign', *Air Force Magazine*, September 1999.
[33] Liddell Hart, *Strategy*, p. 351.

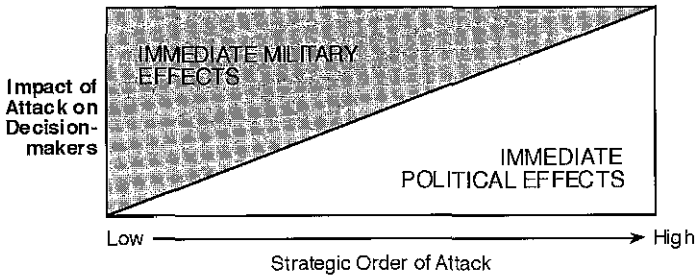

Figure 5.2 **Military versus Political Effects of Strategic Air Attack**

The pursuit of *increased* influence over military decision-makers has led air power to higher orders of strategy. Thus, for example, while early applications were strictly in service of the battlefield, attacks were later made, not directly on troops and ships, but against logistics, support facilities and reserves with a view to greater strategic effect on the overall campaign. Focus was still on the enemy's military, but through higher orders of strategy. Influence on the state was still envisaged through the eventual failure of its military.

However, as air power is applied in higher and higher orders of strategy, there comes a point at which its influence on the state as a political entity becomes more significant than the original pursuit of influence on the military. Political response is elicited, not by the destruction of enemy military forces, but by the *prospect* of failure or the likely *expense* of victory. Damage to war-making *potential*, or *anticipated* damage to military forces can be sufficient to produce an outcome. So in Korea, for example, the full effects of the irrigation dam attacks had not hit home before Communist resolve was already being affected at the negotiating table. In the Gulf War, the Coalition destruction of POL (petroleum, oil and lubricants) infrastructure was sure to have been of significance in Iraq's overall calculation to surrender, yet at the time of surrender the inevitable fuel shortage had not reached the Iraqi front line. In Kosovo, the Serbian military were still fully operational in the field at the moment when terms were accepted by its leadership. The *apparent* or *potential* effect of air strike is functional in itself. Troops do not actually have to be without ammunition for the causative action to influence the decision-makers. Behaviour changes and concessions can be gained, if an action is powerful enough, without the consequences of strike needing to be fully manifest in the field. At the highest orders, strategic air power has *direct* access to the political outcome. The process is essentially coercive and the actual destruction of enemy forces becomes unnecessary. Real pressure is brought to bear on the authorities who actually create and hold the policy under contest, and who are the ultimate decision-makers in matters of concession or continuation.

This transition from focus on the military to focus on the policy makers themselves can be represented by analogy. Consider the destruction of a tree. The canopy, the leaves, the protective foliage, are to a tree as the military is to a nation. Those leaves

can be painstakingly removed one by one, and when all the leaves are gone the tree will probably die and the aim will have been achieved. Alternatively, the leaves might be more easily removed by cutting off all the outer branches which bear the leaves. The effort will have been reduced and, with loss of limb, the subsequent survival of the tree may have been placed in even greater jeopardy than if only the leaves had been removed. The ring-barking of all the primary limbs might still be focused at the more efficient removal of the leaves, but the immediate survival of the tree itself would also be placed in even greater danger. Ultimately, the single act of sawing through the tree trunk would most certainly (eventually) kill all the leaves. However, more importantly, so it would also destroy the tree itself for reasons quite unrelated to the state of its foliage.

Pressure on the tree's survival is analogous to pressure on the supreme decision-maker's resolve (or resistance to concession). While the initial military focus might fall on the enemy military, as strategy rises to its higher orders the effects begin to compound directly on the regime itself, irrespective of the condition of its military. One's eyes are naturally drawn to the shortest possible route to victory — these are the higher order strategies.

As a more practical illustration of the concept, consider a fictitious scenario involving Argentine success in sinking either of the British Task Force carriers, *Hermes* or *Invincible* in the 1982 Falklands War. At first, such an action may appear purely military in nature. Eventually, perhaps within days, the reduced British capability in the war zone would have led to further losses and ultimately to the physical overpowering of landed military forces by Argentina. However, the consequences of such an air strike on the resolve of the British decision-makers would have been much more critical and instantaneous than on the military campaign itself. Almost without doubt, British leaders, with the mainstay of their military effort destroyed, would have withdrawn forces from the region, thus relinquishing (at least temporarily) their strategic objectives. Such an air strike would have been of extremely high strategic order. It would have had both military and political ramifications, but the direct political influence — that on the supreme British decision-making body — would have been so dominant as to render military consequences obsolete.[34]

As an aside it may be worthy of clarification that while history, and indeed much of this book, has seen strategic targeting associated with objects well removed from the scene of clashing surface forces, this is actually misleading. It is a misconception that higher order strategic strike never involves attacks on the fielded enemy military. The strategic order of air strike is determined by the directness of its access to the ultimate objectives of the war, not by the nature of the target. In some cases, it may well be the destruction of certain fielded elements which provides the most strategic effect. For example, in Operation Deliberate Force it was simple interdiction operations which offered extremely high order strategic consequences. As suggested above, Argentine success in the Falklands War against significant elements of the naval task force would likely have had direct (high strategic order) consequences on Britain's will to persist with its aims. As previously mentioned regarding the Gulf War, the fielded

[34] And what is more, through such high strategic order action a relatively small and poorly resourced force (Argentina) would have prevailed over the much greater one.

Republican Guard was considered a high order strategic target because of the likely consequences of its annihilation on Hussein's power and security. Thus, the range of operations with predominantly political effects involve not just targets in the enemy homeland, but also significant options in the surface campaign area of operations.

The essence of all this is: the higher the order of strategic strike, the more immediate the political effect and the less relevant the military effect. In high order strategy, the *key enemy decision-makers and their perceptions justly become the direct focus of* operations. Recognition of this phenomenon is vitally relevant to small nations seeking optimal channelling of limited energy.

PROPOSITION THREE: THE LARGE NATION ISSUE OF AIR POWER PRIMACY IS A DISTRACTION TO THE TRUE ROOT OF AIR POWER SUCCESS — JOINT STRATEGY

The third point worthy of clarification is that strategic air strike need not be judged on its potential to be unilaterally decisive in war. There is no obligation for small nations to attempt air power's *solo* application, nor to criticise air power when such promise is not offered.

Air power primacy is a significant issue in large nation air strike literature. Two general schools of thought exist, with a smattering of egalitarians between. One school is made up of the Douhetian disciples who champion the supreme potency of air strike; the other is made up of the sceptics who argue its impotence and vote for its relegation to the support of surface operations. Each school curiously seems to find ample evidence for its own case out of the very same air campaigns. Even the outwardly obvious decisiveness of air power in the Gulf War and in Operation Allied Force are in dispute.

Advocates like General McPeak have put that Desert Storm represented 'the first time in history that a field army has been defeated by air power'.[35] McPeak has claimed that air power in Desert Storm 'came of age as a decisive element in combined-arms warfare' and showed its capability of 'dominating warfare to achieve major international objectives'.[36] On the other side of the fence, however, Army General Colin Powell is reported to have declared to the President in the throes of Gulf War planning that 'history offered no encouragement that air power alone would succeed'.[37] Other commentators noted that 'initial hopes that the war against Iraq would be relatively short and cheap, courtesy of overwhelming US and allied air power, evaporated within days of its beginning'.[38]

[35] General Merrill A. McPeak, *Selected Works 1990-1994*, Air University Press, Maxwell Air Force Base, Alabama, August 1995, p. 18. As cited in Benjamin S. Lambeth, 'Bounding the Air Power Debate', *Strategic Review*, Vol XXV, No. 4, Fall 1997, p. 43.
[36] ibid.
[37] Colin Powell, *My American Journey*, Random House, New York, 1995, p. 499. As cited in Lambeth, 'Bounding the Air Power Debate', p. 44.
[38] Jeffrey Record, 'The Seductive Charms of Air Power', *Baltimore Sun*, 30 January 1991. As cited in Lambeth, 'Bounding the Air Power Debate', p. 44.

After Operation Allied Force, John Keegan has boldly claimed as finally proven that 'war can be won by air power alone'.[39] Counter-arguments have centred around the success of diplomacy, or the effect on Milosevic of 'intimidating' threats to deploy ground troops. Media coverage in the west (including CNN, ITN and the BBC) has been quick to pick up on the inter-service rivalries and for a period revelled in facilitating the running debate between retired generals on the primacy or otherwise of air power. As more and more information comes to hand in the wake of the Operation, the two schools are again clearly apparent and the predictable post-war 'conflict' is set to escalate and persist.

Pro-air power zealotry in large nations is not completely without rationale. One important justification for excitement involves the *actual* potential of superpower air strike as a matter of sheer *scale*. Another involves the political imperatives of *funding* methods.

For a superpower or large coalition, the *scale* of operation achievable in both relative and absolute terms opens a field of debate regarding air power which is simply irrelevant to small nations. Air power primacy is championed in large nations because only in those cases are mass and technology adequate to make the aspiration believable.[40] John Warden planned 'Instant Thunder' as a 'stand alone' option in the Gulf because he considered it quite feasible. Despite that plan being amended and combined into a joint air-ground offensive, the resulting 38 day air campaign followed by a mere four day ground operation offered substantial support to his beliefs. 'Can air power do it alone?' has remained a common headline and debating point, and the fervour is rekindled in the wake of Kosovo. The issue exists because the massive scale at which air operations are conducted genuinely offers grounds for the affirmative case. No such case exists for a small nation with a handful of bombers. The contrast in scale for small nation and superpower operations is vast and the issue is irrelevant for small users of air strike.

Another part of this 'do-it-alone' perspective within the greater American air power publishing house can also be attributed to matters of simple fiscal realities. Proving the independent importance of air power is pivotal in securing budgetary support for the USAF. The apportionment, between services, of the nation's limited defence dollars is a regular issue in Washington[41] and in such a competitive internal economic environment, strategic air power advocates may not necessarily have complete freedom to write balanced accounts on the value of air power.[42] Through its budgetary ramifications, overstating air power's political application may ultimately assist in the achievement of its *actual* superpower potential. However, to a small air power the

[39] John Keegan, 'Please Mr Blair, Never Take Such A Risk Again', *Daily Telegraph*, 6 June 1999.

[40] The assertion that American air power literature is interfused with a 'do it alone' perspective does not deny the abundance of material now being circulated on joint operations. It does, however, recognise the underdevelopment of 'jointness'. Most cases for jointery currently involve little more than an overlay for extant separate service doctrine. Behind the scenes the same services continue to compete vigorously on the basis of centuries-old parochialisms.

[41] Lambeth, 'Bounding the Air Power Debate', p. 49.

[42] This situation is by no means unique to America, but its consequences are more important in that country through the flow-on effects they have in the predominance of American air power doctrine in world circulation.

proliferation of material affected by this factor serves only to mislead. Independently decisive air power action is not a realistic dream for small air power nations (except in major coalition), and fixations with it can distort small nation air strategy.

The large nation paradigm for strategic air power application would quickly erase small nation hopes if accepted as the standard. The degree to which strategic air power might be *single-handedly* decisive is a distraction to small nations who contemplate its utility. It is important to recognise that air power does not win wars alone, especially when applied in small scale, but in concert it can contribute a significant influence on the overall outcome. The strategic air offensive may be *contributory* or *leading* in a joint campaign, but doctrine for its *independence* is fundamentally problematic.[43] A strategic air offensive may be an indispensable collaborator in the final solution, but to argue 'independence' and 'decisiveness' for any one element of international conflict denies the true joint nature of influence.

In Bosnia, it was the combined effects of bombing, the consequent inability to move troops, the increasing success rate of enemy Croat and Muslim military operations against the Serbs, the enduring effects of the politically orchestrated supply stoppage, and strong diplomatic pressure which all culminated in the mind change of Bosnian Serb decision-makers.[44] At the time of Operation El Dorado Canyon the pressure on President Qaddafi to comply with American demands was also cumulative. It was made up of Soviet displeasure, rising unrest among Libyan troops following the bombing, improvements in European counter terrorist activity, the decisive defeat in Chad, and the real possibility of another American air raid which finally promised to influence his support of terrorist activity.[45] Similarly, the decision by Japanese leaders to surrender in August 1945 is best viewed as a combination of pressures including the Allied sea blockade, the fire bombing of cities, the confidence shattering Soviet defeat of the Japanese armies in Manchuria, military failures in the South-West Pacific, and ultimately the atomic bombing of Hiroshima and Nagasaki. In the early stages of post-Kosovo analysis it is already apparent that factors like oil trade sanctions, the publicly waning support of Milosevic's deputy Vuk Draskovic, the West's diplomatic victory in keeping Russia out of the war,[46] and threats of ground invasion by NATO leaders (in particular British Prime Minister Tony Blair) were all highly important influences on Milosevic's thinking.

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[43] Vallance, *The Air Weapon*, p. 116.

[44] Lambert, 'Coercion and Air Power', *Air Clues*, Vol 50, No. 12, December 1996, p. 449.

[45] ibid.

[46] Keeping Russia out of the war was fundamental to NATO prospects for victory. The air war was a duel between 1970's Soviet air defence technology and state-of-the-art American precision technology. Any Russian sponsored upgrade of Serbian capability could easily have produced aircraft losses unacceptable to the alliance. American officials (under Vice-President Gore) were able to convince Russian officials (under special envoy Victor Chenomyrdin) that Allied intelligence already had a case against Milosevic for war crimes in Kosovo. Russia was thus faced with the problem of becoming associated with Milosevic's massacres if it sided with him. This was a critical diplomatic victory in the undermining of Milosevic's position. Michael Ignatieff, 'The Virtual Commander: How NATO Invented a New Kind of War', p. 30.

Plainly, the coercion of decision-makers involves the accumulation and synergy of various pressure instruments. It is ultimately the *product* of pressures on the supreme decision-making body which bears on its decision-making, rather than the size of the largest single pressure.

As discussed previously, air strike simultaneously creates pressure at both the political and military levels. There are thus two coercive 'teams' served in different proportion by any one given strategic air action: the military team and the political (grand strategic) team. In the first team — the military team — air power combines with the efforts of land and sea power to produce a synergistic effect directed at the minds of military decision-makers. The point of this, as discussed, is to create military advantage which in turn ultimately influences the supreme decision-making body. While strategic bombing often takes place independently of surface forces, it must be realised 'that independent operations of one service are seldom, and if successful never, irrelevant to the other services'.[47] The coincident application of artillery fire with air strike throughout Operation Deliberate Force offers a good case in point for combined military pressure with one focus. *Military* pressure is a product of the cumulative effects of all military arms. As Wrigley wrote:

> Neither a navy nor an army nor an air force (is) going to win a great war by (its) own unaided efforts. We must seek out the best methods of utilising the special attributes; how best, for instance, to combine the mobility of a navy with the resisting power of an army and the striking power of an air force.[48]

This pursuit of 'jointness' in operations is now widely recorded in doctrine and despite age-old service parochialisms — and ethos, doctrine and equipment clashes — it is now reasonably widely pursued in the exercises and operations of western militaries.

The greater focus of this book is on the higher strategic application of air strike, which brings us to the second team in which air power combines with the 'non-military' instruments of national power. The supreme decision-making body, to which air power has some direct access, is the same focus of grand strategic rivalry in peace. That is to say, it is the same focus of the everyday political, diplomatic, and economic power-plays between nations in defence of their interests (trade, human rights etc.). As a matter of routine, the supreme decision-making body to which we appeal with air strike is also accessible by other less military avenues. These elements are best applied in concert and air power's worth is closely affected by the concurrency of these other measures — diplomatic talks, trade embargoes etc. It can easily be argued that the political conditions within which air strike occurs can make or break its effect.

It would be inaccurate to say of Operation Deliberate Force that, after 40 months of fruitless military and diplomatic endeavour, air power single-handedly produced a solution in three and a half weeks. The air power events of Deliberate Force cannot be

[47] Webster and Frankland, *History of the Second World War*, Vol II, p. 9.

[48] Air Vice-Marshal H.N. Wrigley, *The Decisive Factor: Air Power Doctrine*, (edited by Alan Stephens and Brendan O'Loghlin), Australian Government Publishing Service Press, Canberra, 1990. pp. 12-13.

considered to have occurred *independently* of all the preceding and concurrent non-air power events of the campaign. Air power succeeded, instead, as a major player in a critical aggregation of conditions. But for the agreement of internal leaders in halting supplies to the Bosnian Serbs, and the ongoing support of various other political entities in wider sanctions, the air campaign may well have turned into a miniature Vietnam — unable to access the true sources of the crisis, and instead left to target the capillaries of the system.[49] The destruction of existing supplies in the field was only effective because the possibility of replacing them at the required rate was removed by political means. These political events were significant, and air power was a substantial beneficiary.

Of Korea, it has been suggested that the stalemate would have been resolved much earlier had US politicians been prepared to compromise on the issue of repatriation of North Korean soldiers seeking refuge in the South. Had this occurred during the ongoing attempts at coercive air power, limited strategic strike in Korea might well now be held up as a fine example of air power effectiveness. Conversely, had diplomats not later suggested that the conflict could become nuclear, the war may not have finished when it did, and air strike would now be held in even lower esteem in respect of that campaign. The success or failure of air power was significantly affected by collaborative actions.

In Kosovo, neither the oil embargo nor the destruction of refineries and 75 per cent of Serbia's oil reserves would have been as individually influential in the outcome if they had not occurred concurrently. The point is that strategic air strike is really an element of a greater team, and that its perceived success is greatly affected by the often less spectacular political, economic and diplomatic initiatives which are taken behind the scenes. As Wrigley observed even in the 1920s:

> (W)ar is no longer merely the business of the fighting services. We must see how to help the statesmen to combine the effect of the three fighting services with that of propaganda and of economic and financial pressure, towards the final object of breaking the will power of the enemy nation in the minimum of time.[50]

The Soviet theorist, Aleksandr Svechin (commonly known as the 'Soviet Clausewitz') also recognised the importance of non-military fronts in concert with military ones. He maintained that actions along *all fronts* must be *fully integrated* and in accord with the political goals of the situation.[51]

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[49] Wing Commander Barry Sutherland (RAAF), a point in conversation, Air Power Studies Centre, 8 October 1997.

[50] Wrigley, *The Decisive Factor*, p. 13.

[51] J.K. Lemire, *Towards an Integrated Campaign Plan: The Use of Political, Economic, and Military Elements of National Power at the Operation Level of War*, School of Advanced Military Studies, United States Army Command and General Staff College, Fort Leavenworth, Kansas, May 1993, p. 6. As cited in Brigadier P.J. McNamara, 'Strategic Manoeuvre' in Malik, *The Future Battlefield*, p. 86.

Orchestrating Strategic Air Strike

A corollary of the *joint* or *contextual* nature of strategic air power effectiveness is that failures in coordination will produce sub-optimisation of strategic air power potential. Just as simultaneous surface force action is required to capitalise on the logistics effects of air interdiction in low order strike, so political activity and high order strike require careful coordination.

In its crudest form, the orchestration of elements of power for a small nation in conflict might simply amount to 'visibly' raising the intensity of air attacks to coincide with the delivery of a political ultimatum. In Operation Deliberate Force, air action was suspended and restarted in coordination with the requirements of diplomats in negotiation. In more sophisticated applications coordination might involve strategic air power threats, diplomatic concessions, third party diplomatic arbitration, economic sanctions and even the gradual aerial destruction of an enemy prime minister's personal investment portfolio. The timing and intensity of measures in concert will be critical to the maximisation of effect.

Grand strategy is the joint application of national power instruments in the furtherance of national interests. In an ideal world, national interests would be identified and prioritised, and national power elements would be cleverly applied on the basis of their availability and appropriateness.[52] Grand strategy would result in a sophisticated orchestration of its instruments into joint campaigns customised for each rising issue of national interest. However, the reality is that the combination of elements is more usually ad hoc than planned, with instruments more often played *together* than in symphony. Successful historical formulations of grand strategy are reasonably rare and highly celebrated. Churchill's grand strategic mastery in World War II is a case in point.[53] The desire to repeat those historical victories is the fuel of some contemporary treatment of the subject. More would be justified.

While it is fair to note that some explicit orchestration of higher level national affairs does occur, it is important not to portray a vastly more coordinated picture than exists. Drew and Snow cite a US domestic non-military example where federal health officials have acted for years to discourage the use of tobacco, while for much of the same period, federal agricultural officials have acted to subsidise tobacco growing.[54]

A combination of tools was used in the Iranian hostage crisis of 1980, but the joint coordination of those tools is less obvious. Highly secret diplomatic efforts to secure the release of American hostages were conducted. Economic pressure was applied in the form of a trade embargo. Domestically in the US, Iranian assets were frozen. Then, with little progress up to the spring of 1980, a military raid was undertaken, but failed. Finally, renewed diplomatic efforts succeeded. Somewhere in the solution were the factors of Algerian diplomatic assistance, and the delayed effectiveness of the embargo through Iran's increasing need for money and spare parts for its ongoing war

[52] Drew and Snow, *Making Strategy*, p. 43.
[53] As detailed in Paul Kennedy (ed.), *Grand Strategies in War and Peace*, Yale University Press, Connecticut, 1991.
[54] Drew and Snow, *Making Strategy*, p. 17.

with Iraq.[55] While a number of instruments were applied, it may be optimistic to assume that any comprehensive orchestration occurred between the military, diplomatic and economic campaign operatives; that they might be jointly engaged in some coherent strategy. It is more likely that the efforts were, while not completely ad hoc, largely independent approaches to the same problem.

These examples illustrate a general problem with grand strategic coordination (or as it has been elsewhere labelled, 'strategic manoeuvre')[56] rather than with anything air power-specific. However, the problem is vitally significant to air power because of the overall significance of high level agency coordination on strategic air effect. Such coordination requires special effort (and perhaps infrastructure) and prospective small nation users of high order strategic air strike would be justified in attempting more in this area than other nations have.

As discussed earlier, national power is not just about capabilities but also about a nation's deftness and dexterity in mobilising capabilities in support of goals. Strategic air attack is the most direct and physical instrument in the grand strategist's toolbox. It is the only *military* device with *immediate* access to factors *directly* affecting supreme decision-making bodies. As such it offers important and unique options. However, history tells us that in any application, the best practice for the employment of this instrument is actually in concert with others (both military and non-military). By acknowledging and observing such orchestration as imperative, and therefore avoiding any need to attempt 'going it alone' with air strike, the possible utility of strategic strike to small nations becomes much more real.

THREE PROPOSITIONS IN CONCLUSION

In summary, the propositions above have aimed to clarify three important aspects of war and air power in the perspective of small nations. These help shape answers to the question of viability in small nation strategic air attack.

The aim of strategic air attack is essentially to coerce the enemy leadership to make a decision or a behaviour change (or otherwise a relinquishment or modification of policy) which serves the interests of the air attacker.

The classic large nation paradigm for strategic air offensive action has involved mass and intensity beyond small air power resources. In its richest form (and as recently as the war in Kosovo) large nation or large coalition strategic air strike has involved 'do-it-alone' air power, against all levels of command within the military to political hierarchy, in quest of the enemy's complete and unconditional surrender of objectives. Air power has been used with the tempo and scale to simply overwhelm the entire enemy regime.

[55] ibid., p. 41.
[56] McNamara, 'Strategic Manoeuvre', p. 85.

The basic qualities of offensive air power can, however, be moulded into other styles, perhaps of benefit to small nations. Small nations should not necessarily aspire to simultaneously bombing targets across the strategic spectrum; they should not fixate on achieving an autonomous air power result; and they need not obsess with pursuing unconditional surrender. (While surrender may be the ambit claim, small defenders need understand their own bottom line and shape their strategy accordingly.) Instead, small nations might focus their limited resources on the supreme enemy decision-maker in all planning; design strategic air campaigns to coincide with (supplementing, complementing and achieving leverage off) other military and political instruments of coercion; and set focus on coercing simple mind changes in the offending leadership rather than attempting to physically collapse the entire regime.

Notional examples like that given above for the Falklands War Task Force illustrate that the whole concept of conducting strategic air strike in the form of large and complex campaigns is somewhat anomalous. While large nation strategic air offensives may often conform to such a profile, there are other prescriptions. What may take place as very high order strategic events may consist of nothing more than a handful of missions within the greater war. Furthermore, single high strategic order missions might be conducted outside of greater war, as was demonstrated by Operation El Dorado Canyon. Strategic air strike in these forms is eminently more feasible for small nations.

It is important to extract from the propositions the specific capacity in which small nations might hope to employ strategic strike. Strategic air operations need not be as decisive as sinking the *Invincible* would have been. They do not have to be single-handedly decisive to be justified. They may simply aim at supplementing pressure on the enemy elite. *Any* pressure which can be brought to bear on the supreme decision-makers will be politically exploitable (given representatives with the right acumen). Such pressure might, at least, offer an increase in bargaining power at whatever talks might accompany or result from conflict. There is ample precedent for this in the cases of Korea and Vietnam. Indeed, pressure (however indecisive with respect to the ultimate strategic objectives) should still be considered of major significance if all it can produce is the initiation of talks. Enemy hesitation, reduction of aims, negotiation or concession all represent valuable by-products of the direct pressure which strategic air strike can bring on supreme decision-making bodies. To judge the small nation relevance of strategic air strike on its ability to be *conclusive* in war would be narrow-minded.

The bottom line established here is that small nations, in pursuit of maximum national power in time of conflict, ought to focus the limited energy of their modest militaries directly at the key decision-makers of an opposing regime. They ought to limit aims as specifically as possible, and they must also direct and coordinate the energy of other national power elements into the same focus. Such direction should profoundly influence the thinking of small nation air strategists, and question the value of much existing precedent.

The Need for a New Paradigm

The paradigm for small nation strategic air operations needs to differ from that classically associated with large nations. The doctrine of the US, the most prolific of doctrine publishers, must be read selectively and scrutinised closely for its relevance to the small nations and small coalitions of vastly different means. For the US, air power planning is about being *the* most dominant aerospace force in the world. In the words of Dr Philip Gold, director of the Aerospace 2010 project at the Discovery Institute in Seattle (and member of the Eaker Institute panel):

> The US is, first and foremost, an aerospace power ... we are not a land power or a sea power as these terms have been traditionally understood. Other countries have certainly had very strong air forces to support land or sea forces. We are uniquely dependent on aerospace. We are uniquely competent at it. As a rule of thumb, if something can be done from the air, it probably should be done from the air.[57]

According to Alan Stephens, 'There are two types of air force — the US, and the others'.[58] With these sentiments in mind, one is urged to question the fullness of applicability of the US aerospace model and doctrine for smaller organisations — perhaps in the same way that the Irish Republican Army (IRA) might question the relevance of traditional army doctrine to its application. The IRA is a formidable opponent to the conventional British military system, but its written doctrine (if it were to have any) would certainly bear little resemblance to conventional army doctrine. Small nations must look creatively at what they can do with what air power they have. Blind adherence to the conventions of superpower air forces is only one option.

The next section explores strategies for the application of air strike. It does so with particular emphasis on the resource limitations of small nations and the pivotal significance of the supreme decision-maker as the origin of all conflict and the nucleus of all solutions.

[57] As cited in John T. Correll, 'Air Power and the Other Forces', *Air Force Magazine*, Vol 80, No. 3, June 1997, p. 34.

[58] Alan Stephens, a point in discussion, Air Power Studies Centre, Canberra, 15 May 97.

Chapter Six

STRATEGIC STRIKE METHODOLOGY AND SMALL NATIONS

INTRODUCTION

Given that small nation air power has little application within a large nation paradigm, the question arises as to whether any other paradigm for its use will do. What role can resource-limited air strike play, in concert, to earn concessions from the sponsor of offending policy? By what methodology might a small nation hope to profit from a high strategic order orientation to offensive air operations? If there is none, then small nation air power should continue to train, equip, and otherwise focus on the support of fielded battle. If there is one, then small nation air power should prepare to properly exploit that course as, at least, an additional 'string to the bow' for securing the nation.

The first step towards deriving an answer to the question is to fully understand the nature of the problem. It is necessary to accept that the essence of international conflict is human factors, not weapons orbats. Air power is a highly complicated technological business, but from the moment the bomb hits the target the sequence or process by which political objectives are progressed is predominantly human. Bombing achieves little more, in the first instance, than the destruction of a point on the surface of the earth. With few exceptions, the ultimate political outcome is the product not of the destruction itself, but of the sequence of human reactions (behavioural or attitudinal) to that destruction. The physical deprivation is nothing more than an 'activator' or a 'stimulus' for the more crucial human response.

Herein lies the age-old air power dilemma of how to convert physical destruction into political ends. The linkage between cause and effect is a human one — a fact which not all modern air power 'technocrats' are well prepared to contemplate. The human 'complication' to air power strategy is our first port of call en route to a recipe for small nation strategic air strike.

HUMAN VARIABILITY AND THE PROBLEM WITH 'RULE-MAKING' FOR SMALL NATION AIR POWER

The more one studies the use of air power at the strategic level of war, and indeed the strategic use of air power generally, the more one realises how few *absolutes* exist in the field. Every rule seems to have exceptions, and sometimes the exceptions exceed

the conformities. For most every argument promoting modern strategic air power there seems to be a counter-argument. Even the rather outwardly convincing Gulf War air campaign has not escaped criticism.

The fundamental reason for confusion over the efficacy of strategic air power lies in its nature as an essentially human process with a human focus. Its results cannot be measured in terms of body count or building damage, because the direct objectives sought are predominantly political not material. Unlike 'fielded' military operations, whether they be land offensives, sea battles or even campaigns for control of the air, strategic bombing may have little to do with residual relative combat strength in an attritional environment. The process is not about two like forces competing for the same piece of space. It is, instead, a predominantly unilateral action (being the prerogative of the party with air superiority) which involves the clever and systematic erosion of adversarial political resolve.

This *resolve* is a human quality, and the actions which affect it in the international arena are as variable and dynamic as those which affect *individuals* in conflict. Nations have personalities. They have their own distinctive cultures, religions, historical backgrounds, economic norms, languages, and values systems. There may be general rules of interaction, but in the business of eliciting human response from leaders for one's own purposes in war, the determinants can be quite subtle and unique to each individual body.

When one sparring individual slaps the other's face in a heated two-person debate, no single outcome is guaranteed. Possibilities will range from an apology, to continued argument, to the physical withdrawal of one or both parties, to an all-out brawl. The *actual* result in any one scenario will be the product of many factors. These will include the intensity of the debate, the personalities of the individuals, the history of the relationship and the individually perceived importance of the issues at stake. The one identical action will have many possible outcomes. The tremendous variability in the human stimulus-response relationship is relevant at international level. It serves to make 'rule-making' for best practice in high order strategic air operations a confused and hazardous process.

'Rule-making' is based on the analysis of past experience, but the interpretation of history can easily overemphasise the wrong clues. The physical aspects of war are much more apparent and easily analysed that the psychological ones. The judgements and attitudes of decision-makers are much less easily identified and quantified that the manoeuvres and material losses which beget them. Arguably, the battlefield — the pre-air power focus in dispute settlement — offered greater scope for evaluating the outcome of war. Geographical manoeuvre and changing force strength could be measured, at least *after* the event, and the emerging dominance of one party over the other was almost quantifiable. If one half of the enemy's battlefield tanks could be destroyed with a loss of one eighth of one's own, certain very real estimations might be made about relative combat power and the ramifications on an outcome.

In contrast, the high political content of strategic air power operations makes them inherently more difficult to judge in empirical terms. Of course, high strategic order air action usually has both military and political aspects to it. The physical military effects, as described above, lend themselves reasonably well to analysis. For example, the act of destroying an enemy's oil refining system will have very real, and even roughly measurable logistics consequences. Certain known and tangible functions will be interrupted (production, transport, military mobility etc.) and these will eventually result in certain tangible deficiencies at the front. If, for example, the halving of fighter aircraft production can be achieved, then logical deductions will be possible about future air combat power in the theatre.

The *political* ramifications of strategic air action — the direct effects on the minds, decisions and behaviours of the supreme decision-making body — are, however, much less quantifiable. The political pressures which occur in tandem with the military effects are relatively invisible. Any one leadership decision will be a product of many concurrent influences, and the exact part played by any one specific pressure will always be open to debate. The loss of capital city power generation facilities, for example, will mean different things to different nations, depending on the culture of the people, the industrialisation of the nation, the type of government, the nature of the conflict etc. While a reduction in fighter aircraft production may have roughly quantifiable ramifications on the military contest, its effect on the resolve of the supreme decision-making body will be much less certain. Not least amongst influences on its effect will be the way in which it is reported, if at all, to the ultimate decision-makers.

The lower transparency of the political circumstances which high order strategic air operations manipulate causes great difficulty in analysing the past for the modelling of the future. Did North Korea accede to a peace settlement because of strategic air pressure; because of fatigue and cumulative loss over a long war; or because of the threat of 'nuclearisation' of the conflict? Or was the outcome the result of greater political relationships behind the scenes? The most likely answer is that no one influence was singly decisive, but that all factors contributed to an accumulation of pressure which broke the North Korean leadership's threshold of resistance in negotiations. The particular rationale (or absence of it) behind the decisions of the leaders was specific to the conditions of the moment and such thoughts cannot be recorded in the level of detail which would actually fuel proper analysis. The specific strategic role of air power in such campaigns will thus remain unclear and will continue to be debated. Comprehensive, convincing and yet conflicting analyses exist for most wars in which air power has been applied strategically.

In summary, complex human factors vastly complicate the analysis of air strike. This has two principle effects: it produces controversy amongst readers of history and, since history is the basis of doctrine, it causes difficulties in 'rule-making' for future strategic air strike. Every situation is unique, and the ultimate response of leaders to bombing is not always predictable. Depending on circumstances, any given action will have as much potential to escalate as suppress, or to reinforce enemy resolve as corrode. In Operation El Dorado Canyon, Reagan administration officials believed bombing would deter Libyan sponsorship of terrorists. European leaders felt strongly

that such action would only serve to increase Qaddafi's stature in the Arab world.[1] A great deal of subjective judgement is required in converting air strike's potential into effect. Rather than concrete doctrinal models for cause and effect, the strategist is implored to develop an appreciation of human factors in war, as we all do in everyday relationships, so that in devising air strike strategy he/she might apply sound human judgement to each individual situation. At the centre of air strike strategy lies an appreciation of what reactions can be generated by bombing.

Notwithstanding that strategic air strike applicability is unique to each set of circumstances and that '(t)he sheer dimension of strategic calculus dwarfs human cognitive capability',[2] to not have strategy is inconceivable. There is gain to be made from generalisation. Without generalisation there can be no framework for analysis or *guiding* methodology for operations. The following sections look to explain the doctrine for coercion by air strike. The passages above have intended to encourage caution in generalising from that doctrine. We must be careful not to neglect the 'friction' of war, reducing air strategy and tactics to an 'exhaustingly deterministic phenomenon'.[3] Strategy is not a pure science. Air strike cause and effect planning is a probability game. In accepting doctrine on coercion, we must appreciate the true complexity of the human factor in war and the variability in cause and effect. Any given air strike will produce different outcomes dependent on the context of application. Japan and Germany faced very similar strategic bombing pressure. Japan surrendered; Germany did not. Reductionism requires caution. Specific applications of strategic air strike considered successful in the past should not necessarily be assumed to offer the same success to new and unique situations in the future. Similarly, failed methodologies of the past should not be automatically discarded on the basis of previous failure alone.

The next step in defining the task for small nation air strike proponents is to organise and simplify the human 'complication' into a manageable concept. The next section examines the centrality of cost-benefit analysis in rational decision-making.

Human Cost-Benefit Analysis

'Man is a rational animal'.[4] Human decision-making is usually a rational process — based in logic and consistent in its nature. On this basis, certain situations and events can be assumed to produce certain responses. One party can influence another's decision-making wherever it has access to that party's environment and an understanding of its rationale.

Admittedly, elements which make up human decision need not necessarily be logical or consistent in nature. Sometimes responses defy prediction; the link between cause and effect *can* be very difficult to understand. However, such irrationality in decision-making represents the exception in human behaviour rather than the rule.

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[1] Major Thomas P. Ehrhard, *Making the Connection: An Air Strategy Analysis Framework*, Air University Press, Alabama, 1996, p. 31.
[2] ibid., p. 49.
[3] Barry D. Watts, *The Foundation of US Air Doctrine: The Problem of Friction in War*, Air University Press, Maxwell Air Force Base, Alabama, 1984, p108. As cited in ibid., p. 31.
[4] *The Macquarie Dictionary*, Macquarie Library Pty Ltd, second edn, 1991, p. 1463.

Furthermore, the absence of rationale can be unimportant, or even illusory. Even where responses are, say, emotional rather than completely logical, they do not necessarily lack an identifiable rationale. An angry but illogical response to certain circumstances may be quite predictable and therefore open to a manipulator. Further, the absence of *western* rationale, for example, does not necessarily constitute a total lack of rationale, but merely the lack of a rationale which is intuitively obvious to another culture.

The process at the heart of *rational* human decision-making, even across cultures, is one of cost-benefit analysis. Parties tend to do things from which they stand to profit and avoid things which cause loss or pain. The manipulation of another's profit and loss considerations can be used, therefore, to manipulate behaviour. In the peacetime international arena, nations pursue their political objectives for some form of profit (moral, economic, territorial or otherwise). In war, the attacker uses military means because the possible profit is significant enough to justify that expense. Similarly, in rational cost-benefit terms, the attacker will be expected to relinquish his objectives if their pursuit becomes too expensive. As Clausewitz wrote:

> Since war is not an act of senseless passion but is controlled by its political object, the value of this object must determine the sacrifices to be made for it in magnitude and also in duration. Once the expenditure of effort exceeds the value of the political object, the object must be renounced and peace must follow.[5]

This succinctly summarises the task faced by small nations contemplating war. The essential challenge is to raise the expense of the enemy's objectives to the point where the anticipated profit is no longer worth the effort. The enemy must be convinced that that accepting one's terms will be more beneficial than resisting them. Such an acceptance may be based on either the achievement of gains or the avoidance of losses. The decision calculus of an enemy can be usefully considered as follows:[6]

$$A = Bp(B) - Cp(C)$$

where:

A	=	**value of continued aggression**
B	=	**potential benefits of aggression**
***p*(B)**	=	**probability of attaining benefits by continued aggression**
C	=	**potential costs of aggression**
***p*(C)**	=	**probability of suffering costs**

Enemy concessions occur when A<0.

[5] Clausewitz, *On War*, p. 92.

[6] This is an equation from Pape, with a semantic modification that 'aggression' replaces 'resistance' so as to solely depict the perspective of a small defensive nation under attack. Pape, *Bombing to Win*, pp. 15-16.

For small nation offensive air power there are three variables most open to manipulation: the potential costs (C), the probability of them being inflicted (p(C)) and the enemy-perceived probability of realising benefit (p(B)). *Potential cost* corresponds to the actual power of a small nation to inflict significant damage from the air. This power is the product of weapons system capability and the strategy for its employment. While weapons system capability is not readily alterable, the strategy for its use is. It is important that adequate potential for cost exists. If the greatest cost a small nation can hope to achieve is not enough, then the cost side of the equation will be unlikely to outweigh the benefit half, regardless of the probability of such action being taken.

The *probability of costs* being inflicted is a matter of credibility. Credibility can be considered a function of capability, strategy and resolve.[7]

Credibility = F(Power x Resolve)

It is not only important that the power exists to inflict sufficient cost, but that the enemy perceives that strong intention exists to apply that air power.

The perceived *probability of realising benefit* is manipulable through any damage a small air strike force can contribute the enemy's military prospects. If the enemy's chances of advancing on or holding territory in dispute, for example, are diminished then the likelihood of actually obtaining the prize is reduced and the benefit side of the equation is thus eroded.[8]

It is noteworthy that cost need not actually be incurred by an aggressor before his decision calculus may be affected. The mere prospect of high cost may be adequate to have an enemy give up his ambitions, especially when his objectives are minor. The clear existence of a good strategy for the employment of a reasonable capability, coupled with strong intent, produces the potential to deter.

The relevance of decision calculus to the question of small nation strategic air strike lies in the identification of specific ways to affect an enemy's thinking. The process of air attack to change decisions is a matter of coercion.

[7] This is a modification of a suggestion that Credibility = F(Resolve x Capability) in Lambert, 'Coercion and Air Power', p. 447.
[8] Pape, *Bombing to Win*, pp. 16-17.

ORGANISING AIR STRIKE AGAINST THE ENEMY COST-BENEFIT CALCULUS: COERCION THEORY

Coercion is essentially a psychological rather than physical process. As such, it enjoys much less limelight in military circles than the more traditional and tangible mechanisms of war. How to actually impose one's will on the will on the enemy (our *raison d'etre* in war) has received a great deal less attention than how to conduct campaigns and destroy things.[9] Coercion is broadly the art of influencing human behaviour by use of force. There are many approaches for its achievement but they all share the same basic principle of manipulating costs and benefits for the enemy.

The aim of this section is to define coercion — distinguishing it where possible from the purely military-on-military conduct of war — and to examine its potential relevance to small nations and their air power.

Defining Coercion

In his 1960s analysis of nuclear 'power', Thomas Schelling discussed the diplomacy of violence in a way which also bears great relevance to small nations in limited conflict. He suggested that '(d)iplomacy is bargaining; it seeks outcomes that, though not ideal for either party, are better for both than some of the alternatives'.[10] Force, on the other hand, can circumvent the need to bargain. By force, parties pursue their individual desires unilaterally and physically. By force, nations can repel, expel, penetrate, occupy, seize, exterminate, disarm, disable, confine, deny, access, and directly frustrate intrusion or attack — and will generally succeed as long as their military strength is greater than that of the opponent.[11]

Pure diplomacy and pure force present two distinctive approaches to the handling of international conflict. Schelling, however, speculated on a function of military power which combines both force and bargain; both bullets and words. He recognised the powerful ability of force to *hurt* as a form of bargaining collateral. Schelling distinguished between 'brute force' and 'coercive force'. His 'brute force' involved physically preventing certain behaviour in the opponent, normally by destroying something to remove an option. 'Coercive force', by subtle contrast, involved hurting or punishing an adversary in such a way as to have him change behaviour to avoid further pain.[12] 'Brute force' corresponds to what is now more commonly referred to as 'denial' — the reduction or elimination of the enemy's ability to resist.[13] 'Coercion', on the other hand, centres of psychological effect. Figure 6.1 summarises the distinction.[14]

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[9] Thomas C. Schelling, *Arms and Influence*, Yale University Press, New Haven, 1966, p. vi.
[10] ibid., p. 1.
[11] ibid.
[12] ibid., pp. 2-6.
[13] Major Scott Walker, 'The Unified Field Theory of Coercive Airpower', *Airpower Journal*, Summer 1997, p. 73.
[14] There is notably a connection between *denial* and the bombing for military effect discussed in Chapter 5, and between *coercion* and bombing for political effect.

'Brute force' or 'denial' is not, of course, without its coercive component. The removal or weakening of the enemy's military options will naturally erode his confidence and resolve. Indeed, in previous sections we have made much of this strategy as a common application of high order strategic air power — bombing for military effect but ultimately with the resolve of the political sponsor in mind. In this respect, denial itself is often regarded as a form of coercion.

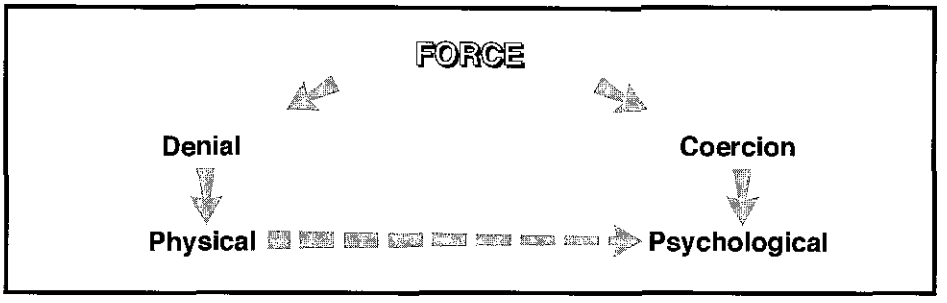

Figure 6.1 **Denial and Coercion**[15]

Strategies for Coercion

In essence, coercion seeks to persuade an adversary to act in an agreeable way, or alternatively, to dissuade that adversary from acting in a disagreeable way.[16] It can compel an enemy to stop an action, or deter him from starting one.[17] Successful coercion is manifest as new, changed or arrested behaviours in the enemy regime, which are to the coercer's advantage. There are many strategies for coercion, but most can be accommodated into four conceptual categories recently collated into a taxonomy by Robert Pape: denial; punishment; risk; and decapitation. The following details the coercion strategies from a small nation perspective.

Denial

Denial is essentially the form of coercion that interferes with the enemy's physical ability to resist. Its coercive dimension lies in the psychological significance of damage to the enemy's war-fighting machine. *Substantial* damage has the potential to induce concessions before *complete* exhaustion of the enemy is actually necessary. Accordingly, denial campaigns normally involve the destruction of arms production facilities, the interdiction of supplies, interference with communications and mobility in the field and the attrition of combat forces. The trench warfare of World War I offers a classic example of denial strategy. The aim was simply to destroy the enemy

[15] Lambert, 'Coercion and Air Power', p. 445.
[16] ibid., p. 446.
[17] Walker, 'The Unified Field Theory of Coercive Airpower', p. 71.

army.[18] That aim did not have to be literally fulfilled, however, to produce an outcome. The process itself was eventually adequate to affect the resolve of the leaders.

Pape maintains that there are three main kinds of denial strategy: the direct support of surface forces; strategic interdiction; and operational interdiction. The *direct support of surface forces* includes any attack against enemy front lines, or the logistic machinery and reserve forces directly behind the front. It is clearly illustrated in Germany's use of the *Luftwaffe* in World War II and in current doctrine chiefly comprises CAS. Air power's part in this form of denial strategy is simply to contribute to a combined arms assault on the battlefield.[19] Such an application, in general terms, falls well within the capability of small nation air strike. It is, indeed, the common focus of small nation offensive air power.

Strategic interdiction involves the much larger scale destruction or isolation of military production aimed at crippling enemy combat effectiveness in the field. There are two approaches. The first is a 'system-wide' strategy that involves the broad and simultaneous destruction of numerous industrial targets in order to collapse an enemy's sustainability in war. The second is a refinement of the first and is known as 'critical component' theory.[20] This might be likened to the tactics of special forces in offensive counter air operations. To disable an enemy aircraft on the ground, it is necessary only to identify and destroy a single vital component of the machine. This requires much less energy than the complete physically destruction of the aircraft. In the Falklands War, British special forces destroyed several Argentine Pucaras on the ground in Pebble Cove by placing small explosive charges on the tail junctions of each. The entire squadron was neutralised by targeting a key structural component that required little effort to destroy and a prohibitively disproportionate effort to repair.

In an analogous sense, strategic interdiction assumes the existence of key components in either the general national economy which supports war, or alternatively in the more specific war industries. Thus, for example, in World War II, strategic interdiction targeted the likes of ball-bearing factories, machine tool manufacturers, rubber processing, and steel, magnesium and nitrate production facilities.[21] Today, the identification of such nodes and the synergies between them is still the subject of much science.[22]

The resource requirements of strategic interdiction are beyond small nations. Even with the 'critical component' approach (albeit a broadly based one) in the Gulf War, strategic interdiction required enormous resources to collapse and keep collapsed critical systems. Similarly, the intense and prolonged Allied bombing attempt to bring down Germany's economy provides a pessimistic testimony. Small nation hopes are surely limited to a careful search for critical components within critical systems or

[18] Lambert, 'Coercion and Air Power', p. 446.
[19] Pape, *Bombing to Win,* pp. 70-71.
[20] ibid., pp. 71-72.
[21] ibid.
[22] For example, see Steven M. Rinaldi, *Beyond the Industrial Web: Economic Synergies and Targeting Methodologies*, School of Advanced Airpower Studies, Air University Press, Maxwell Air Force Base, Alabama, April 1995.

industries, to provide a contributing rather than totally paralysing effect on the enemy's war effort. It may be quite possible, for example, for a small nation to disable and keep disabled the electricity supply of an enemy city (but not to simultaneously achieve paralysis in other systems). Even then, however, the compensating mechanisms of nations at war must be accounted for. The ability of people to find alternative sources for materials and to improvise, substitute, and ration to cover lost systems should not be underestimated. The mobilisation of hundreds of thousands of civilians to repair bomb damage in World War II is indicative of what can be achieved by nations resisting attack. In the Gulf War the destruction of Iraqi communications infrastructure did not necessarily mean total loss of communications. It meant men on motorcycles with message bags. In Korea and Vietnam the bombing of logistics infrastructures did not account for the ability of North Koreans and North Vietnamese to do everything manually and for the involved individuals to function on little more than the clothes they stood in. Resilience is especially high in those who, as a matter of routine, have developed a level of non-reliance on infrastructure. Many poorer nations are accustomed to failure of what wealthier nations would consider essential services. A reliable electricity supply is a privilege in some places and the maintenance of alternative and decentralised power sources is normal. Human resilience works against the economies of strategic interdiction, acting to vastly multiply the effort required to create a desired outcome. This factor diminishes any nation's prospects in strategic interdiction, but most critically small nations with finite resources.

The third denial strategy of *operational interdiction* involves attacks against rear area combat support functions. These include supply networks, command and control facilities and reinforcements. The desired product of such attacks is 'operational paralysis', within which the enemy loses its ability to move and coordinate its forces in manoeuvre. This strategy was demonstrated through attacks on logistics and communications targets in recent Kosovo and Gulf War campaigns but examples are common throughout military history. Consider, for example, the attacks against the German army in World War II in preparation for the Normandy landings and in later support of the landed forces. Just three days after the D-Day invasion, the Allied beach heads were in danger of suffering a counter-attack from the armour of Panzer Group West. There was significant pressure on Field Marshal Rommel to implement a plan before the Allied positions were too strongly reinforced. In the meantime, however, the Allies made a pre-emptive air attack on the Group's headquarters. According to one witness, 'all the staff officers were killed or wounded, the wireless trucks were knocked out and so was the transport'.[23] The dislocation was so effective that it took 12 hours for Germany's 7th Army (the superior formation) to learn of the problem, and by then the hopes of an effective counter-attack had been significantly compromised.[24]

Such a strategy is well within the means and intentions of small air forces. It requires adequate operational intelligence but is achievable with relatively basic air strike technologies and, as it engages only military targets, is less subject to political

[23] Chester Wilmot, *The Struggle for Europe*, Collins, London, 1952, p. 332. As cited in Vallance, *The Air Weapon*, p. 13.
[24] Vallance, *The Air Weapon*, p. 13.

constraint. Coordination of operations with the activity of fielded forces is another important qualifier for operational interdiction but well within the resources of most modern small nations. Any ability to interdict must be coupled with an ability to dictate the intensity of surface force conflict. The shortage of supplies, the disruption of reinforcements and the confusion of command and communications functions will only be truly productive when fronts are fluid and the enemy is most in need of coordination and support.[25]

Denial is the least sophisticated form of coercion. The persuasive impact of impending defeat naturally occurs late in conflict, and never before each side has already invested sufficient resources for one, on the balance, to substantially prove its prospects for victory. This is the great disadvantage of coercion by denial for small nations. It demands that the full costs of preparation for war be met before the hope of coercing the enemy can be realistically entertained. The mainstay of denial strategy is actually the slow attritional process; wearing down enemy forces or their supporting functions. It comprises the conventional volleys of measure and countermeasure, and unless one side can achieve and maintain a higher intensity of fighting, the strategy is weakened by the ability of the enemy in moderate intensity war to habituate, to accommodate pain, and to continue fighting under pressure. Rolling Thunder in Vietnam suffered exactly this demise. The lower capacity for small nation air power to generate and sustain high intensity bombing will compromise the effectiveness in any strategy demanding such pace.

Punishment

Coercion by punishment centres on the exploitation of pain induced by loss, and can be further distinguished from coercion by denial in that it tends to target national will rather than military capacity. This strategy is certainly not exclusive to the military. Sanctions imposed on Iraq by the UN since 1990 have produced 'sanction fatigue' in the population, and subsequently conferred some degree of UN influence over Iraqi decision-makers.[26] Presumably, the mechanism at work is the Iraqi government's concern for support from an impoverished people. However, whatever the mechanism, the sanctions are essentially a form of punishment which produce and exploit pain for influence.

For air power, the elementary assumption for coercion by punishment is that sufficient pain can be generated by *destroying things* to have a government or its supporting population compromise their objectives. This pain is generally created in one of two ways: by either the direct bombing of the civilian population, or through the destruction of the national economy that underwrites civilian security and comfort. Thus, the strategy can require large numbers of civilian casualties, but can also be applied less directly, producing hardship through damage to the civilian economy: electricity (as in Korea); POL supplies (as in Iraq); water supplies; irrigation (as in the Korean dams); other primary production and basic industry targets; domestic transport

[25] Pape, *Bombing to Win*, p. 77.

[26] Richard Butler, 'Dateline', interview, Australian Broadcasting Corporation Television, 8 November 1997.

(as in Korea and Iraq), etc.[27] The British and American bombing strategies of World War II illustrate the two different approaches. While both approaches were directed at achieving victory through punishment of the population, the British strategy involved bombing and killing large numbers of civilians, where the American strategy sought social collapse through attacks on key industrial nodes.[28]

In theory, successful punishment strategy culminates in one of two outcomes: either the subject government, unable to tolerate the pain, makes concessions directly; or the population, similarly unable to tolerate the pain, causes concessions by overthrowing the leadership in coup or revolt. Civilian morale and the dependency of the supreme decision-making body on public support are commonly seen as the true target of punishment strategy. Such a strategy was effectively pursued in the World War I Gotha and Zeppelin raids against the British population. It aimed to undermine the greater enemy's resolve for war, attacking its social basis so as to have citizens pressure the government into abandoning its claims.[29] Elements of this strategy were also apparent in the bombing of Belgrade bridges and power supplies during Operation Allied Force. While unable to attend to such targets early in the conflict due to political constraints, Short recognised the importance of punishment targeting. With 'no power to the refrigerator and ... no way to get to work', he believed that Milosevic's staunchest supporters would demand justification for his policies against the cost.[30] Eventually this bombing was approved and carried out, and its relevance in Milosevic's final concession may only be known in time.

In a wider understanding of punishment strategy it is not just the resolve of the civil population that is worthy of attention. Governments, or supreme decision-making bodies, and the powerful individuals within them have other needs and sensitivities beyond public support. Therefore, other significant forms of loss are possible. Punishment strategy can be more broadly considered to operate on the destruction of *anything* which an enemy values highly.[31] Thus, just as a teenager might be punished (by those who wish to influence him) through the removal of the rights or privileges which he most values, so the government of a nation can be punished by targeting those things which it most values.

National economy and *popular support* are the two broadest traditional categories of leadership sensitivity, but within them the options to produce loss are as extensive as the system is complex and are limited only by the creativity of the enemy strategist. Lateral considerations might include: the electoral home-town of the enemy defence minister; the stock exchange; a bank or major company in which leaders have private financial interests; the companies and interests of industrialists with direct influence

[27] Pape, *Bombing to Win,* pp. 55, 59, 69.
[28] The American strategy was based on the theory of the industrial web conceived in the mid-1930s by the US Air Corps Tactical School (ACTS). It assumed that an industrial state's economy would be under such stress during war that a relatively small number of carefully targeted attacks on key raw material, basic industry and labour nodes would paralyse the economy and cause social and military failure. See ibid., pp. 62-63.
[29] Walker, 'The Unified Field Theory of Coercive Airpower', p. 73, and Pape, *Bombing to Win,* pp. 13-18, 59.
[30] John A. Tirpak, 'Short's View of The Air Campaign', *Air Force Magazine*, September 1999.
[31] Walker, 'The Unified Field Theory of Coercive Airpower', p. 73.

on government; a paramilitary organisation charged with domestic policing for an authoritarian regime; the family of a prime minister; enemy forces involved in counter-insurgency against anti-government organisations; opium poppy fields used to fund political parties; and so on. The Kosovo campaign included some targeting in this style. NATO destroyed two of Milosevic's properties including his villa at Dobanovci (a hunting preserve amongst forests and lakes about 30 minutes from central Belgrade). Also destroyed were his daughter's business (a television station in Belgrade) and symbolic targets like his party headquarters. In the future, with advancements in precision and intelligence, there will be many more means and options for producing loss and pain than history has so far recorded.

In essence, the prosperity of the nation, the personal security of the leadership and the cohesion and support of the people are all areas in which damage equates to 'cost' for supreme decision-makers. They are areas which can be targeted by air power, creating moral, financial or personal expense which serves to offset the benefits anticipated by the enemy through its offending policy. In theory, at least, when the costs (representing pain) are high enough, the benefits (or envisaged gain) will look insufficiently attractive for the enemy to continue its direction.

Small nations should certainly not exclude themselves from considering punishment as a strategic option in certain circumstances. However, once again, the paradigm for the small nation application of this strategy will differ to that demonstrated by large nations. Depending on the scenario, it is unlikely that sufficient capacity will exist to create adequate system-wide pain for air power alone to be decisive. Instead, the *increments* of pain which might be inflicted can only be used to punctuate negotiations; raise the stakes for the antagonist; compound parallel economic, diplomatic and political initiatives; or demonstrate commitment. This is not to suggest that substantial target sets would be beyond small nation reach. As previously suggested, the removal of a capital city's electricity supply would be within the capability of many small nation strike forces. Such an attack would be coercive but, as a point of contrast to large nation forces, not totally paralysing. New technologies and a better understanding of targeting do offer very real future possibilities.

There are some generic problems with some types of punishment strategy which would need to be fully considered by small nations in their planning. These problems relate mainly to the punishment strategies which use the infliction of suffering on civilians. Not *all* punishment strategies need do this, but it is a common historical theme. One problem is that effectiveness can be crucially impaired by nationalistic sentiment within a given regime. Some individuals, groups and populations are prepared to accept tremendous sacrifice for the attainment of national goals to which they personally subscribe.[32] This is particularly so in nations where processes of democratisation or propaganda have been successfully used to create a sense of popular 'ownership' for national objectives.[33] The resulting reduction in leverage can mean that the force required might exceed that which a small nation is physically equipped or morally prepared to apply.

[32] Carlton J. Hughes, *Essays on Nationalism*, Macmillan, New York, 1926. As cited in Pape, *Bombing to Win*, p. 21.
[33] Pape, *Bombing to Win*, pp. 21-22.

Secondly, economic and social suffering can accumulate in the minds of the enemy, becoming subconsciously registered as 'sunk costs'. In other words, the longer the punishment and the more significant the costs, the more substantial the mounting social investment in national objectives becomes, and the less likely compromise and settlement may be.[34] In its most extreme form, resentment of punishment can take on its own influence and produce the opposite effect planned in punishment strategy.

Thirdly, the size and dispersion of national populations means that very large resources are required to significantly lower moral, increase absenteeism or cause deurbanisation. Even large coercers in history have been able to achieve only limited damage with conventional weapons. World Wars I and II produced no more than five per cent attrition (that is civilian and military deaths combined) in most states,[35] and the massive damage produced in Japan in 1945 caused no more than about eight per cent industrial absenteeism on average.[36] Small nation resources will be poorly suited to a *general* attack against whole civilian populations. Identifying keys parts of the population, should they exist, would become a critical challenge.

Fourth, attacked governments can take certain initiatives to reduce the effects of punishment strategy. These include propaganda programs, pre-emptive evacuation and the use of alternative supply and production options. Such action obviously undermines the coercer's effort with the effect that a great deal more resources are required in practice than in theory.[37] Extra resources are the one key small nation inadequacy.

Fifth, the mass slaughter of civilians is legally and, to most small nations, morally unacceptable. International law of armed conflict requires that civilian populations not be attacked; that military operations only take place against military objectives.[38] Morally, civilian slaughter of any scale or description is increasingly seen in the late 20th century as unethical. Any failure to respect this sensitivity could result in a critical loss of domestic and international support. Allied Force strategists were kept very aware of the international public's expectations about civilian casualties through the media. Any failure and subsequent loss of support can critically undermine the continued use of air strike in a viable form. Indeed, one rationalisation for the crippling political constraint imposed on the bombing of North Vietnam early in that war is based on the failure of American support for indiscriminate bombing.[39] The

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[34] ibid., p. 22.

[35] J. David Singer and Melvin Small, *The Wages of War, 1816-1965: A Statistical Handbook*, John Wiley, New York, 1972, pp. 351-357. As cited in ibid., p. 23.

[36] United States Strategic Bombing Survey (USSBS), *The Effects of Strategic Bombing on Japanese Morale*, GPO, Washington D.C., 1947, p. 249. As cited in Pape, *Bombing to Win*, p. 23.

[37] Pape, *Bombing to Win*, pp. 23-24.

[38] Protocols additional to the Geneva Conventions of 12 August 1949, International Committee of the Red Cross (ICRC), Geneva, 1977, art 48 and 51(1). As cited in Wing Commander E.E. Casagrande, *Air Bombardment and the Law of Armed Conflict*, Paper No. 10, Air Power Studies Centre, Canberra, February 1993, p. 19, Annex A. *Military objectives* are those which make an effective contribution to military action, as opposed to *civilian objects* which are those dedicated to civilian purposes. *Australian Defence Force Publication 37 (ADFP 37): Law of Armed Conflict*, first edn, 1996, pp. 5-4 to 5-5, paras 525, 530.

[39] Mark Clodfelter, *The Limits of Air Power: The American Bombing of North Vietnam*, Free Press, New York, 1989, pp. 39-72.

probable loss of support for any civilian punishment strategy is grounds enough for small nations to prefer other approaches.

None of these factors completely eliminates coercion by punishment as an option for small nations. In some lower spectrum conflict scenarios (for example the coercion of a rebel group) such a strategy may well be fruitful where the group has a geographically defined base or an identifiable supporting population. However, in higher levels of limited war, the complications and vagaries of punishing civilians should encourage small nations to look to non-civilian ways of generating 'cost', and with particular focus on elements close to the supreme decision-makers.

Risk

Risk strategy can be considered a variation of punishment strategy. Its influence rests not on the damage or cost which has been incurred, but on the prospect of further damage and cost. Using the risk approach, the coercer might typically carry out a short, discrete attack and follow it with a pause. This pause is used to allow the enemy to consider what costs are likely in further attacks, but can also provide for negotiation, or serve to reward an enemy concession. This might then, if necessary, be followed by a resumption of air strikes at a slightly escalated level. Successful risk strategy relies on there being enough high-value targets left for the enemy to accept that greater losses are in prospect.[40] It is also important to the process that the coercer makes clear that the continuation of attacks is contingent on the aggressor's behaviour, and that they will cease as soon as the right concessions are offered.[41]

Risk strategy was employed in crude form in 'Rolling Thunder' against North Vietnam from 1965 to 1968. That operation involved the coercion of Hanoi through the maintenance of an incipient American threat to raise stakes through the bombing of industry. In that case, however, the strategy failed because the political constraints (inspired by fear of Chinese reprisal) critically limited the risk options. The threat against North Vietnam's tiny industrial base did not represent sufficient risk to affect the political calculus of the leadership.[42]

Risk strategies are generally more limited and less violent than either denial or punishment strategies. This is due to the need to leave some high-value targets as prospects for future strikes, and the need to slowly escalate with periodic breaks in attacks.[43]

There are a couple of factors to consider in the planning and conduct of risk-based strategies. First, while the level and rate of destruction is determined by the coercer, the ability of the enemy to recuperate from, or adjust to, loss also has bearing on the intensity and frequency of attack. The rate of damage must exceed the rate of repair, or any enemy ability to psychologically accommodate the damage. If this is not achieved, then the enemy's confidence in overcoming loss will undermine its fear of

[40] Walker, 'The Unified Field Theory of Coercive Airpower', p. 74.
[41] Pape, *Bombing to Win*, p. 19.
[42] ibid., p. 68.
[43] Walker, 'The Unified Field Theory of Coercive Airpower', p. 74.

future loss. Gradual risk-based strategies also allow the enemy to adjust tactics, and that possibility must also be anticipated. Second, it must be made clear to the subject that the early constraint in risk strategy is strategically preferred rather than politically imposed. Otherwise, the enemy may misinterpret early lower impact attacks as being due to a lack of political will — an interpretation which would obviously reduce fear of future escalation and work against the coercer. Third, the escalation of any conflict must anticipate the intervention of an unwanted third party. This consideration is obviously pertinent to the inherently escalation-based risk strategy.[44]

Risk strategies offer a great deal of scope for small nation air power. They permit, and in fact prefer, the measured rather than continuous and intense use of strike; they can be paced for maximal integration with other instruments of influence and coercion; and they allow positive control over escalation. Like punishment, risk-based strategies need not be confined to influencing decision-makers through their supporting populations. Each leadership will have its own unique and particular sensitivities depending on a host of cultural, economic, military and political factors. These vulnerabilities will be specific to the particular enemy regime, the particular personalities within the regime, the particular issues at stake, and the other more temporary circumstances of any particular time and setting. The mobility and penetration of air strike warrants the widest possible search for enemy vulnerability. The 'valuables' which might be put at risk by air strike should not be considered limited to general public support or national economic well-being. Coercion activity needs to be properly directed at the sponsor whose cost-benefit analysis is most central to the issue in dispute. Risk strategy offers a viable method for small nations to target discriminately and at a pace which is largely of its own choosing.

Decapitation

Decapitation strategies operate on the assumption that any interference with the technical ability of a *leadership* to direct its nation and military in conflict will increase the prospect of its defeat. Where decision-makers are unable to control their military, communicate strategy and pass relevant intelligence, the effectiveness of fielded forces will inevitably be degraded.[45] Decapitation acknowledges national leadership as the brain of the system and suggests that to isolate or confuse it is to paralyse the body, or at least place it beyond useful control.[46] Thus, targeting for decapitation tends to aim at political centres such as headquarters and related leadership facilities, communications networks, and supporting systems such as power and transport.

Decapitation is an exceptional category of coercion in that it includes elements of both punishment and denial. The isolation of the elite through the bombing of its assets and command and control apparatus is punishing in itself, but the consequences can be expected to degrade military effectiveness as well. While the actual effect in the field is important, coercion principally occurs when the leadership, struggling to maintain coherence in its offensive strategy, considers softer options. The strength of this class

[44] Pape, *Bombing to Win*, p. 28.
[45] Walker, 'The Unified Field Theory of Coercive Airpower', p. 74.
[46] Pape, *Bombing to Win*, p. 80.

of strategy is that it aims directly at the main sponsor of the problem, having immediate influence on the ultimate target.

Besides the basic removal of control apparatus, there are two other variants to decapitation strategy.[47] The first involves seeking to actually kill specific leaders. This strategy is of use when the political assessment indicates that specific individuals are substantially responsible for offending policy, and that their removal is likely to cause a change in that policy. The likelihood that the new guard will be an improvement on the old is an implicit concern for this form of decapitation. Risk also comes into play. Risk, short of actual assassination, becomes highly relevant whenever the forces compelling a leader to change behaviour are significantly assisted by his personal sense of self-preservation. Where actual assassination is achieved, the reality of the precedent is likely to increase the perceived risk of the incumbent, and thus the chance of successful coercion.[48]

The second variation involves action which assists or encourages the overthrow of the enemy leadership. Again, there is some commonality here with punishment strategy. It requires the separation of leaders from their sources of support, or from domestic control machinery when the regime is unpopular. This can be effected by attacking communications (including state owned radio and television) and any domestic policing services, security forces or loyal military units particularly responsible for regime protection.[49] The prospect of insurrection will have coercive value, and its realisation will produce a similar effect to assassination.

The most notable demonstration of decapitation was contained in the Gulf War. Forty-four leadership and 156 command and control facilities including palaces, command bunkers and telecommunications nodes were attacked from the air.[50] Embedded as it was in a much broader air campaign, the specific significance of this strategy in the final solution is impossible to judge. However, Saddam Hussein is said to have been woefully unaware of the state of his troops for much of the conflict. He was reportedly surprised when shown Soviet satellite imagery (between 12 to 14 February 1990) of the extent of the damage caused by Coalition air strikes.[51] The campaign was a victory and the *probable* significance of decapitation strategy as a contributor to that outcome cannot be ignored. Operation El Dorado Canyon also arguably contained an element of decapitation strategy. Whether or not the killing of Qaddafi was deliberately attempted, it surely caused him some concern for his life in the following months and years. The attack was credible and repeatable, and therefore of coercive value.[52]

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[47] According to ibid.
[48] Walker, 'The Unified Field Theory of Coercive Airpower', pp. 74-75.
[49] Pape, *Bombing to Win*, p. 80.
[50] ibid., p. 80, 82.
[51] Norman Cigar, 'Iraq's Strategic Mindset and the Gulf War', *The Journal of Strategic Studies*, March 1992, p. 25. As cited in Davis, *Strategic Air Power in Desert Storm*, p. 40.
[52] It is a notable aside that many nations (including the US during the Gulf War and Operation Allied Force) avoid, as a matter of policy, the targeting of individual leaders. Walker, 'The Unified Field Theory of Coercive Airpower', p. 75. This is perhaps not hard to understand: the possibility of reciprocation coerces the coercer.

Decapitation is an attractive strategic strike option for small nations. First, the target set tends to be relatively small — a decapitation campaign can be all over within a matter of days for a large power or coalition. Second, most targets within the set tend to be of limited size, often only single buildings or rooms.[53] This requires PGMs but in relatively small quantities. Third, attacks on such a limited target set reduce the chance of collateral damage.[54] Fourth, the strategy recognises and exploits the fact that the psychology of the supreme decision-making body is the ultimate prize of war, and allows the concentration of force directly on the source of tension. Decapitation strategies focus limited resources on the true central nervous system of the enemy. Fifth, decapitation attacks are always easily justified as legitimate acts in conventional war. They are unlikely to draw the same public or third nation criticism as acts against populations or economic infrastructure. Overall, through targeting the political leadership, small nations achieve the ability to coerce with minimal resource commitment and risk to life.[55] This amounts to good economy, and clever strategy for any organisation with relatively limited strategic options.

Solving the Means-Ends Dilemma

In review, the three variables which small nations have access to in an enemy's cost-benefit analysis are: its perceived probability of achieving the planned benefits, the potential costs of aggression, and the probability of suffering those costs. Coercion is the process by which a satisfactory outcome to dispute can be pursued through the manipulation of enemy decision-maker cost-benefit analysis, rather than through the physical crushing of its military and/or its support base. Punishment, risk, and decapitation are all strategies which follow the coercive orientation. They centre on the resolve of the leadership rather than the ability of its military. Denial aims at removing the enemy's military option, but where a campaign to achieve this is adequately convincing, an outcome can be expected from psychological victory well before any actual military victory. Therefore, denial also has important coercive potential.

There is a loose correlation between the coercive strategies mentioned here and the manipulable variables identified in the decision calculus above. Punishment strategies equate to the business of raising costs (C). Any damage or loss inflicted on the belligerent must be considered to detract from the value of the anticipated spoils in an overall result. Risk strategies prey on the enemy's cost probability estimation p(C). The overall cost side of the decision calculus is affected wherever the enemy can be convinced that there is high *risk* of loss. Denial strategies attend to the probability of benefits for the enemy p(B). Any threat to military success is a threat to the enemy's end game being reached.[56]

[53] Pape, *Bombing to Win*, p. 56.
[54] ibid., p. 79.
[55] ibid., p. 80.
[56] ibid., p. 18.

The importance of all this to a small nation looking to amplify the value of its bombing capability is that it introduces methodology for handling the elusive means-ends nexus in strategic air strike. That is, it helps identify a *mechanism* by which destruction from the air can be converted into a political outcome.[57]

TARGET=>=>=>=>=>MECHANISM=>=>=>=>=>=>RESULT

Devising a connection between tactical military means and political goals is the long standing dilemma of strategists. The mechanism is 'a theory that explains the way certain political actors react to stimuli'.[58] It is 'the theorist's explanation of how attacking his recommended targets will lead to the desired outcome'.[59] It lies at the heart of air strike strategy, and yet is the element most poorly developed in strategic calculus. Relatively little effort has been expended by any nation, large or small, in understanding the political mechanisms of air power. Significant resources have been poured into understanding the intricacies of achieving target destruction, but often without actually knowing what precise political effects are possible. Pape observed during his research:

> Reviewing literally thousands of planning documents ... I found innumerable studies of how forces would be applied to destroy a given target set but no document, at any level of government, of more than a page to explain how destroying the target was supposed to activate mechanisms (popular revolt, coup, social disintegration, strategic paralysis, or even thwarting enemy military strategy) which would lead to the desired political change. Given the vast availability of previously classified documents, I can only conclude that they do not exist.[60]

Good strategy requires an understanding of mechanisms. It is about first knowing what political *change* is required from the enemy decision-makers; and then, what *situations* will influence the decision-makers towards that *change*; what *destruction* can cause the desired *situation*; and finally, what tools are best able to create that required *destruction*. Essentially, to hark back to Chapter One, strategy is about setting the context that eventually facilitates and/or necessitates the desired enemy response. Understanding what context matters, and how to achieve it, is fundamental in the building of good strategy.

The particular mechanisms by which the four general coercion strategies are considered to effect the enemy's decision calculus are summarised along with the originating theorists and historical targets in Table 6.1.

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[57] ibid., p. 56.
[58] Ehrhard, *Making the Connection*, p. 31.
[59] Ken Feldman, *End of Course Report, SAAS 610 Analysis for Military Decisions*, January 1995. As cited in Ehrhard, *Making the Connection*, p. 1.
[60] Pape, *Bombing to Win*, p. 328.

Strategy	Theorist	Target Set	Mechanism
Punishment	Douhet	cities	popular revolt
	Trenchard	cities	popular revolt
	Air Corps Tactical School	key economic nodes	social disintegration
Risk	Schelling	gradual civilian damage	avoid future costs
Denial	*Luftwaffe*	front-line forces	battlefield breakthrough
	Committee of Operations Analysts	weapons plants	equipment shortages
	Enemy Objectives Unit	POL and transportation	operational paralysis
Decapitation	Warden	leadership	leadership change or strategic paralysis

Table 6.1 **Pape's Taxonomy of Coercive Air Strategies**[61]

The mechanisms expressed here are notably broad-brush. They are not stated in particularly useful practical detail as means-to-ends connections, and they are expressed in mixed terms. For example, some are described as events (like 'revolt'), some as processes (like 'social disintegration') and some as a means of influence (like 'future costs'). Notwithstanding this, they do describe a general direction or ultimate end state, en route to which an enemy leadership response might be expected.

Of importance to small nations is that air strike need not actually create a revolution, bring about a catastrophic social collapse or produce an unambiguous military failure to successfully coerce. These mechanisms are the traditional pursuits of very large air forces but even then, as discussed in 'proposition one' of Chapter Five, they seldom actually mark the end of limited wars. Depending on the stakes, enemy leaders are often affected by the direction of strategy before it actually reaches full fruition. The important realisation is that each mechanism represents a sequence of events; a continuum of effect. Only the final step in the sequence — the endpoint on the continuum — is described by the title of the mechanism in the table. 'Popular revolt', for example, should be considered to represent any degree of popular dissatisfaction or waning of support. The hypersensitivity of the American public to casualties is an example of how lower rungs on the 'popular revolt' ladder can be considered powerfully operative within decision-making processes. Any enemy of the US must know that bombing for American casualties is likely to offer very real results in certain circumstances. This was evidenced in Somalia where media coverage of a dead American being dragged through the streets of Mogadishu led to US withdrawal from that theatre. In essence, mechanisms can be activated by relatively small but high impact military events. Good strategy involves using well placed minimal effort to produce maximal effect. While it may be generous to credit the Somalian warlords with well-planned coercion, the event does demonstrate, in principle, how good strategy can massively amplify the effect of very simple capabilities.

[61] ibid., p. 57.

There is a subtle omission in the cost-benefit analysis equation above which deserves brief consideration. The model takes no account of the benefits to an enemy of *not* pursuing its policy — that is, the *inducements*. Wherever one nation can inflict pain on another in a continuous and/or escalating schedule, the forces at play on the enemy include not just the perception of actual and prospective costs as a *negative* motivator, but also the obverse: the *positive* perception of relief from cost when coercive activity ends. Such a force constitutes a form of inducement rather than compellence. However perverse the logic may seem, there are *benefits* for the enemy in giving in.[62]

Small Nations and Coercion Strategies

The *general* qualities and promises of coercion strategies appear to fit well with the requirements of small nations. For a start, the 'hurt' imposable in coercion is not dependent on the relative size of the small defender in the same way as the utility of pure force is limited by the strength of the enemy. As surmised by Schelling, while brute strength is measured relative to the enemy's, the ability to hurt is not. The pain imposed by one party is not reduced by the ability of the other to also impose pain. 'Opposing strengths may cancel each other, pain and grief do not.'[63]

To demonstrate the point, it may be that neither force in a contest has the superior strength required to overcome the other. However, the lack of differential military strength does not imply a similar deadlock in abilities to hurt. Differential coercive ability can break a military stalemate. Similarly, where one party does have greater military strength than the other, the ability of the lesser power to hurt remains a important player in the final outcome of any contest. The bottom line is that the ability to effectively coerce is not a function of size, and nor is it cancelled out by the *relative* strength of an adversary.

A second key relevance of coercion strategy to small nations lies in potential cost effectiveness. Coercion strategies centre on the pursuit of shortcuts to outcomes; sparing the very time, money, equipment and human resources which, in short supply, constitute the basic vulnerability of small nations in conflict. Brute force involves paying the full cost of war. It requires the expenditure of adequate resources for the complete destruction or disruption of the enemy — removing its ability to organise and apply military forces in an adequately coherent fashion. Such was the nature of victory over Germany in 1945. Coercion, on the other hand:

> ... seeks to change the behaviour of states that still retain the capacity for organised military resistance. As a result, coercion seeks to achieve the same goals as war fighting, but at less cost to both sides. While the coercer hopes to attain concessions without having to pay the full cost of military victory, the target may perceive that accepting the assailant's demands will be less costly than fighting to a finish.[64]

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[62] Michael Clarke, 'Air Power, Force and Coercion' in Group Captain Andrew Lambert and Arthur C. Williamson (eds), *The Dynamics of Air Power*, MOD, Joint Services Staff and Command College, Bracknell, Berkshire, 1996, p. 70.

[63] Schelling, *Arms and Influence*, p. 3.

[64] Pape, *Bombing to Win*, p. 13.

Where both brute force and coercive options avail themselves to small nations in crisis, the least resource-intensive methods should always be the most enticing. Armies and navies specialise in force-on-force conflict. However, where any less resource-intensive opportunity exists to coerce the leadership instead of (or as well as) clashing directly with its military, then that option must surely be explored.

Coercing leaders and fighting militaries are, of course, not fully separable modes of business. As a function of strategic order they coexist in varying proportions on a continuum (see Figure 5.2). This continuum provides choice for small nation strategists. While some form of force-on-force contest may be unavoidable in crisis, the evidence is that surface battle options are expensive to all parties. As Wylie states:

> ... it may well be necessary to defeat the enemy army. It may even be necessary to defeat it to the last remnant. But if we always saddle ourselves with the self-imposed restriction that we must, no matter what, defeat the enemy army in combat, then we have indeed denied to ourselves consideration of a vast span of action that might more readily and easily achieve the needed measure of control.[65]

The higher order strategic actions within the gamut of air strike must be considered for their potential.

In such thinking it must be borne in mind that, for small nations, coercive air strike does not represent a substitute but an important supplement for military conflict. Small nation air strike is not a solo campaign. The contribution of air power on the small scale contemplated can only be critical on the back of the conventional war efforts more commonly envisaged and prepared for by small nations. What small nation air power *can* do is critically supplement the existing pressures in a coercive sense. It represents capability additional to the conventional avenues of appeal — economic, diplomatic, political and military. Strategic air strike offers a whole new set of choices; a whole new class of opportunities by which the grand strategist might access the behaviour of his enemy. These options, by nature, are powerfully direct and promise significant amplification of small nation influence wherever the extra ingredient can be applied in the strategic mix.

The adoption of a leadership-centred rather than military-centred approach to crisis resolution requires a distinctive orientation, and a significant shift in thinking for those national agencies not already so inclined. The ultimate aim, of course, is to convince the supreme decision-maker that his objectives are no longer worth fighting for. The method is to raise his perception of costs beyond a threshold of tolerance related to his expected benefits. Theory aside, the practical consequences of thinking in coercive terms opens up an important menu of options for the small nation offensive air strategist.

Some coercion strategies appear more achievable with limited resources than others. For example, in general terms, various forms of *risk* and *decapitation* would be within scope for small nations. Similarly, while *punishment* involving civilian slaughter is

[65] Wylie, *Military Strategy*, p. 82.

effectively off the small nation menu for a host of reasons, *punishment* involving the destruction of other enemy 'valuables' within a broader definition may offer some potential. With respect to denial options, *strategic interdiction* would be the least viable, but the shaping of *operational interdiction* and *direct support of surface force* options for maximal coercive rather than simply military value is worthy of examination. In contemplating a more strategic orientation to air strike for small nations, it is tempting to adopt the couple of coercion strategies which, on the surface, appear best suited. There are dangers, however, in limiting small nation scope to theoretically favoured coercion options.

First, all the coercion strategies are, in practice, quite closely interlinked. They are only distinguished on paper because of the analytical advantages of doing that, and because of their individual origins as separate theories. Denial and punishment, for example, are principally distinguished as *counterforce* (affecting military conflict) and *countervalue* (affecting political will) respectively.[66] However, in some regimes, the military forces themselves may be the most highly valued assets of the leadership. Their safety may be even more highly regarded than the security of the civilian population itself. This could certainly be contended in the case of Saddam Hussein and the Republican Guard on which he relied so heavily for his maintenance of power. The attack on the Republican Guard in the Gulf War represented, at once, both denial and punishment.[67] Similarly, risk and punishment strategies are, in practice, very difficult to separate. Punishment emphasises the importance of damage already done, yet the prospect of future damage is essential to its success. If an aggressor could rest assured that the worst was over — that there would be no more attacks — he would hardly be expected to surrender objectives and write off his sunk costs on the basis of past pain alone. Likewise, risk strategies rely on the pain experienced in past strikes for their effect. If previous pain were of inadequate intensity to create a significant impression, the prospect of future strikes would hardly be expected to have coercive value. In other words, both risk and punishment strategies rely on a mixture of past and future pain for their effects, and any distinction is actually a difficult matter of degree.[68] Overall, it is apparent that the coercion strategies are highly interrelated in their function.

Secondly, to adopt a favourite strategy would be to deny that critical vulnerabilities and sensitivities are particular to different enemies in different specific circumstances. The complexity and variability of war dictates that to suggest air power can always be successful by bombing civilians, by attacking leaderships or by focussing of fielded forces would be highly simplistic. And yet, this would appear to have been the approach of the 'single-focus' theorists in Table 6.1. Each of these theorists had a particular idea about where the proper application of air power might lie. Each individual or group championed his/its own specific theory, and often did so through at least some criticism of the others. In practice, however, it is much more reasonable to expect that no one of the coercion theories will have universal applicability or absolute primacy over the others. There will be times when particular approaches are

[66] To borrow from the lexicon of nuclear deterrence theory.

[67] Richard Hallion, *Storm over Iraq: Air Power and the Gulf War*, Smithsonian Institute Press, Washington D.C., 1992, p. 125. As cited in Walker, 'The Unified Field Theory of Coercive Airpower', p. 75.

[68] Walker, 'The Unified Field Theory of Coercive Airpower', pp. 75-76.

highly favoured; there will be other times when some of the options simply do not exist.[69]

Thirdly, and importantly, none the theorists who developed and advocated the major coercion strategies considered them in the light of small nation air strike seeking to make a *contribution* to the total national coercive formula. The strategies were devised, instead, as autonomous campaigns for the total desired outcome. Where the small nation perspective does not require air strike to be decisive, but merely important in joint strategy, a more incremental or piecemeal application of the various strategies must be considered to have an application. A campaign presenting a mix of coercive elements might be expected to have value in pressuring the leadership.

In essence, monotheism and reductionism can lead to dangerously mechanical thinking and the production of strategic effect is much more abstract than that. Any ambition to focus on one strategy alone and rule the others out would be to ignore the true web-like nature of coercion, and to deny the collaborative value of air strike in the incremental accumulation of coercive pressure. In practice, none of the strategies can actually be considered or adopted in complete isolation.

Scott Walker suggests a 'unified field theory' for coercive air power in which no one strategy is routinely favoured, but in which all are equally considered against the particular circumstances at hand, and applied together or separately on merit.[70] The notion of surveying for coercive opportunity without theoretical boundaries fits well with a potential small nation strategic air strike paradigm. Where resources are inadequate to mount or persist with any one coercion strategy in its wholeness for a single effect, the concept of mixed coercion missions for combined effect presents an attractive possibility. Carefully targeted but broad-ranging air strikes that individually focus on the resolve of the supreme enemy leadership through different mechanisms might in some situations, through the sum of pressures, produce a viable level of coercive influence.

In this sense the coercion strategies above become significant, not as separate competing campaigns for individual adoption and wholesale execution, but as broader themes for consideration in building a mixed coercion strategy. Coercion strategies should be seen by small nations as themes for the varied but coordinated application of air strike in a broader joint strategy.

There is, incidentally, nothing radical in the notion of mixed coercion strategies. The general principle is already practised, albeit in large coalition campaigns which tend to do everything at once because they can. Just as the Gulf War saw attacks on Baghdad electricity supplies occurring at the same time as 'tank plinking' in KTO 'kill boxes', Operation Allied Force also saw the coordination of coercion with denial.[71] In the

[69] ibid., p. 76.
[70] ibid., pp. 77-78.
[71] Of interest in the Kosovo campaign, each of the concurrent strategies came about through separate advocates. According to General Short, SACEUR's number one priority was fielded forces in Kosovo. Short subsequently committed the force to action against the 3rd Army, destroying Serb tanks, armoured personnel carriers, mortar tubes and artillery. However, his own professional bias was towards what he considered the more lucrative and *compelling* targets in Serbia proper. As soon as he

latter half of the campaign, the target list regularly featured both fielded assets in Kosovo and coercive targets in Belgrade. Within the coercive category (besides denial), elements of both punishment and decapitation were woven into the tasking. Attacks on petroleum stocks and lines of communication had military relevance but also served to make the civilian population angry and eventually ready to blame Milosevic. Attacks on communications/media networks and transport had the effect of distancing Milosevic in time and space from his subjects in the city and the field – action in accordance with decapitation strategy. Furthermore, as the seriousness of NATO's intent became obvious and the momentum of the campaign increased, risk must have become an implicit (if unstated) feature of the operation. Perhaps it was ultimately the risk of further intolerable loss which most affected Milosevic's final decision.

The next chapter draws on the thinking in previous chapters to suggest a unique paradigm within which small nations might achieve high order strategic air strike.

was able to convince Clark that he had enough assets to service fielded targets *and* bomb Belgrade, operations in the capital were stepped up. John A. Tirpak, 'Short's View of The Air Campaign', *Air Force Magazine*, September 1999.

Chapter Seven

TOWARDS A PARADIGM FOR SMALL NATION AIR STRIKE STRATEGY

INTRODUCTION

Small nations tend to have few air strike assets and tend to prepare their limited capabilities for *surface combat support* in pursuit of *military* victory. This, of course, has been a generalisation, but one seemingly accurate enough to warrant further enquiry. We have asked whether there is a prohibitive incongruency between the demands of strategic bombing and the capabilities of small nations. In order to answer the question, we started with a look at war and made some generalisations about how small nations think about it (or should think about) and wage it.

First, in visualising and preparing for war, small nations should not aspire to *annihilation* or *strategic paralysis.* Such routes to resolution require enormous brute force effort and are, in any case, simply not always necessary for the termination of limited wars on favourable terms. Second, small nations need to recognise the resolve of the supreme decision-making body as the ultimate target in war. This provides for the accurate direction and concentration of effort so vital to any organisation of limited means. Third, a form of symbiosis exists between strategic air strike and the non-military instruments of national power (economic, political, and diplomatic) which also focus on the resolve of the supreme decision-making body. Improvement in design of joint strategy (or the coordination of grand strategy) should be considered an essential amplifier for small nation air strike effect. Fourth, coercion strategies capitalise the leader-centric approach which small nations need for concentration of effort. These coercion strategies should be seen by small nations as themes for guidance in air strike campaign design rather than distinctive campaigns in themselves. The general mechanisms of each must be intimately understood, but no one need be attended to at the exclusion of the others. Coercive air strategies are applied by small nations for maximal (contributory) effect rather than total effect. An approach based on mixed coercion strategies may offer best value.

The basic question we continue to address is whether or not large nations have the exclusive franchise on strategic air operations. It is essentially a matter of asking whether small nation air strike resources could possibly be applied in any way that might directly influence the status of the enemy's highest objectives. It has been suggested that the most direct and immediate way to achieve this is to focus attention on the supreme decision-making body which issues and maintains those objectives. An understanding of coercion theory, an acknowledgment of the importance of joint strategy, and an acceptance that limited war involves limited objectives, all contribute

to the possibility of a positive role for small nation air strike at the highest levels of war.

SPOT BOMBING

Central to the large nation strike paradigm is the potential of air power to simply overwhelm. This is made realistic by tremendous mass, 'surgical' precision, stealth, high tempo and the ability to simultaneously attack targets across the enemy's military-strategic spectrum. In its extreme form, such air power achieves 'hyperwar' — an overpowering form of rapid and system-wide assault considered very difficult to either absorb or defend against.[1]

The superset of contingency options open to any power sporting this kind of capability will differ markedly from small nations lacking the same scale of forces, stockpiles of weapons, complexity of C4I and technology in platforms (such as stealth). A total of more than 2000 combat aircraft took part in the Coalition's Gulf War. New Zealand and Australia, by contrast, could muster around 100 operational bombers in a coalition of their own. The ways in which such small nations might hope to strategically apply air strike will necessarily differ from large air power organisations.

By elimination and deduction, based on analysis to this point, it is apparent that a customised small nation approach would prefer strategies employing small, high impact, discrete operations. The limited energy would be most productively directed at achieving mind changes for political purposes rather than system collapse for military purposes. Coercion-based strategies would therefore feature strongly in the play. Operations would be shaped with the resolve of the supreme decision-makers foremost in mind. Campaigns would involve the deliberate orchestration, in joint strategy, of other military and, especially, non-military functions engaging the same decision-makers. The exploitation of operational and strategic surprise, and of affordable precision, stand-off and night technologies, would be pursued with the same title as larger nations. However, resulting operations would not aim to *overwhelm*. They would instead aim to contribute to coercive pressure — to appeal to decision-makers and *persuade*.

We could summarise such a paradigm as *Strategic Persuasion Oriented Targeting* (SPOT). For convenience, we will refer to this as 'spot bombing'. The notion principally involves the opportunity-based employment of small nation air power for the more direct influence of politicians than militaries. There is no suggestion that small nation air strike is misdirected in the conventional brute force or denial applications. There is a suggestion, however, that with existing and affordable technologies there is a style of air strike operation by which small nations might *also* expect to have some *direct* influence on the highest objectives of the enemy leadership. *Spot bombing* centres on the achievement of high level coercive effects and principally calls for a broadening of understanding about strategy, rather than

[1] Colonel John Warden III, 'Employing Air Power in the Twenty-first Century', in Shultz, Richard H. Jr. and Pfaltzgraff, Robert L Jr. (eds), *The Future of Air Power in the Aftermath of the Gulf War*, Air University Press, Maxwell Air Force Base, 1992, p. 79.

major changes in capability. While the historical database for such operations is extremely limited, Operations Babylon, El Dorado Canyon and Deliberate Force offer significant guidance.

In order to further define and understand the *spot bombing* paradigm we shall discuss various aspects of the perspective in the following sections. These include the contrasting values of 'tempo' and 'impact' in operations; the utility of 'asymmetric response' for small nations; the practical imperative of high level communication for strategic air strike corroboration; the 'brute force' strategic applications of strike beyond *spot bombing*; and the workability of all such operations with respect to the law (of armed conflict). Discussion of these topics will be focused on establishing the feasibility and implications of a *spot bombing* approach for small nation air strategists.

Also worthy of brief coverage are three particular advantages that would be afforded to small nations by a strategic orientation to air strike. These involve the reduction of casualties, the seizure of initiative and the achievement of deterrence. These advantages are by no means exclusive to the *spot bombing* paradigm. They are advantages of high order strategic strike generally, but are particularly pertinent to small nation needs, and would be successfully preserved in a *spot bombing* approach.

'Tempo' and 'Impact' in the Spot Bombing Paradigm

Tempo

One of the main inhibitors to small nation contemplation of strategic bombing lies in the historical precedent for bombing *intensity*. There exists a tacit assumption that to be effectively coercive, bombing campaigns need to be run in the league of World War II, Korea, Vietnam and Gulf War demonstrations. This need not, of course, be the case. In the terms that have been laid out above, there is potential value in discrete operations within joint strategy. There are possibilities for the aerial exploitation of basic coercion principles which do not feature massive operations over sustained periods. *Spot bombing* is about exploiting these potentials.

The military concept of *tempo* is an implicit part of air power intensity, and one very important within the modern large nation strategic bombing paradigm. *Tempo*, in simple terms, is sortie rate. *High tempo* is the generation and sustainment of sortie rates adequate for a decisive result through a prolonged and overwhelming concentration of force.[2] The basic assumption that promotes the achievement of tempo is that massive attacks against an enemy system over a short period of time have greater effect than the same total level of destruction achieved over an extended period of time.[3]

The maximisation of tempo was a major player in the Gulf War and was achieved through the combination of 'simultaneity' and 'parallel attack'. These terms were developed after the fact but describe what planners were trying to achieve.

[2] *DI(AF) AAP 1000: The Air Power Manual (3rd edn)*, Air Power Studies Centre, Royal Australian Air Force, Canberra, February 1998, p. 55.

[3] Colonel Edward C. Mann III, *Thunder and Lightning: Desert Storm and the Airpower Debates*, Vol Two, Air University Press, Maxwell Air Force Base, Alabama, April 1995, p. 73.

'Simultaneity' involves attacking multiple nodes within one vital system intensely — within a very short space of time. It multiplies the effect expected from incremental bombing of the same nodes over a longer period in that it does not allow the same scope for an enemy recovery — physical repair or at least organisational adjustment. 'Parallel attack' involves bombing nodes within more than one of these vital systems at the same time. It compounds the rate and extent of damage to vastly exceed the enemy's ability to respond.[4] The intended result is paralysis through widespread system collapse. This was the approach employed by the Gulf War Coalition and is most widely associated with the strategic attack theories of John Warden.

The exploitation of tempo is also pivotal in John Boyd's version of control warfare. Boyd contends that all rational human behaviour, whether it be individual or organisational, is based on a continual cycling through of four mental tasks: observation, orientation, decision and action (as shown at Figure 7.1). This decision-making cycle is referred to as the 'OODA loop'.[5]

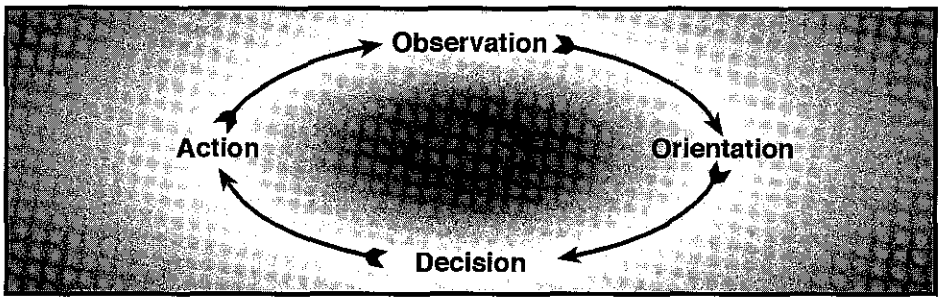

Figure 7.1 **Boyd's OODA Loop**

The comparative or relational movement of opposing parties through their respective OODA loops lies at the crux of any competition. In simplified terms, victory in war goes to the side which repeatedly observes, orients, decides and acts more rapidly and accurately than the other. The dominant party effectively 'folds the opponent back inside himself' by producing emergencies more rapidly than responses can be raised. A situation can ultimately be produced in which the enemy's reactions become completely inappropriate through being out of phase with the attack.[6] The ultimate prize is enemy paralysis through disarray.

[4] Mann, *Thunder and Lightning*, Vol Two, pp. 73-74.
[5] Major David S. Fadok, *John Boyd and John Warden: Air Power's Quest for Strategic Paralysis*, SAAS, Maxwell Air Force Base, Alabama, February 1995, p. 16.
[6] ibid.

Both of the above tempo-intensive approaches (John Warden's strategic attack theory and John Boyd's theory of conflict) are directed at achieving 'strategic paralysis'[7] (the incapacitation of an enemy nation's war effort through the overwhelming and confusing application of carefully directed air power). This is not, as already established, a small nation technique. The ability to achieve and sustain massive high intensity operations (over an indefinite period) is precisely what most small nations are least able to do. Small nations must therefore prefer approaches that do not rely on the achievement and sustainment of high tempo. *Spot bombing* involves just such an approach.

None of this is meant to suggest that *high tempo* is irrelevant to, or completely unachievable for, small nations. On the contrary, the generation of the *highest possible* tempo is an important aim for all air strike organisations. The multiple demands on air strike at the operational and tactical levels of war will surely, at certain times, call for the sustained peak performance of the air power provider. The ability to produce at high rate the well armed, well maintained and properly crewed platforms demanded for the broad range of missions (and for adequate mass within individual operations and missions) will often be critical to the result.

This is, however, a subtly different motive for the provision of high tempo than envisaged by Warden and Boyd. Their employment of high sortie rates was, in contrasting methodologies, to *vastly overwhelm* the enemy nation's commanders and controllers at the highest level. In comparison, the sort of mass and tempo within small nation reach may only be valid in the paralysis of the enemy at the operational level. Small nation air power in a high tempo application might be adequate to paralyse a large opponent at battalion level, for example. *Operational* paralysis is thus on the small nation menu where *strategic* paralysis is not.

Principles within the theories of Warden and Boyd are surely relevant to forces of all sizes, but smaller nations are simply more limited in what they might hope to *overwhelm*. This is precisely why this book has sought non-size critical strategic methods for air power. This is precisely the purpose of defining *spot bombing*. The *spot bombing* paradigm does not rely on the ability to generate dominant tempo. It instead draws on things which small nations can do well, rather than those things small nations will be least capable of doing.

In summary, while the achievement of high tempo is fundamental to many air strike applications, it is not a strength of small nations. Small air strike forces are poorly placed to adopt strategies that require sustained high sortie rates. Where any other option exists it will be preferred. While the achievement of high tempo may be desirable or necessary in the destruction of a carefully selected target set for coercive purposes, there may be no need to emulate the depth and continuity of Gulf War air power in this task. *Spot bombing* campaigns may prefer, but do not rely on, the maintenance of high tempo.

[7] A thesis put at length in Fadok, *John Boyd and John Warden: Air Power's Quest for Strategic Paralysis*.

Impact

While high tempo or high intensity strategic operations are outside easy reach for small nations, *high impact* operations are not. In contrast to high tempo, the achievement of *high impact* is essential to coercion. Impact (like coercion itself) is predominantly psychological. It can be considered a combination of shock, damage and visibility.

Impact = Shock + Damage + Visibility

Shock can be considered the sudden and disruptive psychological effect of air power. It is the product of aircraft noise, the rapidness of onset of attack and the general impression of vulnerability for victims on the ground. As history demonstrates, people can become accustomed to continuous operations, so shock is best achieved when combined with surprise.[8] America's strike on Libya in 1986 achieved high levels of both shock and surprise. The attack was launched in complete radio silence amid heavy electronic countermeasures, and from 200 feet and 540 miles per hour in the dead of night. Targets were selected near populated areas and witnesses received no prior warning (even though confused Malta radar staff had passed warnings to Libya some thirty minutes before).[9]

A credible level of damage is required for impact. If damage is too light it can produce a negative message of vacillation or lack of commitment. If damage is 'off-target' it can also produce a negative effect by exposing weakness or incompetence in the attacker rather than advertising his strengths. In the Libyan raid, damage was substantial and reasonably accurate. The targeted buildings were heavily damaged in each of the selected sites, air defence (SAM) systems were successfully disabled, the targeted runways were heavily cratered, and more than thirty aircraft were destroyed on the ground. While some collateral damage did occur, this was minimised through very restrictive rules of engagement (to the extent that, ultimately, several aircraft were unable to deliver their ordnance).[10]

Visibility is concerned with the size of the immediate audience, and the number of individuals and groups who subsequently become aware of the attack. Generally, the more spectacular the circumstances or conduct of the strike, the more interest is generated. The media is often exploited by the military in the achievement of visibility. Target selection in the Libyan strike was based specifically on visibility criteria. All the targets were in the highly populated Tripoli and Benghazi regions and included high profile military facilities, Tripoli International Airport and, most significantly, the principle residence of Qaddafi at Azizia barracks. News of the attack was widely broadcast through the media. Comments were drawn from numerous governments around the world and there is no doubt that all relevant parties and

[8] *DI(AF) AAP 1000: The Air Power Manual (2nd edition)*, p. 38.
[9] Drew, 'Air Power in Peripheral Conflict', pp. 258-259.
[10] ibid., pp. 259-260.

decision-makers in the issue were aware of what had happened. Qaddafi further raised the visibility with his claim regarding the deaths of family members.[11]

There are two other points worth particular mention regarding the creation of impact. First, discrete operations tend to be of higher impact than operations embedded in broader conflict. This is primarily a function of the higher visibility of 'stand-alone' attacks. Second, losses incurred by the attacker during a strike can be counter-productive. Any loss can be viewed as a moral victory for the victim, and the subsequent visibility of the attack can work against the protagonist.

The central aim of coercive activity is to create an impression of existing or impending high cost in order to undermine the confidence of the enemy in his current position and future direction. The high impact of operations is about making this impression clear, and making it stick. The *spot bombing* paradigm is not founded on high tempo or sustained high intensity operations. It would at times, however, demand the achievement of high impact. This requirement is in keeping with the relative weaknesses and strengths of small nation air strike.

Asymmetric Response and the Spot Bombing Paradigm

> Effective coercion is not about a fair fight. To be successful, a coercer needs to demonstrate his power ... to force the perception: (t)hat he has the initiative (and) (t)hat the opponent is utterly defenceless.[12]

As an imperative, small nations need to exploit every possible vantage in the application of their air power. Law of armed conflict (LOAC) must, of course, be recognised (and this will be discussed later) but blind or unquestioning adherence to conventions of proportional response can be unnecessarily handicapping.

One on the great inhibitors of strategic creativity is the inexplicable tendency for humans to respond to the offensive actions of others only 'in kind'. There is a human predilection for reactions which are engineered for 'appropriateness' which does not necessarily stand up to closer logical scrutiny. 'Response in kind', or 'punishment by reciprocity' seems to appeal to a human emotional construct which associates proportion with justice. This is certainly appreciable and justifiable in many avenues of society; not least of all the courts. However, the general human obsession for having punishments fit crimes seems to spill over, perhaps inappropriately, into the handling of hostile enemy acts. Although writing in a Cold War context in the 1960s, Schelling asks a relevant and provocative question:

> What is the compulsion to embody coherence and pattern in one's action, especially against somebody who has just tried to shoot up your destroyers or has violated your airspace with a reconnaissance plane? Rules are easy to understand among countries that try to get

[11] ibid., pp. 257, 260.
[12] Lambert, 'Coercion and Air Power', p. 446.

> along with each other, that respect each other, subscribe to a common etiquette and are trying to establish a set of laws to govern their behaviour; but when somebody flies U-2 spy planes over your missile sites, why not kidnap a few of his ballerinas?

The point we might take from these thoughts is that consideration of response must avoid artificial constraint. Small nations who, by virtue of their size and vulnerability, potentially stand to face quite desperate situations must question the rationale of proportional or symmetric response. It will surely have its justifications in some circumstances, but where it is applied it should be so as a matter of careful discretion, and not as a default. Schelling suggests one could argue that 'response in kind':

> ... results from intellectual laziness: there may be a hundred ways to respond to an enemy action, somehow a choice has to be made, and the choice is easy if the range is narrowed by some tradition or instinct that keeps the game in the same ball park.[13]

He suggests that bureaucratic obsession with 'legalistic reasoning' and 'philosophical tidiness' also artificially constrains the perceived defensive options of attacked nations.[14]

Small nations need to discriminate carefully in the matter of symmetrical response in crisis. There will not necessarily be the flex or reserve in a small nation's options to afford such limited reactions. Any *actual* need for symmetry in response needs to be a matter of preference rather than convention. It would, for example, be quite handicapping for a *small* nation facing an amphibious invasion from a *large* aggressor to limit its response to a land-based counter manoeuvre when other options exist. When the stakes are high, to defend oneself using only the same means as those chosen by a larger aggressor would be absurd. The enemy would substantially be allowed to retain the initiative, fighting on his own terms and dictating to a large extent the time, place and pace of conflict. Where an aggressor has larger forces, any war of attrition will usually serve his ends. Logically, where asymmetric response options are available (such as would be the case with any nation prepared for *spot bombing*) their consideration should be unencumbered by matters of etiquette. Disadvantaged by size, small nations need to search more broadly for advantage.

'Response in kind' also introduces predictability into small nation strategic air strike, and '(p)redictability is dangerous to the predictable'.[15] Where the direction of offensive counter-attack can be anticipated, it will surely be awaited. The logical 'proportional' response targets will be those most guarded by the aggressor. Where a threat nation carries out a hostile act against shipping by submarine, the expectation of a proportional response would lead him (amongst various precautions) to heavily protect his submarine bases. In executing the predictable response small nations which can least afford to lose their precious few air assets put them at great risk. This effect

[13] Schelling, *Arms and Influence*, p. 148.
[14] ibid.
[15] Lieutenant Colonel Earl S. Chase, *An Intuitive Look at Strategy and Doctrine*, in a lecture delivered for the Department of Strategy, Doctrine and Air Power, Air War College, Air University, Maxwell Air Force Base, Alabama, 30 April 1997.

is compounded by the fact that small nations can usually afford less in the way of EW, SEAD and self-protection measures than sophisticated larger nation forces. They are therefore less suited to high risk penetration environments. Small nation air strike assets need to be applied in unpredictable ways. Asymmetry in response is a basic requirement.

A key requirement of *spot bombing* is to seek enemy weakness rather than enemy strength. Liddell Hart identifies as the crux of conflict, 'whether between individuals, armies, or nations ...', the need to:

> (p)ick out your opponent's weak spot and hit him there with all possible force, whilst at the same time guarding against the risk that he may knock you out instead.[16]

In contrast to planning a symmetrical response, the more wise and complex task of the strategist is to seek the line of least resistance for the undermining of enemy resolve.[17] In the words of the Australian strategic thinker, Alan Hinge, 'Hit him where he aint'.[18] This approach calls for greater effort in searching for and identifying coercive opportunities. As already discussed at length, inroads to the thinking of decision-makers will not only exist in their military, but also in their population, their governmental system, and through the personal 'valuables' which they most cherish or depend on for their power and well-being. In searching for mechanisms that might culminate in the desired mind change, no stone should be left unturned.

Unconventional defensive approaches are not new. In 1986 the Australian Secretary of the Department of Defence, W.B. Pritchett, spoke in the following terms:

> Moreover the strategy of denial allows the enemy to impose his plan of campaign on us and to force us into disproportionate effort.[19] But two can play at that game. We too can harass and raid and mine; and we can strike at bases and other land targets exacting penalties and costs. Our defence preparation should not be such as to rule this out for government or make it too difficult or hazardous a course to adopt.[20]

While Pritchett was emphasising the ability to strike offensively from within a strictly defensive stance, the concept of unconventional harassment raids against an enemy government is nevertheless introduced.

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[16] B.H. Liddell Hart, *Thoughts on War*, Faber & Faber, London, 1944, p. 179.
[17] Babbage, *A Coast Too Long*, p. 103.
[18] As cited in ibid., p. 61.
[19] 'Denial' here bears no connection to the coercion strategy discussed above, but refers to a national security strategy designed to prevent potential opponents reaching Australia's shores. It is a strategic concept which resembles the establishment of a protective shield and which contrasts with forward defence options. Paul Dibb, *Review of Australia's Defence Capabilities*, report to the Minister of Defence, Australian Government Publishing Service, Canberra, 1986, p. 35. As cited in ibid.
[20] W.B. Pritchett, *The Dibb Report: Strategy and Force Structure*, a paper presented to the Australian Fabian Society Conference on Australian Defence, Melbourne, 2 August 1986, p. 8. As cited in Babbage, *A Coast Too Long*, p. 123, footnote 27.

Strategic strike options for small nations in any given crisis should be developed from a blank slate, and screened for moral, legal, domestic and third party acceptability only in the final instance. With the yet-to-be-written book of 'Small Nation Coercion Doctrine' under one arm and the Law of Armed Conflict under the other, small nations must target innovatively, and to the limits of acceptability. Power from simple capabilities relies on good strategy. Blind or subconscious adoption of a symmetrical response policy would present an unnecessary and perhaps critical self-imposed handicap.

Escalation

We can hardly leave a discussion on asymmetric response without having also considered escalation. *Escalation* is the enlargement or intensification of war.[21] In theory, it occurs when one nation (or warring party) acts in a way which is markedly more violent than other actions considered 'normal' in the conflict up to that moment. Judgement of what constitutes a 'markedly more violent' act is, of course, highly subjective. However, the effects are real when such a judgement is made. The outbreak of war itself is simply an escalation of conflict from diplomatic to military means. Within war, escalation generally occurs in two forms: through an increase in violence; or an increase in the level of sophistication.[22] These account for extensions in such dimensions as the geographical area of operations, the activity rate, the weapons type and the class of the target set.

There are three reasons why a defender might work to avoid escalation. The first is to avoid cost. In general, the higher the intensity of war the higher the cost of war. Cost avoidance, as discussed, is in the interest of all rational decision-makers. Unnecessary losses can cost years in post-war rebuilding, a factor more significant to small economies. The avoidance of escalation can reduce that task. Cost in human life is less compensatable and also benefits from escalation avoidance.

The bottom line is that losses can be significant even in victory, and it is generally in the interests of all rational parties to settle disputes by the simplest possible means. In Liddell Hart's words,

> Victory is not an end in itself. It is worse than useless if the end of the war finds you so exhausted that you are defeated in the peace. Wise statesmanship must aim at conserving strength so as to be still strong when peace is settled.[23]

The second reason for avoiding escalation is that the higher the intensity of war, the more lasting its effects on the relationship of the belligerents. In war over limited objectives it is in the interest of each party to minimise the depth of resentment between populations.

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[21] *The Macquarie Dictionary*, Macquarie Library Ptd Ltd, second edn, 1991, p. 593.
[22] James Cable, 'The Diffusion of Maritime Power' in George Thibault (ed.), *The Art and Practice of Military Strategy*, National Defence University, Washington, D.C., 1984, p. 331.
[23] Liddell Hart, *Thoughts on War*, p. 47.

> The enemy of to-day is the customer of the morrow, and often the ally of the future. To inflict wide-spread and excessive destruction is to damage one's own future prosperity, and, by sowing seeds of revenge, to jeopardise one's future security.[24]

The containment of conflict escalation will thus have important effects on the all-important long-term outcomes.

Thirdly, and of particular interest to small nations, the avoidance of escalation by the least capable belligerent can serve to keep the mode of conflict within his means. This of course is also precisely why the *more* capable nation intentionally escalates. Low level conflict only exists for as long as it is tolerated by any contestant likely to benefit from escalation. The American threat of escalation to a less limited war, for example, contributed significantly to the final armistice in Korea. Higher levels of violence are attractive to the party most able to employ them to clear advantage and, ultimately, a conflict may be elevated to a level where the opponent is simply no longer prepared or able to compete.[25] This is a powerful device.

The important summary here for small nations is that the avoidance of escalation is usually, though not always, desirable. Where escalation is to be avoided, asymmetric air power response will require careful planning. Where escalation can be used to advantage (for example where the opponent is unable or unlikely to retaliate in kind) then asymmetric air power response will be more freely used.

There are two important points to make here, one regarding small nation avoidance of escalation, and one regarding small nation use of escalation. First, for escalation avoidance, it must be noted that *spot bombing* by nature offers the user some finesse in regulating offensive action and thus escalation. Unlike the stereotyped 'all out' superpower application of strategic bombing, *spot bombing* offers discrimination in the intensity, pace and geographical extent of conflict with appropriate sensitivity to the psychological state of the enemy. Where the 'area' bombing of World War II or the 'across the strategic spectrum' bombing of the Gulf War signalled the 'opening of the sluice gates', the more precise selection of target sets for the specific application of pressure against a specific decision-making group (such as exercised in Operation Deliberate Force) offers a certain degree of control. Besides precision in strategic target selection, sensitivity to escalation is empowered through the use of precision guided munitions to minimise collateral damage. In essence, asymmetric response need not necessarily result in escalation. Clever application of *spot bombing* may come across as *exceptional* strikes rather than concerted campaigns which mark a shift in the level of conflict. Strategic strike within a *spot bombing* paradigm may be delivered more in the form of punctuation for ongoing conflict, than as a ramping up of rate or scope in continuous and intensive attacks.

In situations where escalation is preferred, external constraints must be considered. In waging war no contestant, large or small, makes its strategic decisions in isolation from international and domestic opinion. The alienation of customers and creditors,

[24] ibid., (quote dated March 1925), p. 42.
[25] Cable, 'The Diffusion of Maritime Power', pp. 330-331.

and the loss of friends, patrons and influence are all at stake. International observers such as the United Nations, the world media and individual governments will all have opinions on any nation's move to escalate a given conflict. Where disapproval occurs, third party and domestic pressure to desist may be substantial.[26] Sanctions might be imposed, intervention may occur on the opponent's side and, even more fundamentally, domestic political support for the war may be lost.

A point of particular note to this book is that small nations generally enjoy less international constraint regarding freedom to escalate. Sensitivity to international opinion is proportional to the degree of international involvement of any given state. In general, constraints are more keenly felt by large, widely committed states than by smaller and relatively more isolated ones. The web of interlocking commitments and interests natural to great powers significantly complicates their calculations. As an example, while Britain was physically capable of escalating the Falklands conflict by bombing airfields on mainland Argentina, the political damage to itself would probably have been greater than the military damage to Argentina.[27]

Where small nations opt for controlled escalation they can expect to do so with *relative* freedom from external interference. The web of constraints faced by large nations or superpowers is not shared to the same extent by small nations in the employment of their air power.

In general, escalation is of critical interest to small nations because large and intense wars are exactly what small nations need to avoid — assuming, of course, that the enemy is not *more* averse to higher intensity war. The need to exploit asymmetric response and the need to avoid escalation are therefore often two opposing requirements for the small nation strategist. Any desire to meet an attack with a powerful asymmetric response must be tempered by consideration for the desirability of escalation. There is no universally applicable formula for handling this problem. It is a balancing act which will demand the attention of the strategist in each individual conflict scenario.

Communication and the Spot Bombing Paradigm

The important role of non-military instruments in 'joint' strategy has already been stressed in this study. One of the most important non-military functions for strategic air power effect is that of communication between belligerents. Communication is vital in the business of coercion. It is important for the coercer to make his intentions clear and unambiguous.[28] As Schelling wrote:

> War is always a bargaining process, one in which threats and proposals, counterproposals and counterthreats, offers and assurances, concessions and demonstrations, take the form of actions rather than words, or actions accompanied by words. It is in the war that we have come to call 'limited wars' that the bargaining appears

[26] ibid., p. 329.
[27] ibid., pp. 329, 332.
[28] Lambert, 'Coercion and Air Power', p. 447.

> most vividly and is conducted most consciously. The critical targets in such a war are in the mind of the enemy as much as on the battlefield; the state of the enemy's expectations is as important as the state of his troops; the threat of violence in reserve is more important than the commitment of force in the field.[29]

While lower strategic order air strikes (designed with greater military than political effect in mind) will tend to speak for themselves, higher orders of strategy are amplified by effective dialogue. Concurrent diplomacy was a strong feature of Operation Deliberate Force. Ongoing talks were also a significant player in the bombing of North Korea and Vietnam. Indeed, in those two situations the bombing was subordinate to the negotiations; bombing served the aim of the talks more than talking enhanced the success of the bombing.

As one illustration of the importance of parallel diplomacy in the amplification of strategic air strike we might consider the issue of leadership 'escape routes'. The fact is that even when cost-benefit analysis logically dictates that concessions should be made, they are not always forthcoming. Reasons can include the perception of the enemy decision-makers about their personal prospects in surrendering or making concessions. A decision-maker will be less likely to make the desired decision if that act carries with it any likelihood of death, loss of power, revolution (with a corresponding loss of a values system or ideology), criminal trial, or even the loss of face.[30] Of course, not all these conditions are avoidable in failure. However, wherever something can be done to ease the way of decision-makers contemplating concession, the likelihood of success can be improved. It is a well-known principle of negotiation that to allow the opponent an 'out' with the retention of his dignity is to enhance the chance of a deal. In international conflict there may be many avenues for observing this same principle. Diplomatic support, new trade opportunities, the avoidance of international condemnation, relief from sanctions, immunity from prosecution (for example, war crimes), political or material support against domestic rivals or insurgents, asylum, and money, all represent terms conducive to enemy concession under military pressure.

The point is that the leadership escape route is an important potential determinant of coercive air power success — yet it is not something which can be provided by air power itself. The grand strategist must not only produce incentives for concession, but work to dissolve the disincentives. Diplomacy, economics and politics are involved. Parallel high level functions must be coordinated in the air campaign to complete the coercion formula. Otherwise, a perfectly serviceable coercive air action may be lost through failure to address other apparently small but overriding issues. All such processes demand the utmost clarity and regularity in communication.

Strategic air strike for coercion is a process mixing bullets and words. Any contemplation of high order strategic air strike requires the accompaniment of diplomacy. There is a case to be made for ensuring that such processes are not left unattended until a crisis already exists. There is finesse to be achieved in the

[29] Schelling, *Arms and Influence*, pp. 142-43.
[30] Pape, *Bombing to Win*, pp. 32-33.

coordination of air strike with political dialogue and such processes should be actively anticipated and exercised in peacetime.

The Law of Armed Conflict and the Spot Bombing Paradigm

Strategic air strike is constrained by international law of armed conflict (LOAC). Only brief reference to the matter of legality has been made so far and a closer look at the specifics of the law will be prudent.

Aerial bombing has attracted controversy since its earliest use. Even Gavotti's very first series of raids were condemned by the Turks who claimed damage had been caused to a field hospital.[31] Despite ongoing criticism, the paucity of detailed formal constraint allowed the uses and intended uses of aerial bombing to become increasingly disturbing in nature. Giulio Douhet's 1921 advocacy of heavy aerial strikes using incendiary bombs, gas and high explosives against all strategic enemy targets, including civilians, might be remembered as air strike doctrine in its most unrestrained form.[32] The concept of wide-ranging destruction aimed at the general morale of the people did not, however, quickly disappear. It seemed to persist into World War II in the form of 'area bombing' and, although largely a propagandist's construct, the 'carpet bombing' of Vietnam also represented a somewhat approximate method of pursuing political aims. At the beginning of this century approximately 10 per cent of people killed in war were non-combatants. Late in the century the figure is closer to 90 per cent.[33] This has been widely viewed as grossly unacceptable. International law has sought, progressively, to legitimise aerial bombing by restricting its use, and the main area of constraint has involved the bombing of civilians.[34]

While bombing has evoked moral and legal debate since its earliest application, specific rules for the regulation of air warfare are relatively new. The 1977 Additional Protocols to the Geneva Conventions represent the first substantial attempt at controlling the unrivalled destructive and killing power of air strike. The most pertinent of the Protocols are summarised by article in the following list:[35]

- The civilian population shall not be the subject of attack; military operations shall only take place against military objectives.[36]
- Methods which indiscriminately strike or affect the civilian population and combatants, or civilian objects and military objectives, are prohibited.[37]
- Attacks against civilians by way of reprisals are forbidden.[38]

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[31] Saundby, R., *Air Bombardment: The Story of its Development*, Chatto & Windus, London, 1961, p. 7. As cited in Casagrande, *Air Bombardment and the Law of Armed Conflict*, p. 1.

[32] With the obvious exception of nuclear weapons which represent the ultimate in total and indiscriminate destruction.

[33] *Australian Defence Force Publication 37: Law of Armed Conflict*, p. 2-1, para. 202.

[34] Casagrande, *Air Bombardment and the Law of Armed Conflict*, p. 2.

[35] As summarised in ibid., p. 19, Annex A.

[36] Protocols Additional to the Geneva Conventions of 12 August 1949, International Committee of the Red Cross (ICRC), Geneva, 1977, art 48 and 51(1).

[37] ibid., art 51(5).

[38] ibid., art 51(6).

- Civilian objects are all objects which are not military objects; military objects are those objects which contribute to military action and whose neutralisation offers a military advantage.[39]
- Acts of hostility against cultural objects or places of worship are forbidden.[40]
- It is prohibited to destroy, remove or render useless objects indispensable to the survival of the civilian population.[41]
- Works or installations containing dangerous forces, for example dams, shall not be attacked unless those objects are providing regular, significant and direct support to military operations.[42]
- Air planners and commanders must take all feasible precautions to minimise incidental loss of civilian life.[43]
- Parties shall take action to separate civilians from military objectives and take other measures to protect their civilian population.[44]

What are the ramifications of the Protocols for *spot bombing*? First, the common theme in eight of the nine listed rules is the reduction of harm to civilians. Small nations like New Zealand and Australia whole-heartedly condone the identification and isolation of civilians from military conflict. Small nations, in general, stand to be significant beneficiaries of such a law well supported. As itemised in Chapter Five, there are a number of troublesome aspects to strategies which involve bombing civilians for coercion, and the legal dimension is only one. The strategy is worth avoiding and such a requirement is easily observed through the *spot bombing* approach.

The notion of *spot bombing* incorporates, by definition, a high level of discernment in target selection. In *large coalition* wars, any commitment to disable entire sections of the enemy system will naturally produce some difficult decisions where important nodes of a given system are embedded amongst civilian infrastructure. In contrast, any approach based more on individual attacks with discrete coercion objectives might be expected to offer greater freedom for the avoidance of sensitive targets. A *spot bombing* approach would not be immune from producing collateral damage, but might offer greater discretion for high risk missions where they were 'stand alone' rather than integral to a wider bombing campaign.

The impracticality of any requirement to completely avoid collateral damage and civilian loss is acknowledged and provided for in LOAC. The principle of 'proportionality' requires that the military commander weigh the anticipated military value of attack against the possible harm to protected persons and objects.[45] It requires that the losses or damage be proportionate to, rather than excessive with respect to, the

[39] ibid., art 52.
[40] ibid., art 53.
[41] ibid., art 54.
[42] ibid., art 56.
[43] ibid., art 57.
[44] ibid., art 58.
[45] That is, non-combatants, civilian and specially protected objects as defined in law of armed conflict. *Australian Defence Force Publication 37: Law of Armed Conflict*, p. 5-3, para. 509.

military advantage expected from a successful operation.[46] Thus the *military necessity* of an operation is allowed to have some bearing on whether risk to civilians is acceptable or not. Small nations contemplating a more strategic approach to strike, but at the same time maintaining high ideals in the protection of civilians, are well accommodated within the law. *Spot bombing* should offer significant discretion over whether high collateral-risk missions need be undertaken but, where militarily justified, such actions will be possible without contravening the international norms.

The second LOAC constraint on *spot bombing* is a strong secondary theme in the Protocols requiring that targets have a military connection. The law contains that 'only military objectives are legitimate objects of attack'.[47] This is of particular interest in the more lateral applications of *spot bombing* since some of the targets sets one might select for the purpose of decision-maker coercion may appear to have little *obvious* connection with the customary military objects. For example, the precise connection between the bombing of the enemy's national stock exchange and the ongoing military battle might appear tenuous at first.

Legitimate military objectives include a very wide range of persons, locations and objects. Besides the obvious inclusions of combatants and the facilities and materials they use, legitimate objectives include any:

> ... objects which, by their nature, location, purpose or use make an effective contribution to military action and whose total or partial destruction, capture or neutralisation, in the circumstances ruling at the time, offers a definite military advantage.[48]

Attacks are legitimate against: civilians who take direct part in hostilities; production, storage, transportation and communication facilities with any military utility; economic targets that indirectly support operations; and any object normally dedicated to civilian purposes which is used for military purposes.[49]

The scope is therefore considerable and the majority of targets that a small attacker might consider most useful in coercion will often comply. Even the bombing of a stock exchange, for example, would seem justifiable when one realises the fundamental importance of the national economy to the funding of the enemy's war. However, one must be cautious with the excessively liberal interpretation of LOAC. Almost any *non-human* target can be justified against the LOAC criteria with an adequate imagination.

If one makes a liberal interpretation of what constitutes 'definite military advantage', then attacks affecting the psychological resolve of the supreme enemy leadership will certainly be considered legitimate. If one takes a more conservative approach towards LOAC, that 'definite military advantage' in no way implies or accommodates 'definite

[46] ibid., p. 2-2, para. 208.
[47] ibid., p. 5-4, para. 524.
[48] ibid., p. xxv.
[49] ibid., p. 5-5, para. 527.

political advantage' (albeit aimed at progress towards peace), then motives at the very core of strategic bombing and coercion theory become legally questionable.

Under the conservative interpretation, certain tension exists between aspects of strategic bombing theory and LOAC. Both can be seen to promise improvement in the humaneness of war, but by competing approaches. LOAC prefers the limitation of conflict to strictly military targets with the aim of eliminating the involvement of civilians and civilian objects. Strategic targeting (especially for coercion), on the other hand, recognises that some targets well removed from the actual fight and only distantly connected to the military effort itself may be at least as significant in bringing about the end of war. Strategic bombing for coercion submits that carefully planned 'surgical' removal or destruction of well chosen targets (*military or not*), whilst violent in the short term, can actually save lives, property, time, money and other resources in the long term.

It is obviously the preference of this author to accept that LOAC in no way intends for conflict to be confined to the battlefield and its physical support systems, and that the will of the supreme enemy leadership is a legitimate military target. Indeed, the belief that the destruction of vital targets has a long-term humane effect if it significantly shortens the conflict *is* recognised by the law of armed conflict.[50] Confining attacks to a narrow military focus is specifically what air power promised to liberate us from after the Somme and Paschendale, and is particularly what small nations facing a larger foe *need* to be liberated from. Wars of attrition which rely on *quantity* naturally disadvantage small forces. The whole gist of strategic targeting is to move away from the fixation with the fielded military and approach the political problem at its source — the policy makers. In keeping with the sentiments of Boyd, Sun Tzu and Mao Tse-tung in Chapter Five, air power for coercion is about '(getting) into the minds of humans', 'breaking the enemy's resistance without fighting' and attending to 'the mind of the enemy and the will of his leaders' rather than 'the bodies of his troops'. Such pursuits are not always best served by targets with a clear *military* connection.

While conscientiously observing the humanitarian ideals of LOAC, *spot bombing* would function on the selection of targets, not just on their pure military value but on their coercive political value. Leadership and economic targets would be amongst those considered and there is some likelihood of such a selection drawing flak from LOAC subscribers who too narrowly define *military advantage*. It is relevant to note here that, while many leadership and economic targets were attacked in the Gulf War, Operation Desert Storm was subsequently widely considered to have substantially complied with the Protocols.[51] This offers some support for latitude in strategic targeting where some clear connection is possible.

One must consider the *perception* of operations in the matter of legitimacy. The actual substance of an attack can be less important to its acceptability than the public's perception. Although the coercive significance of a given strike might be greater than its physical military significance, it is the latter which seems to make the act most palatable. Where some military justification can be constructed, operations can be

[50] *DI(AF) AAP 1000: The Air Power Manual (2nd edn)*, p. 18.
[51] Casagrande, *Air Bombardment and the Law of Armed Conflict*, p. 17.

expected to attract less criticism. In Operation El Dorado Canyon three of the five areas bombed were directly linked to terrorist activities. However, with another 30 training facilities scattered throughout Libya there was never any pretension that the physical ability of that country to mount or support terrorist operations would be impaired by the American operation.[52] The aim of the mission was clearly coercive, and the target selection was carefully made for legitimacy rather than functionality. Legality may be as much a matter of perception as fact. While a direct military connection may not always be possible for coercion operations, some legitimacy is likely to be conferred wherever a rational connection is *seen to exist* between the destruction of a target and the desired political outcome. *Spot bombing* missions will benefit from careful strategic calculation and a measure of transparency in that calculation.

It has already been suggested in this book, with respect to the search for a small force strategic application of air strike, that 'small nations must exploit every possible advantage in the application of their air power'; that 'small nations must target innovatively and to the limits of acceptability'; and that 'blind or unquestioning adherence to conventions ... can produce unnecessary handicapping of air strike potential'. Some of these suggestions may appear to challenge the law of armed conflict. The aim of such suggestions is not, however, to question the value or workability of LOAC, but rather to emphasise its indefinite nature.

LOAC is not black and white. It is rather an attempt by the international community to provide some direction for the world's growing strategic arsenals which already have the ability to kill millions and cause devastation in all sectors of human society. It is an attempt at the construction of standards or norms (based on humanitarian ideals) on which nations might judge each other and regulate their own air strategy planning. Without expecting to attract the universal agreement of all nations, international LOAC aims to produce a culture of acceptance within which extreme, immoral and unnecessary air actions may be recognised and opposed. Compliance with LOAC is not a matter of simple obedience. Its rules are hardly specific or exhaustive enough for all of war's many facets to be individually covered. The more sophisticated challenge for planners in LOAC is to achieve the mission while at the same time complying with the *humanitarian ideals that underlie the Protocols*.[53] LOAC is the code of ethics for the profession of arms.[54] It is not a black and white checklist but a general moral prescription which requires interpretation in each contingency.

While the Additional Protocols have been ratified or otherwise acceded to by more than 130 states, several large nations including the US are notably absent from the list.[55] In theory they are free to fight without the constraints shared by the signatories, and the maintenance of nuclear weapons clearly demonstrates this. One is tempted to ask why small nations allow themselves to be hamstrung with conventions which superpowers and other large nations do not sign up to. One important reason is that the LOAC represents a code from which small nations can expect to derive significant

[52] US Senate, Committee on the Judiciary, Subcommittee on Security and Terrorism, *Libyan Sponsored Terrorism*, 99th Cong, 2nd Sess, 1986, pp. 88-91. As cited in Pape, *Bombing to Win*, p. 356.
[53] Casagrande, *Air Bombardment and the Law of Armed Conflict*, pp. 14-18.
[54] *DI(AF) AAP 1000: The Air Power Manual (2nd edn)*, p. 17.
[55] Internet http:\\www.icrc.org\unicc\icrcnews.nsf, 5 April 1999.

protection. Enemy compliance with the code will result in a more humane war. An enemy breach of the code would be likely to rally significant third nation political and military support for the victimised small nation. Either way, small nations have good reason to uphold the LOAC principles. This is a strong incentive for careful compliance in small nation strategic air strike planning.

A small nation air strategist operating a *spot bombing* strategy will need to carefully screen plans for probabilities of collateral damage and breaches of LOAC. There is no definite right and wrong but a clear need to take due care. In seeking targets that might initiate political reactions or stimulate enemy cost-benefit re-calculations, such risks are high. Much less potential for controversy and international condemnation exists in the lower order (fielded military) missions. The strategic application of air power demands a high level of awareness regarding the law and a full appreciation that 'the right to adopt means of defeating the enemy is not unlimited'.[56] The careful and calculated compliance of small nations with LOAC is extremely important for both moral and political reasons — especially if small nations expect to also enjoy the shelter of that same law. However, the law is not black and white. The discriminating strategist will benefit a great deal from achieving finesse in an understanding of the nature of the fine and wavering context-dependent line between the international acceptability and unacceptability of various strategic air strike operations.

'Brute Force' and the Spot Bombing Paradigm

Air strike is performed for either its coercive or brute force utility. As previously discussed, coercive force involves hurting or threatening 'hurt' in such a way as to have an opponent change or stop an offensive behaviour as a pain avoidance measure. Brute force, on the other hand, involves the reduction or elimination of the enemy's *ability* to resist. This entails physical prevention of certain behaviours in the opponent, normally by destroying something to remove an option. While the delineation is imperfect, in general, coercion capitalises psychological effect and brute force capitalises physical effect.

In recognition of the inherent limitation of brute force strategies for the meagre air strike resources of small nations, the *spot bombing* paradigm is predominantly coercive in orientation. Brute force applications of air strike are more generally denial based, and can be considered to have a relatively minor component of coercion to their function. They are *generally* of lower strategic order than coercive manoeuvres, having more immediate military than political effects.

There is, however, precedent for a form of high order strategic air strike which is *not* coercive in nature. Operation Babylon demonstrated high order political intervention through brute force. It demonstrated the complete removal of a critical enemy option as opposed to the coercion of the enemy not to exercise that option. The Iraqi acquisition of nuclear weapons was delayed indefinitely and the context of Middle Eastern politics was altered for at least the next decade. Political objectives were achieved without war, and without deferring to enemy decision-makers.

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[56] *Australian Defence Force Publication 23 (ADFP 23): Targeting*, first edn (draft version), 1997, p. 4-2, para. 410.

The *direct* style of strategic strike illustrated in Operation Babylon is outside of what is being suggested here as *spot bombing*. Such an operation might well be small, discrete and surprise-based, but would not share the functional aspects of impact, joint strategy and the erosion of leadership resolve, which are central to *spot bombing*. Such action is involved more with *removing* choice than *influencing* choice. The approach is mentioned here not as a conformer to *spot bombing* but as a viable exception. It is an *additional* methodology by which small nations could expect to apply meagre air strike resources for powerful strategic effect.

At least one author has speculated that the type of raid carried out in Operation Babylon (and indeed in Operation El Dorado Canyon) might become the more common application of air strike in the new world order. Dennis Drew suggests that the proliferation of WMD, especially by 'rogue' states, may become the 'plague of the 21st century'.[57] The spread of nuclear weapons, for example, to national or non-national organisations with semi-rational religious, racial or territorial ambitions could mark a very dangerous development in global security. North Korea, Iran and Iraq are often cited as examples of nations with such potential. The arming of these states with WMD could well result in the ultimate form of terrorism and would surely justify pre-emptive strategic strike.[58]

Israel is already known to be contemplating a repeat of the 1981 raid, this time against Iran. It is reported to have assessed that Tehran will be able, within two years, to produce long-range surface-to-surface missiles capable of reaching Israel and central Europe. This, coupled with Iran's reported quest for nuclear weapons, has led Israel to threaten air strike against Iran's nuclear facilities.[59]

As WMD threaten to proliferate in the vicinities of small defensively orientated nations the option exercised by Israel at Osirak carries some attraction. Other non-military options for counter-proliferation would always of course be preferred. However, time is a serious limitation in counter-proliferation matters. Negotiation could never be allowed to drag on to the point where weapons are actually acquired. Once acquisition has taken place, the military option to counter it disappears for two reasons. First, an attack on, say, a 'live' nuclear reactor would run the risk of causing a catastrophic nuclear incident at the expense of safety for the attacking aircrew and the local population around the target. Second, such a strike would raise the risk of the very attack (in the form of reprisal) most feared from the newly WMD-capable enemy.[60] WMD counter-proliferation air strike demands a strategy of pre-emption. The strategy adopted by Israel in the case of the Osirak reactor was quite rational.

[57] Drew, 'Air Power in Peripheral Conflict', p. 264.
[58] ibid., pp. 264-265.
[59] Ed Blanche, Christopher Foss, Barbara Starr, 'Country Brief: Iran — Khatami Emerges as Iran's Acceptable Face', *Jane's Defence Weekly*, Vol 28, No. 15, 15 October 1997, p. 20.
[60] Drew, 'Air Power in Peripheral Conflict', pp. 264-265.

There is no technology yet proven for national level ballistic missile defence, or for defending against the prospect of WMD 'hand-delivered' by terrorists.[61] The entry of WMD onto the regional security stage for most small nations would likely necessitate a complete redesign of conventional military plans and structures. As General J.S. Baker (then-Chief of Defence Force, ADF) has said of Australia for example: 'The penetration of weapons of mass destruction and their delivery systems into this region would so fundamentally change our own security that we would need to start again'.[62] Small defensive nations with no desire to enter a WMD or strategic missile 'race' have very limited options against other nations who do. Prevention is the greatest hope and the costs of failure are potentially enormous. Strategic air strike for small nations would become an obvious consideration where peaceful options do not bear fruit. Operation Babylon was by no means simple. It was intelligence-intensive and required almost a year of planning. However, the actual capabilities deployed were well within the orbat of many small nations. It should not be considered beyond the means of small air strike forces to replicate the Israeli action and simply remove a regional WMD program.

This book does not criticise 'brute force' or denial strategies in the employment of small nation air power. On the contrary, such actions (including CAS and BAI) are accepted as the 'bread and butter' of small air strike organisations. This book does, however, seek a higher order strategic application for small nation air strike, and in so doing has tended in preference towards the potential of *coercion* through careful strategic targeting. Notwithstanding this, this section of the book has been written in recognition of an important *non-coercive* strategic application considered well within the scope of many small nations. This particular *fait accompli* approach of removing rather than influencing enemy options has been illustrated here through the handling of WMD proliferation, but should not be considered limited to that application alone. Brute force air strike for option removal (or denial) should always be considered for its potential in aid of higher strategic objectives. It is surely, for example, the existence of such potential which ultimately prevents nations from, say, building oil rigs in the waters of other nations without invitation. The brute force application of air strike in a strategic *fait accompli* style for the physical removal of offending enemy activity may be viable in a range of small nation contingencies.

Casualty Minimisation and the Spot Bombing Paradigm

It is important to note that air power is not the only military tool capable of strategic strike. Targets with strategically important outcomes may be reachable by a variety of means. Special forces (employed in the likes of sabotage operations) and naval forces with shore-firing weapons (especially cruise missiles) are but two of the more common alternative military methods associated with this sort of strike. It has not an aim of this book to get involved in the 'land versus sea versus air' debate, but there is one particularly weighty factor supporting air as a strong small nation option for strategic strike — casualty reduction. As previously mentioned, a low casualty rate in war is an increasingly important western preference for moral, media and mandate

[61] Shaun Clarke, *The Regional Emergence of Strategic Missiles: A Force of Rooks for a Black King*, Paper No. 55, Air Power Studies Centre, Canberra, June 1997, pp. 15-19.
[62] Baker, J.S., 'The Australian Defence Force Beyond 2000' in Stephens (ed.), *New Era Security*, p. 61.

related reasons. For small nations with limited tolerance to attrition the added imperative for casualty minimisation is a simple matter of sustainability.

One of the reasons strategic bombing was chosen as a major element of Allied war-making in World War II was because it was expected that such an effort would produce lower manpower losses than a ground war. This expectation was well satisfied by the end of the war. While the available figures for Bomber Command and Eighth Air Force personnel losses include more than just those sustained during bombing operations, the totals are still less than 50 000 per force. This compares with millions lost on the Eastern Front over a similar period, and with the 200 000 Allied casualties suffered in the invasion of France between June and August 1944 alone.[63]

During Operation Deliberate Force, Navy Admiral Leighton W. Smith (Commander-in-Chief, Allied Forces Southern Europe) made it clear that pilots were 'not operating in a benign environment'.[64] Although the objectives of the Deliberate Force campaign were ultimately political, the bombing itself was executed within an operational theatre. Air defence systems were concentrated in the areas targeted and ground forces were permanently on alert. Even after initial raids to eliminate IADS, NATO aircraft continued to draw attacks from Serbian shoulder-fired infra-red guided missiles and anti-aircraft guns.[65] Despite this, of 3515 sorties flown (including 2470 penetrating sorties) only one aircraft was shot down.[66] In a similarly insecure air environment over Serbia and Kosovo in 1999, where NATO was unable to adequately address the shoulder-fired air defence threat, there were zero aircrew casualties after 35 000 missions in 78 days.

In Libya, the aim of achieving 'high visibility' damage against Qaddafi's regime could also have been achieved by the naval bombardment of Libyan coastal targets. Substantial American naval forces were in place in the Mediterranean and they had already proven their ability to enter the Gulf of Sidra at will to put relevant Libyan targets within range. A naval attack, however, would surely have risked reprisal from Libyan torpedo boats, submarines and aircraft. This would have put a substantial number of American lives at risk. Air power was the weapon of choice because it offered casualty minimisation.[67]

The Gulf War case offers graphic testimony to the maintenance of low *enemy* casualty rates through strategic air power. Although the initial estimates put the number of civilian and military deaths at 100 000 in Kuwait alone,[68] Keesings estimated that only 20 000 military personnel were killed in the six week air war (compared with

[63] Overy, 'World War II: The Bombing of Germany', p. 114.
[64] Craig Covault, 'NATO Air Strikes Target Serbian Infrastructure', *Aviation Week & Space Technology*, Vol 143, 11 September 1995, p. 27.
[65] ibid.
[66] That is, CAS, BAI, SEAD, RECCE and SAR/CSAR. The 1045 support sorties included NAEW, ABCCC, ELINT/ESM and AAR. Internet source http://www.hri.org/docs/nato/summary.html, 2 October 1997. A French Mirage 2000K was shot down by a man-portable SAM on the first day of the operation. The pilots survived. In a subsequent CSAR mission, two helicopter crew were wounded and their aircraft damaged but a safe recovery was made. Internet source http://www.hri.org/docs/nato/execute.html, 2 October 1997.
[67] Drew, 'Air Power in Peripheral Conflict', p. 266.
[68] Davis, *Strategic Air Power in Desert Storm*, p. 62, footnote 144.

15 000 in the 100 hour ground campaign).[69] These included only 1000 civilian deaths, a remarkably low figure considering the duration of the strategic air campaign and a Baghdad population of four million people.[70] More recent 1993 estimates have put the figure for Iraqi military casualties as low as 700 to 2000 dead and 3000 to 7000 wounded. While these figures are very low, none of the various challenges has been able to explain the apparent absence of large Iraqi field hospitals during the conflict, or large war cemeteries since.[71] Air power provided the means for the implementation and maintenance of a low casualty policy in the Gulf War. With the right technology and tactics, the Coalition was able to concentrate its force on physical equipment and infrastructure rather than people. Even on the so-called 'Highway of Death' between Kuwait and Basra only 200-300 Iraqis were found dead. More than 1400 vehicles were destroyed making it much more a vehicular graveyard than the oft reported human one.[72]

Air power has, among its natural characteristics, speed and impermanence that serve to minimise the exposure time of friendly forces (aircrew) to the enemy. The element of initiative implicit in strategic air strike (being able to pick the time, place and object of your attack) also offers choice over risk to friendly and enemy forces. Precision technologies have further improved the attacker's control over loss of life in the target area. Small nations using air power for strategic strike can expect to minimise their losses and thus enjoy greater endurance in conflict situations. They can also expect some control over enemy casualties with the associated domestic support and third party support consequences.

Spot bombing, in particular, provides an approach to strategic air strike which maximises freedom and latitude in target selection. Small nations are presented with greater target choice within the high order strategic bombing approach than within the role of surface combat support. Within the *spot bombing* paradigm, missions can be more readily screened for their conformity to certain criteria such as casualty minimisation. In lower strategic order missions dedicated to the support of surface forces, the greater needs of such forces can often overrule or compete with the attrition sensitivity of air power.

Not all strategic missions will involve targets clear of the battlefield. The *Hermes* in the Falklands and the Republican Guard in the Gulf are examples of 'fielded' high order strategic targets. However, the scope for strategically relevant targets ranges much more widely (and to much less guarded sites) than the CAS, BAI and anti-shipping operations with which small nations are more traditionally concerned. All in all, the strategic orientation of air power offers strike opportunities outside the more usual high risk surface force areas of operations. Where contributions to victory can be generated outside the normal military theatre, they will often present greater opportunity for reduction in casualties.

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[69] *Keesings Record of World Events*, News Digest for February 1991, p. 35986.
[70] Waters, *Gulf Lesson One*, p. 99.
[71] John G. Heidrenrich, 'The Gulf War: How Many Died?', *Foreign Policy*, No. 90, Spring 1993, pp. 108-125.
[72] Davis, *Strategic Air Power in Desert Storm*, p. 62, footnote 144.

Taking the Initiative Through Spot Bombing

Fundamental to war-fighting is the imperative to interfere pro-actively with the strategy of the enemy. To play a purely blocking function is to give the enemy the advantage of dictating the place, time and to a degree, the intensity of the fight, much as the Coalition did in Iraq and the Alliance in Kosovo. When no counter-offensive is made, the war plans of the enemy can be played out as originally (and carefully) drafted, suffering only variations in the effectiveness of the victim's defence. This also was a strong feature of the Gulf War Coalition offensive. Air Tasking Orders were planned and regularly published in 250 page books days before their execution. An important aim of any defender must be to disrupt or distort the enemy's strategy; to force reactions rather than simply accept and defend against the enemy's premeditated plan. The need is to divide and distract enemy forces from their offensive plan.

World War II offers an demonstration of principle. The intense and broad ranging offensive actions of Germany forced other nations quickly onto the defensive. Bombing was considered one of the few ways in which the Allies could actually take the war to Germany. The resulting strategic bombing campaign achieved two destabilising effects on Germany's offensive: it interfered with the generation of resources for war fighting, and simultaneously affected the dispersion of those resources — diverting significant resources away from the main battle-fronts where they were required.[73]

The kinds of shifts forced in Germany's strategy were exemplified in its air defence. The original German strategy involved little in the way of fighters. Emphasis was instead on extensive static defences in the form of anti-aircraft guns, radar stations and searchlights. The scale of the bombing, however, forced the diversion of German resources into the production of fighters. Up to early 1943, the size of the German bomber force was similar to that of the fighter force. With continued Allied bombing, by June 1944 the Germans had around 2300 fighters and only 1100 bombers. By December 1944 they were producing ten times more fighter than bombers.[74] One of the effects of the shift in German strategy was to markedly reduce the amount of tactical bombing achievable in Russia, Italy and France at a time when it was most needed to slow the movement of enemy reserves and attack enemy air bases.[75]

Not only did strategic bombing cause the shift in aircraft production priorities, but it also interfered with the distribution of assets, most notably diverting fighters away from certain critical theatres. On 1 January 1943, 59 per cent of German fighters were defending against bombers in the west while 25 per cent served the Eastern Front. With the continuation of the Allied bombing offensive over the next two years resources were increasingly drawn away from the east and by October 1944, 81 per cent of Germany's enlarged fighter force was tied up with air defence in the west.[76]

[73] Overy, 'World War II: The Bombing of Germany', pp. 114, 124.
[74] British Air Ministry, *The Rise and Fall of the German Air Force*, published in-house, 1948 (reissued 1983), p. 274. As cited in ibid., p. 126, table 2.
[75] Overy, 'World War II: The Bombing of Germany', p. 125.
[76] ibid.

In essence, Germany had to make significant strategic changes to counter the offensive Allied actions. This shift in strategy also entailed the substantial diversion of manpower and industrial resources from other planned tasks. The increase in equipment and manpower required for German static defence produced a huge penalty on other operations. Anti-aircraft weaponry tied up one-third of all German gun production in 1943, used 20 per cent of all ammunition in 1944 and required half to two thirds of the total production output of radar, signals and optical equipment. It is estimated that the manpower involved in anti-aircraft and bomb damage related work exceeded two million people.[77]

The Falklands War offers an example of how the mere possibility of strategic air offensive action can distort an offender's strategy to the defender's advantage. In very long range attacks on Port Stanley by Vulcan bombers launched out of Ascension Island, the British effectively served notice to Argentina that its homeland was within striking range. The Argentine Command subsequently withdrew the Mirages of the nation's only dedicated interceptor unit from the South to provide cover for Buenos Aires. In so doing, they removed the only chance of achieving Argentine air superiority over the Falklands, a move crucial to the subsequent freedom of action for British air power in the exclusion zone.[78]

The point of these illustrations is that air power, applied strategically, represents a way for small defending nations to export the war to the enemy. The seizure of initiative, forcing the attacker onto the defensive, is important to avoid being trapped in a series of purely responsive actions at the attacker's discretion. Direct interference with the priorities of the highest level decision-makers will potentially be the quickest and most effective way (and may for a small nation be the *only* way) of diverting the enemy's resources to its own defence, reducing its offensive capacity and distorting its offensive strategy.

Deterrence and the Spot Bombing Paradigm

Deterrence is:

> (T)he state of mind brought about by a credible threat of retaliation, a conviction that the action being contemplated cannot succeed, or a belief that the cost of the action will exceed any possible gain. Thus the potential aggressor is reluctant to act for fear of failure, costs, and the consequences.[79]

Deterrence is an implicit function of coercion. Coercion is considered to be that process which seeks to persuade an adversary to act in an agreeable way.[80] On the reverse side of the same coin is the process which *dissuades* an adversary from acting in a *disagreeable* way. This is the function of deterrence. The fundamental difference

[77] ibid., 126-127.
[78] Armitage and Mason, *Air Power in the Nuclear Age*, p. 229.
[79] Naval Doctrine Publication 1: Naval Warfare. Department of the Navy, March 1994, p. 17.
[80] Lambert, 'Coercion and Air Power', p. 446.

between coercion and deterrence is that coercion stops or redirects conflict, whereas deterrence prevents it altogether. Thus, deterrence strategies are very popular, especially with small nations which have limited means to sustain war and which do better to avoid it.

The very close philosophical relationship between deterrence and coercion allows deterrent threats to be categorised along very similar lines to the denial-, punishment- and risk-based coercion strategies (as considered in Chapter Six). The nomenclature for deterrent threats is shown at Table 7.1.

Deterrence Threat		
Nature	**Type**	**Target**
Defensive	Denial	Counterforce
Offensive	Punishment Retaliation	Countervalue

Table 7.1 **Deterrence Nomenclature**[81]

Denial-based deterrence is the only *defensive* form of deterrence. It involves 'counterforce' threats; those against targets likely to have direct effect on the outcome of a *military* conflict. Denial-based deterrent threats essentially operate on the prospect that 'brute force' strategies might be deployed. Rather than directly affecting the aggressor's intent they achieve their effect indirectly by opposing military capability.[82] Defensive deterrence is considered to have occurred when the aggressor relinquishes his aims, predicting a significant possibility of military failure or unacceptable military loss.

The *offensive* forms of deterrent threat are punishment- and retaliation-based. These usually involve 'countervalue' targets; those having a lesser direct *military* effect and a greater direct effect on the enemy's *political will* to fight. Punishment-based deterrence, akin to punishment-based coercion, relies on the threat of damage sufficient to have the aggressor's possible costs outweigh his possible benefits. Retaliation-based deterrence, akin to risk-based coercion, is a form of punishment, the delivery of which is threatened in increments allowing the aggressor to cease hostilities to avoid *further* punishment. The essential difference between punishment- and retaliation-based threats is that the former promises a one-off absolute punishment while the latter promises punishment to be delivered and increased in proportion to the aggressor's actions.[83]

[81] Adapted from John Harvey, *Conventional Deterrence and National Security*, Air Power Studies Centre, Canberra, 1997, Table 3, p. 17.
[82] ibid., pp. 14-16.
[83] ibid., pp. 16-17.

As Liddell Hart wrote, '... the first care of a peaceful nation should be, in peace, to ensure the power to deter a would-be aggressor'.[84] Conventional deterrence is a key aim of self-reliant defence forces. It is a common national security strategy among small modern nations. Australia's defence posture, for example, has always been 'in the broadest possible sense, a deterrent posture'.[85] Given a basic understanding of the relationship between coercion and deterrence, one can see that any credible coercion capability held by a small nation will also have corresponding deterrent value. For example, the substantial air strike force of Singapore (larger in numerical terms than Australia's) has significant denial-based coercion potential, and therefore also serves as a potent deterrent to would-be aggressors. Singapore's 'poisonous shrimp' philosophy was based on the recognition that she could not physically stop an invasion of her tiny island state once it was started, but that she could deter such a campaign from beginning by making the likely costs to an aggressor more than would be worthwhile.[86] As a substitute for actual fighting, deterrence strategies represent an attractive offer to such nations.

For as long as small nation air power is focused on denial-based coercion, it stands to gain only the benefits of *defensive* deterrence. If a small nation were, on the other hand, to achieve the capabilities and strategy-making expertise for risk- and punishment-based coercion, then it would, at once, also inherit the ingredients for *offensive* deterrence.

The *spot bombing* approach encourages small nations to seek and prepare for coercive opportunities within the full range of punishment-, risk-, denial- and decapitation-based strategies (as discussed at the end of Chapter Six). As such, it extends the deterrent potential of small nations beyond that conferred by simple denial-based strategies. Thus, the adoption of a *spot bombing* version of strategic strike by a small nation could translate to important deterrence enhancement. Small nations which opt to undertake *spot bombing* and develop a credible capability within that strategy are likely to pose a much greater threat to potential antagonists than those with an equally efficient air force focused purely on assisting surface combat forces.

It is important to note that having the capabilities necessary to coerce in a variety of strategies does not automatically confer the ability to deter. Capability is only one of three determinants of effective deterrence; credibility and communication are the others. Capability is the technical dimension to deterrence; the logistics, C2, personnel quality and weapons systems which make force application feasible. A threat made without the physical ability to carry it out amounts to a 'bluff', and it might be recognised as such.

Credibility refers to the aggressor's perception of the commitment of the deterrer. For deterrence to work, the aggressor must be utterly convinced that the deterrer's threat will be carried out under certain circumstances. Credibility includes factors like the

[84] Liddell Hart, *Thoughts on War*, p. 177.
[85] Kim Beazley, The Roy Milne Memorial Lecture: 'Thinking Defence: Key Concepts in Australian Defence Planning' in Kim Beazley, Minister for Defence, *Selected Speeches 1985-1989*, Directorate of Departmental Publications, Department of Defence, Canberra, February 1989, p. 167.
[86] Harvey, *Conventional Deterrence and National Security*, p. 14.

reputation of the deterrer, the estimated value he puts on the interests at stake and his sensitivity to casualties. It is a political factor.

Communication involves the successful transmission of what is considered unacceptable and what will occur in response (the deterrent threat). It is also required to convince the aggressor of one's capability and commitment. Small nations need to cultivate each of these elements before a higher order strategic orientation to the employment of air strike forces can translate into deterrence.

Furthermore, even given the appropriate capability, credibility and communications, the implementation of deterrence strategy is laden with its own special problems. For example, presenting a strong offensive deterrence capability in the region may, while offering immediate enhancement to the possessor's security, produce an overall net loss in regional security through the adverse responses of neighbours (arms proliferation etc.). Successful employment of offensive deterrence requires careful planning and judgement. The intricacies of that process are important but not within the scope of this work.[87] *What is important here is that small nations recognising their own capacity to bomb strategically through an understanding of spot bombing will, as an important bonus, become likely beneficiaries of greater deterrence.* This is of major significance to small nations.

[87] For an excellent treatment of the intricacies of deterrence for small nations see John Harvey, *Conventional Deterrence and National Security*, Air Power Studies Centre, Canberra, 1997.

Chapter Eight

THINKING STRATEGICALLY

THINKING OUTSIDE THE BOX: SMALL NATION AIR POWER AND LESSONS FROM REVOLUTIONARY WARFARE

Having developed a negative suspicion about the universality of superpower air strike models, small nations must maintain the broadest possible view in searching for strategic air strike doctrine appropriate to their own circumstances. We might, for example, consider the doctrine of revolutionary war (often referred to as guerrilla warfare) for some leads. After all, that approach has an immensely successful tradition. Richard Simpkin writes that there have been only two cases of organisations employing revolutionary warfare techniques, in which the protagonists did not at least hold their own; namely, the Contras in Nicaragua and the rebels in the Malayan Emergency. In contrast, applications of unconventional warfare in Korea, Vietnam and Northern Ireland remain widely heralded as undefeated by the much more substantial conventional military forces which have opposed them. One is tempted to conclude that 'the span of military techniques covered by the term "revolutionary" warfare may actually represent a more effective way of waging war than operations by organised forces'.[1]

Richard Simpkin suggests that the various forms of modern land warfare, including revolutionary warfare and manoeuvre warfare can be arranged on a continuum. At one end of the continuum lie mass armies; at the other, terrorists. Small-force manoeuvre warfare and guerrilla warfare sit adjacent to each other on the continuum.[2]

The *difference* between terrorism and guerrilla warfare doctrine on the one hand, and small nation combat doctrine on the other, lies primarily in the fact that the former two ignore the 'conventions' of large organisation war-fighting. Clausewitz encapsulated these conventions with his emphasis on destruction of the enemy's forces and his decree that 'only great and general engagements will produce great results'.[3] Giap, on the other hand, spoke on less conventional struggle. He wrote of North Vietnam: '(t)here was no clearly-defined front in this war. It was there where the enemy was. The front was nowhere, it was everywhere'.[4]

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[1] Richard E. Simpkin, *Race to the Swift: Thoughts on Twenty-First Century Warfare*, Brassey's Future Warfare Series Volume I, Brassey's, London, 1985, p. 313.
[2] ibid., p. 311.
[3] As cited in Wylie, *Military Strategy*, p. 63.
[4] Vo Nguyen Giap, *People's War People's Army*, Foreign Languages Publishing House, Hanoi, 1961, p. 21. As cited in ibid., p. 61.

The *connection* between small nation military operations, revolutionary warfare and terrorism at the lower end of the continuum, lies primarily in the limitation of means available to the proponent. Terrorism and revolutionary war are both waged by generally small and/or poorly equipped cooperatives. In this, and the need to make the best of simple resources, they share a challenge in common with small nation conventional war-fighting organisations. This connection warrants a closer small nation look at unconventional war-fighting techniques.

Successes in terrorism demonstrate graphically how small organisations can generate a vastly disproportionate amount of power and influence through unconventional strategy. It is no ambition of this book to dignify terrorism. The growing international subscription to the US counter-terrorist policy of 'make no deals ... treat terrorists as criminals ... (and) apply maximum pressure on states that sponsor and support terrorists' is one supported by the author.[5] However, principles of oblique relevance to small air forces do exist.

Terrorists target strategically. Operations create disruption, fear and economic damage, often before a world-wide audience, in order to interfere with political decision-making processes. The damage may not always be directly or obviously linked with specific terrorist demands (where they exist), but it carries anticipated flow on effects nevertheless intended to culminate in policy change. Decision-makers are usually quick to denounce terrorist actions and state that no concessions will be made. However, from the moment any such official response is given, terrorists can be considered to have engaged political decision-makers publicly on the issues they pursue. This alone represents a degree of victory otherwise less attainable through conventional lobbying. Examples include the 1996 series of suicide bombings in Tel Aviv and Jerusalem by extremist groups aiming to destroy the Middle East peace process. The attacks killed 60 civilians and the issues raised led to early elections and a change of government in Israel.[6]

The pattern of success for terrorist organisations lies not in an ability to fight the policy makers on their own terms. Given the difficulties for dissident groups in gaining access to the decision-makers by conventional means, such groups resort to targeting indirectly for strategic effect. They act to manipulate the context within which the political regimes they oppose struggle to exist. By this mechanism they can achieve remarkable results with negligible infrastructure and minimal technical skills and equipment.

Some terrorist groups have so skilfully capitalised on the strategic potential of violence as to manoeuvre themselves into permanent positions of power within the establishment. The Palestine Liberation Organisation (PLO) is one such organisation. The Irish Republican Army (IRA) has also, more recently, gained a significant foothold in conventional politics after a long history of terrorism. Since forming in 1969 as a clandestine armed wing of the republican organisation Sinn Fein, the IRA has been held responsible for a variety of bombings, assassinations, kidnappings, extortion cases and robberies. In late 1994 a cease-fire was brought into effect.

[5] *Patterns of Global Terrorism 1996*, United States Department of State, April 1997, p. iv.
[6] ibid., p. iii.

However, in February 1996 (after just 17 months) it was broken again with IRA bombing operations continuing against rail stations and shopping areas on the British mainland. A further truce was coordinated with IRA guerrillas and, as a reward, Sinn Fein was offered a seat in multi-party talks on the future of Northern Ireland. On 11 December 1997, Gerry Adams (the leader of Sinn Fein) had an historic meeting at 10 Downing Street with British Prime Minister Tony Blair to discuss the issue of Irish Republicanism. It was the first time an Irish republican leader had entered the British Prime Minister's residence in 76 years of conflict.[7] Sinn Fein's new political access represented a significant victory for the IRA, and subsequent negotiations through 1998 and 1999 have led to major and ongoing changes in the political structures and processes of Ireland.

In essence, a terrorist group effectively achieved high level political access to the British government by strategic targeting. They did not have to muster or employ decisive combat power in a traditional military sense. Instead, with what meagre military means they did have, they targeted key sensitivities in a campaign of coercion. To the government, the military and public they presented a long-term constant threat of violence, the possible removal of which gave them significant bargaining power. Whether their aim to evict British forces and unify Ireland will be fully achieved is an issue for the future. However, the first important step — the achievement of a voice in high level for a — has been achieved.

Short of using violence for political outcomes, any immediate doctrinal connection between terrorism and small nation strategic air power would be tenuous. However, terrorism does offer proof of concept that relatively minor powers can directly affect major political outcomes through strategic targeting with minimal resources. *It shows that persistent, inescapable, low intensity, high impact coercive operations accompanied by concise demands can beat conventional military mass.*

Revolutionary warfare, like terrorism, features a dispersed and spasmodic yet persistent mode of operation based on the maintenance of initiative and the optimisation of stealth and surprise. The applicability of such approaches to small nation air power should not be too quickly discarded. There are certain circumstances which could quite gainfully employ a less coherent, more dispersed and painfully persistent campaign against small and relatively unprotected, yet collectively relevant targets. Such a campaign would have quite distinct advantages for small nation air strike. It would for example be sustainable with limited resources; it would offer the seizure of the initiative with all the associated advantages; the unpredictability of attacks would assist in the avoidance of attrition from air defence; and the impact of the attacks could be regulated to achieve the required harassment without breaching the thresholds for conflict escalation or international wrath. The mechanism for effect, like some forms of revolutionary war, might be considered one of eventual victim fatigue. 'There is in guerrilla warfare no such thing as a decisive battle ...'[8] The aim

[7] Internet, http:\\www.yahoo.com\headlines\971211\international\stories\irish_3.html, 12 December 1997.

[8] Samuel B. Griffith (trans), *Mao Tse-Tung on Guerrilla Warfare*, Praeger, 1961, p. 52. As cited in Wylie, *Military Strategy*, p. 60.

would instead be the progressive breach of the enemy leadership's tolerance for persistent and accumulating low-level cost.

Such a strategy may well have applicability where a defending small nation lacks the resources for a conventional military expulsion of a foreign force lodged on sovereign soil, for example. In looking to coercive opportunities within the aggressor's homeland, the unconventional options may present a very humane, non-inflammatory and effective mode of response. The persistent and progressive destruction of certain targets (say, every road and rail bridge in the aggressor nation which can be associated with communication to the theatre) might add quite significantly and perhaps even critically to the joint accumulation of political, diplomatic and economic pressures.

There is a perverse lack of logic in ethics-based objections to this sort of operation. The anticipation of enemy raids and harassment activity is commonplace in the contingency planning of nations like Australia, yet the builders of air power strategy seem intent on dealing with such unconventional forms of assault by strictly conventional means.[9] This incongruency favours the attacker and disadvantages the small nation defender. A strong argument exists for the 'unusability' of large organised forces against revolutionary warfare strategies, and Vietnam is often cited in support of this. Alternative *land-based* counter-measures are sometimes contemplated involving special forces in clandestine and 'quasi-guerrilla' modes of operation.[10] The same logic, however, seldom seems to be extended to air power. One wonders what could be so objectionable about replying to state-sponsored guerrilla warfare intrusions of one's own shores with similar but air power sourced counter-intrusions of enemy homeland.

Punching Above Your Weight

There was once a young non-commissioned officer in the RAAF by the name of Noel Cundy. He was famous on two counts: for his small stature and for his prowess in the boxing ring. During his career he held a number of amateur boxing titles and was well known for regularly defeating opponents much larger than himself. He was once asked how such a small man was able to consistently beat such large opponents. He replied, 'by making myself smaller'.

The issue of whether small nations need ensure that their air strike operations conform to large nation convention is also relevant at higher levels of conflict. It is widely assumed that the employment of unconventional warfare strategies would be unpalatable to candidate western democracies. This may be a reasonable assumption when the stakes are low or other more conventional means of defence remain viable. However, in the scenario of a small nation wishing to supplement a desperate defence

[9] Babbage, *A Coast Too Long*, pp. 100-124.
[10] Simpkin, *Race to the Swift*, p. 318.

of sovereign territory with its modest air power resource, the less conventional possibilities for its application must surely *also* be considered. When the very survival of one's small nation is at stake, any obsession with convention must be checked for common sense. Is it better to have lost a *fair* war, or to have won by exploiting *all* available options including the unconventional? The guerrillas of North Vietnam, Cuba and Algeria would be quick to provide an answer.

Revolutionary warfare oriented applications of force are surely legitimate. Revolutionary warfare is, after all, one of the four generally recognised major theories on war strategy (along with the maritime, continental and air theories) and its origins can be traced as far back as Sun Tzu.[11] Throughout the historical literature reviewing guerrilla warfare, there seems to be a tacit acceptance of it as an inevitable method of war-fighting for forces too poorly resourced to fully exploit conventional methods. It is interesting, and perhaps puzzling, that the use of aeroplanes in a guerrilla style offensive is never contemplated. Revolutionary warfare principles seem tied to the ground.

The use of air power in the style of guerrilla warfare would, of course, entail numerous other considerations. The likelihood of similar enemy operations in reprisal, the possibility of damage to domestic support and the chance of adverse third party response would all have to be considered for each individual contingency. However, none of these variables should *automatically* be considered to rule out unconventional options. *Circumstances*, as well as 'rules', figure in *acceptability*. With regards to international opinion, for example, if the invading nation were one already widely condemned, and already facing international sanctions, then the world's response to a small nation's unorthodox counter-action may be quite sympathetic. While 'going unconventional' might be expected to *attract* scorn, it may not so easily *divert* it.

The victim or underdog seems to enjoy some licence in international opinion regarding defensive action. Israel's penchant for legally marginal 'anticipatory self-defence' against its large enemy neighbours, for example, seems to be tolerated by the international community under the circumstances.[12] She has faced *some* criticism, but this has dissipated in time and in no case has it interfered with the successful achievement of the ultimate political objectives.[13] While constraints against the use of guerrilla tactics with air power need to be analysed case by case, not all the probable limitations should be assumed actual.

In summary, any search for small nation offensive air strategy should include lateral options. Small nations share the resource problems of organisations resorting to revolutionary warfare and terrorism. Some of the principles and techniques within those paradigms could therefore be expected to have relevance. This book does not suggest that revolutionary warfare theory offers a wholesale solution to the quest for greater small nation air strike effectiveness. No one approach can suit all circumstances. This book does suggest that the conventional employment of force

[11] Wylie, *Military Strategy*, p. 37.

[12] As demonstrated, for example, in the Six Day War and in Operation Babylon.

[13] For brief but useful treatment of the anticipatory self-defence issue see K.A. Kyriakides, 'Air Power and International Air Law' in Stuart Peach (ed.), *Perspectives on Air Power: Air Power In Its Wider Context*, Defence Studies (RAF), Joint Services Command Staff College Bracknell, 1998, pp. 117-120.

against military targets need not always be considered the only option, especially when the stakes involve defence for national survival. We must ask: 'Do other options exist?', and 'How little adjustment in thinking would be necessary to establish and maintain unconventional options in reserve?' This section demonstrates the process of 'thinking outside the box' in the customisation of small nation air strategy.

STRATEGIC THINKING — ENABLERS

Small nation high order strategic air operations, by *spot bombing* or any other paradigm, require support.

It should be obvious by now that what enables strategic air strike is much less critically dependent on technology than on clever thinking. Strategic air strike is not defined by platform type, weapon specification or mission profile. It is defined purely by the effect generated. Linking a desired political outcome back through a sequence of logical steps to a point which is manipulable by offensive air, is the challenge. Making those links requires reliable information in quantity, and demands great intuition, foresight, and political and cultural awareness.

While not *defined* by technology, success in the art of generating high order strategic effect is *influenced* by capability (and is reliant to a degree on other conditions, including an appropriate measure of air control). Capability therefore affects the strategist in his approach. Two other factors, however, are arguably more fundamental to strategic strike success: intelligence (in the institutional sense) and strategic acumen (in the individual sense).

The Capability Influence on Strategic Thought

The need for technology, in quantity and sophistication, has no doubt been a significant impediment to the contemplation of small nation air strike for strategic effect. Notwithstanding the need for intelligence and latitude in strategic thought, other concrete constraints do exist.

> Power equals Capability times Strategy. Air power is the product of aerospace capability and air strategy.

While simple in appearance, this maxim is more complex in application. Strategy cannot be considered in *complete* isolation from capability. It may be valid to say that, given a particular capability, maximisation of power becomes dependent on the fullest exploitation of strategy. It is also true to say, however, that given a need for power, limitations in capability constrain strategy. Capability must exist before a strategy can be devised for its use. Therefore, in practice, the more limited the capability the more limited the strategist in his options.

With this in mind, it is tempting to run into a discourse on what capabilities and competencies might be considered necessary or important to a small modern nation orientating for strategic strike. But, of course, there is no discrete threshold of capability at which small nations suddenly become so empowered. A strike sortie

involving no more than a Tiger-Moth, a silk scarf, a trusty revolver and a street address would comprise adequate capability if the target (say, a military-political leader) were vulnerable to that level of firepower and if the downstream effects of the strike were expected to have a strategic outcome.

There is no minimum capability requirement for a strategic approach to air strike. Strategic air strike is a planning orientation, not a force structure. However, it is obviously true to say that the greater the capability and competence of a given force, the greater the mission scope. Consider the potential conferred by precision guided weapons, for example. As Meilinger has pointed out:

> Precision air weapons have redefined the meaning of mass ... The result of the trend towards 'airshaft accuracy' in air war is a denigration in the importance of mass. PGMs provide density, mass per volume, which is a more efficient measurement of force. In short, targets are no longer massive, and neither are the aerial weapons used to neutralise them.[14]

In World War II, what took 108 B-17 bombers crewed by 1080 airmen, dropping 648 bombs to guarantee a 96 per cent chance of getting just two hits inside a 400x500 foot target, could be done in the Gulf War with virtually 100 per cent certainty using a single strike aircraft with one or two crewmen, dropping two laser-guided bombs.[15] By other calculations, what required 9070 bombs (3024 aircraft) in World War II; 1100 bombs (550 aircraft) in Korea; and 176 bombs (44 aircraft) in Vietnam, required only one smart bomb in the Gulf War.[16]

Thus, through precision, one of the gravest disqualifiers of small nations in traditional strategic bombing models — mass — is apparently overcome. Similarly, some relief is achieved for small nation logistics systems struggling with sustainability — the necessary firepower is achievable in handfuls of smart weapons rather than boat loads of dumb ones. While precision technologies, even fully harnessed, will never by themselves qualify small nations to employ large nation strategic bombing models, they do hugely amplify the potential of small forces working within their own strategic bombing paradigm. Nations with this capability such as New Zealand and Australia are greatly empowered. Furthermore, new precision weapons such as the JDAM (Joint Direct Attack Munition), as demonstrated in Kosovo, now present affordable options to small nations for extraordinary capability.[17]

There are many other areas of capability where quality will obviously enhance the potential of an air strike force to assemble strategic intelligence, produce strategic attack plans, penetrate enemy airspace, destroy targets, assess damage, monitor

[14] Meilinger, *Ten Propositions Regarding Air Power*, p. 27.
[15] Richard P. Hallion, *Precision Guided Munitions and the New Era of Warfare*, APSC Paper No. 53, Air Power Studies Centre, Canberra, April 1997, pp. 3-4.
[16] ibid., p. 4.
[17] At NZ$24 000 (US$12 000) a copy, compared with about NZ$1 750 000 for a ship-lauched cruise missile, the GPS/inertially-guided weapons proved themselves in Operation Allied Force to offer a relatively cheap, all weather, all terrain, night/day, high altitude option for excellent accuracy (while also allowing platform protection). Alan Stephens, *Kosovo, Or the Future of War*, p. 10.

downstream political effects, and repeat the cycle in manoeuvre for the desired political end state. These include reconnaissance and surveillance; EW; all weather, night and stand-off weapons systems; secure communications systems; air-to-air refuelling; and AEW&C and other control and coordination systems. There is also an obvious requirement for a measure of air superiority (at least local air control through tactical surprise, EW, stand-off weapons etc.). The more comprehensive a nation's air strike capability is in all its aspects, the more likely it will be to offer reliable access to the range of targets carrying strategic importance on any given day within any given scenario.

Strategic strike effectiveness is dependent on and amplified by a variety of complex supporting air power functions. The point to note here is that none of those capability areas is uniquely the concern of *strategic* strike advocates. Such capabilities are already the full time preoccupation of small air strike forces with no 'strategic bombing' aspirations at all. To reiterate then: strategic air strike is an orientation, not a force structure. No special military capabilities are required. Destruction of physical targets is the constant in all air strike. The political rationale behind the particular choice of target is what distinguishes *strategic* strike; the tools are the same. No special capabilities are required but, obviously, the better the capability the wider the purview of the strategist seeking opportunity.

Intelligence

> In essence, Air Power is targeting, targeting is intelligence, and intelligence is analysing the effects of air operations.[18]

Strategic air strike carries all the usual intelligence demands of normal military operations, but on top of these begs prediction and feedback on the political effects of each strike. It requires not just an understanding of what is best to strike and specifically where to find those targets considered best to strike; it is also the ability to monitor and respond to the political effects of such strikes.

As Andy Lambert explains, the difference between denial and more sophisticated forms of coercion is that denial focusses on the destruction of bridges, railheads, headquarters, cities and so on — primarily for the functional deprivation that such destruction will proffer in respect of the enemy war-making effort. Target selection for the other strategies, in contrast, is based more on the often imperfect knowledge of how pain will be felt and interpreted.[19] This places complex demands on those whose job it is to select strategic targets and, in so doing, predict and analyse the effects produced.

The responsibility for analysing the effects of air operations falls upon those in the realm of intelligence called 'battle damage assessment' (BDA). The distinction between the military and political effects of targeting introduces interesting problems for BDA. It is one challenge to evaluate the physical success of missions through onboard video and post-attack reconnaissance, and another to estimate the degree of

[18] Meilinger, *Ten Propositions Regarding Air Power*, p. 13.
[19] Lambert, 'Coercion and Air Power', p. 444.

functional damage resulting from the physical damage, but the greater challenge is to evaluate the strategic level ramifications of air strikes. It is perhaps useful to consider BDA in three tiers, as at Figure 8.1.

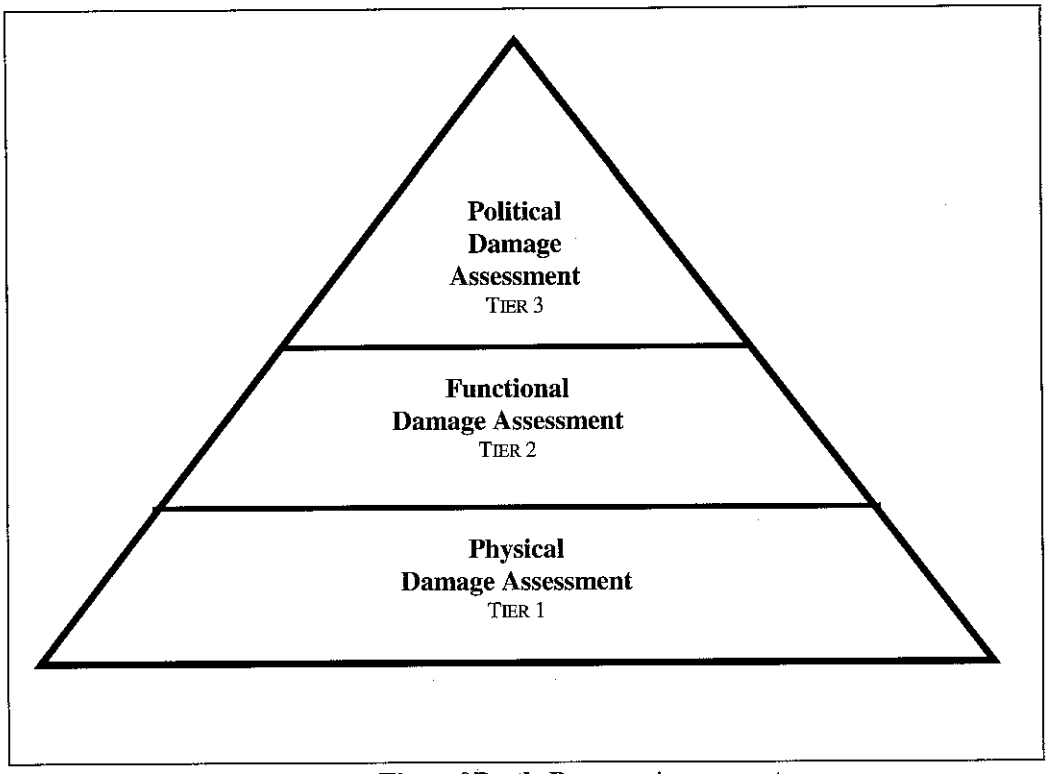

Figure 8.1 **Tiers of Battle Damage Assessment**

BDA in the Gulf War was essential to the evaluation of campaign progress and the scheduling of re-attack missions, but processes of the time had their inadequacies. One criticism centred on the assessment of damage based on physical criteria. So, for example, if a building were left 75 per cent intact, the mission would be rated 25 per cent successful. This was an old methodology that failed to recognise the precision of the weapons being used and the fact that complete physical obliteration was not necessary to produce functional failure.[20] Real limits are acknowledged in estimating the functional (or 'second tier') effects of strike with the desired reliability.

Even where accurate assessments of functional damage can be made, a much more complex challenge exists for strategically orientated air power organisations seeking political outcomes. Evaluation of political effect might be considered 'third-tier BDA'. The physical destruction of the enemy's national banking system may well be confirmable; the degree to which the banking function has been taken up by other facilities may also be estimable; but the extent to which the supreme decision-making body's ambition, resolve or disposition for settlement is affected will be much more elusive. It requires not just an appreciation of enemy processes and infrastructure, but

[20] Meilinger, *Ten Propositions Regarding Air Power*, p. 15.

also an assessment of matters such as the source and intensity of enemy motives, and the nature and degree of enemy leadership dependence on targeted systems. Strategic targeteers and 'third-tier' BDA specialists of the future are less likely to be military tacticians, technologists and logisticians, than economists, psychologists, political analysts and cultural experts.[21] At the highest levels, strategic targeting and BDA are as much arts as sciences.

The point to be made here is that the historical foci of intelligence processes do not necessarily serve well the future requirements of strategic air power. New emphasis and machinery is required to raise the skills and capabilities of intelligence organisations to provide what modern high order strategic applications of air power now demand. The prime area of inquiry should be the interests and vulnerabilities of the main political stakeholders in conflict; not just generally focused on regime policy and stability, but orientated towards the identifying specific vulnerabilities which might be cleverly used to drive selective destruction. There has historically been plenty of research effort poured into the physical achievement of destruction from the air, but far too little into the achievement and assessment of the ultimate political outcomes. The air power advocate's traditional fixation with counting sorties, bombs and broken buildings as measures of effectiveness needs to be replaced with a greater understanding of the ultimate aim being sought. The problem is immensely difficult, but will never be solved while the eyes of theorists, academics and practitioners are trained elsewhere. According to Scott Walker:

> Too often we tend to concentrate most of our intelligence at the tactical level, rather than looking for high-level system effects and indicators that the enemy is adjusting his policy in response to our attacks; it is much easier to count bomb craters than to analyze political reactions.[22]

The information revolution and the general boom in information access may work well for strategic bombing. Ultimately, for example, if the precise location of a belligerent president's personal wealth is known (banks, real estate, industries etc.) and ethical and third party constraints permit, then considerable personal leverage might be exercised with the mere threat of destruction. The key is in the intelligence.

None of these challenges is unique to small nations; they are all particular to all nations with a strategic air orientation. The particular challenge for small nations is to generate or access intelligence processes of the calibre appropriate to the strategic game. Failure in this area could be a 'show-stopper' — except in the crudest of operations. The focus of intelligence organisations geared to feed high order coercive strategies is different than that of agencies supporting purely military objectives. The emphasis lies not on identifying targets which best undermine the enemy's military effort, but on identifying what losses would most likely influence the elite decision-makers of an offending regime. This business is less orthodox than intelligence

[21] A 'panel of experts' approach to strategic targeting which carries some resemblance to the Committee of Operations Analysts who jointly selected and recommended targets for strategic bombing in Germany in 1943.
[22] Walker, 'The Unified Field Theory of Coercive Airpower', p. 72.

activities which centre on 'order of battle' assessments, weapons analysis and specific operational infrastructures — the more usual intelligence concerns of small nations. Australia's targeting doctrine (to which New Zealand also subscribes) clearly demonstrates that the current focus of targeting falls well short of the political.[23]

The intelligence effort required to reliably locate and access the vulnerabilities of enemy leaderships with any finesse is huge. The resources required may well exceed the general means of small nations. A solution to that problem might be reasonably expected, however, in third party support. Because of the very covert nature of intelligence gathering, analysis and dissemination, it is easier for cooperation to occur in the intelligence field than in others. Assistance is sometimes offered through intelligence provision when a more visible or tangible contribution would not be appropriate. For example, during the Falklands War Britain received intelligence assistance from both the US (in general) and from France (on the Exocet missile), yet neither party was in a position to provide actual combat assistance to Britain.

The bottom line is that while small nations need to contemplate their worth in independent and small coalition contingencies, there may not be quite the same need to expect an absence of large nation intelligence support. The threshold of interest above which a larger nation might offer intelligence assistance is much lower than the threshold at which it would offer direct combat assistance. This understanding is clear in Australia's Strategic Policy in which it is said:

> ... defend our territory without relying on the combat forces of other countries ... does not mean developing national self-sufficiency across all areas of capability — in particular, it does not preclude reliance on overseas non-combat support, including intelligence and resupply in a crisis.[24]

Indeed, as Australian and New Zealand troops currently enter East Timor, the US has agreed to offer intelligence support (and other support functions) but not combat troops.[25] Quality intelligence is crucial to any nation's ability to attempt high order strategic air strike. The cultivation and maintenance of appropriate intelligence relationships is an obvious peacetime imperative for any small nation aspiring to this kind of capability.

Strategic Acumen

If the intelligence process in fullness involves the gathering of data, the processing of that data into information, and the subsequent processing of that information into knowledge, then attention will also be necessary to whatever human qualities see that knowledge *applied* for best effect.

[23] *Australian Defence Force Publication 23: Targeting*, first edn (draft version), 1997.
[24] *Australia's Strategic Policy*, p. 29.
[25] Ross Peake, 'Habibie Agrees to UN Troops', p. 1.

Here we are talking about the strategist and his/her strategic acumen — the ability to sensitively comprehend cause and effect in a way which allows us to string together routes for access to the normally inaccessible (in this case, the enemy leadership's resolve). Intelligence (including broader forms like cultural intelligence) is the raw material. The power lies in its clever use through processes demanding lateral thought and creativity. As stated, air power — the basic ability to see, move and destroy with relative impunity — is a fairly blunt instrument in itself. It is the specific application of those capabilities in space and time, based on what is known about the enemy, which dictates whether a particular operation will have its effects on tactical level objectives, or more directly on the ultimate strategic level of objectives.

In the design of higher order strategic air operations, the focus shifts away from fielded battle and onto the enemy's supreme decision-makers. Targeting options will extend beyond those normally associated with strategies of denial. An air power strategist with a political rather than military orientation to targeting will have to consider a broader range of factors to include:

- the current political situation;
- the desired political end state;
- the specific identity of the decision-makers to be influenced;
- the specific behaviour to be evoked or changed in that individual or group;
- the possible mechanisms, levers or bases through which to bring about behavioural shifts. This will entail an understanding of the leadership's political, social, economic and military vulnerabilities: what is *valued* by the enemy (and could therefore be transformed into *cost* through loss) and what is critical for his/her persistence with offending policy (possibilities like public support, personal wealth, third party support, internal faction loyalties, moral credibility, and so on);
- the possible triggers for the identified mechanisms. This will entail an understanding of the relationship between physical structures (which are vulnerable to air weapons), and the status of the mechanisms (to which leaders are vulnerable, or at least responsive). It may involve the simple generation of loss to affect the enemy cost-benefit equation (such as the destruction of a port which is material to the national economy). It may involve something more intricate or less direct (such as the destruction of barracks, fortifications or propaganda mechanisms being used to quell internal insurgency);
- the specific focal points (targets) to produce the best stimulus;
- the degree or nature of manipulation required (damage, overflight, base deployment);
- the means of evaluating response (particular parameters to monitor for feedback, such as newspapers, troop movements, third party interactions);
- mission failure considerations; and importantly
- simultaneous (parallel) military and non-military actions to amplify effect.

For a demonstration of clever high order strategic strike we need look no further than Saddam Hussein's use of Scud missiles during the Gulf War.[26] Hussein used very simple tools in a strategy-intensive rather than a capability-intensive action. It involved a handful of the most basic ballistic missiles (barely more sophisticated than Germany's World War II V-2s); it required minimal damage; it placed none of Iraq's own forces in direct danger; and it carried a reasonable chance of success while at the same time carrying low potential for wider problems if it failed. Of particular importance to this thesis, it involved targeting for effect at the highest level of 'enemy' decision-making.

Rather than focus on the US as an organisation or as a *system of systems*, it identified, as a critical dependency of American leadership, the solidarity of the Coalition. Arab nation support represented the essential regional mandate for UN/American intervention in Kuwait, and was identified as a clear potential chink in the Coalition armour. Saddam Hussein predicted that Arab nations would not fight *with* Israel *against* a brother Arab nation and he aimed to have Israel enter the war by retaliation. The outskirts of Tel Aviv were struck. The Israeli government was surely under immense public pressure to respond to the Scud attacks, and if a response had been issued the fracturing of the Coalition may well have occurred, with major strategic consequences.

The capability required for the task was simple; the sophistication was in the strategy. Just as war-fighters in small nations like Somalia and Vietnam exploited US domestic public support as the most accessible vulnerability of high level American decision-makers (and won in each case), so Saddam Hussein identified Arab support as a critical vulnerability in the Gulf. He set out to directly and immediately affect strategic outcomes using very simple tools — basic *capability* amplified by good *strategy*. It may be some decades before the records are allowed to show just how close he was to succeeding.

John Warden has recently re-emphasised the primacy of good strategy in winning:

> ... when you get right down to it, there's not a huge difference in execution capability between pilot A in one country and pilot B in another country. If we think we're going to get huge leverages by concentrating all of our thoughts on improving executions, it's not going to happen. I would argue that we were superior to the North Vietnamese at an execution level during the Vietnam War, and we lost. We lost simply because the North Vietnamese had a much better grand strategy ... the right grand strategy, strategy, and campaign will accommodate a multitude of tactical errors and omissions. Conversely, great tactics in the absence of a good strategy and campaign are likely to win neither battles nor wars.[27]

[26] Apologies to those who support the unwritten protocol that one should not pay tribute to the strategies of one's enemies while they are still active!

[27] John Warden (USAF retired), 'Planning to Win' in Clarke (ed.), *Testing the Limits*, p. 84.

Power equals capability multiplied by strategy. The obvious utility of good strategy to small nations contemplating conflict is that it promises to amplify the value of modest capabilities. While there may be preferred capability standards for basic strike force viability in modern conflict, even simple capabilities can be amplified into potency with clever strategy. The strategist is pivotal to air strike success.

It should be added here that clever strategy is also a function of good timing and demands, of the strategist, a keen eye for opportunity. What is important to an enemy will change with time. A given target set may be of strategic relevance one day but not the next. The Bosnian Serb supply dumps attracting attention in Operation Deliberate Force illustrate the point. Weeks before the NATO attacks the dumps, while undoubtedly important, were of little high order strategic relevance. When the ground war started to run against the Bosnian Serbs, however, those same dumps became vital to their overall situation and the resolution of their leadership.[28]

The task of the high level strategist is a demanding one requiring qualities in entrepreneurialism, innovation and opportunism, all superimposed on awareness and intuition in matters of personality, politics and culture; and all reinforced with the ability to distil facts, weight hunches and make judgement calls. In conflict, all strategy is opposed strategy and the business of influencing opposing decision-makers is much less about the frontal clash of algorithms than a rolling tangle of human factors. Technological capability and even information can be bought, but making strategy is an intensely human process.

So where do these people — the strategists — come from? There are no apprenticeship schemes in small nations and this is no surprise. For as long as small nation militaries fixate with battlefield manoeuvre and attrition as the sole avenue of approach to the will of the offending policy makers, no clear demand exists for high level military strategists. Under the umbrellas of empires and nuclear powers, small nation militaries have simply never had to carry the burden of making high order strategy. It is only in contemplating strategy outside of great nation alliance that we begin to ponder our deficiencies. Among other factors, the Australian commitment to defend its own country without the assistance of foreign combat forces is now making that deficiency less acceptable.

Where are the strategy schools? Command and staff colleges have an obvious role to play in the cultivation of budding strategists. However, in their current forms in both New Zealand and Australia they currently lack the appropriate orientation. When strategy *is* taught, 'grand strategy' translates to a general study of national power and international affairs, 'military strategy' translates into general military history, and 'operational strategy' is obscured by greater emphasis on staffing procedures than on actual campaign planning.

To be fair, it is suspected that many large nations do little more than small nations to school their strategists to the league and calibre contemplated in this study. Within the military, battlefield campaigning is well attended. However, supreme leadership centred strategy-making is taught in less specific terms. How does one coerce, trick,

[28] Alan Stephens, a point in discussion, Air Power Studies Centre, Canberra, 5 June 1997.

compel, pressure or manoeuvre a mind-change in an offending policy maker — in technical detail? A proper study would involve a number of disciplines — many of them humanistic and abstract. However, strategy making should be no harder to teach than other abstracts already widely attempted, including 'management' and 'leadership'.

This could all be the stuff of another thesis. However, the point to be made here is that reasonable contemplation of strategic air operations by small nations presumes significant work in the cultivation of institutional strategy-making skills. Sound individual strategic acumen will be a vital enabler to effective high order small nation strategic air strike — in the style of *spot bombing* or any other. Effective strategists are crucial to strategic strike, and if there is any evidence that such people can be successfully selected and coached, then this should be done.

It is worth pointing out here that the fundamental requirement for strategic acumen in conflict management extends well beyond the military. While military leaders are commissioned to provide expert advice to government before and during conflict, it is ultimately the political leadership that makes *grand* strategy. It could be argued that, given the competitive nature of daily politics at both personal and party levels, politicians are naturally well disposed to understanding the principles of coercion-based strategy formulation. However, such casual exposure would leave many wanting in the event of war involving strategic bombing. There is little available in peace to fully prepare our higher leaders for war. The acumen of Churchill was more the product of nature than of nurture.

The nature of the partnership between political leaders and their military delegates in the business of high order strategic operations is an issue of much debate which will not be further advanced here. However, the point is worth making that Moltke's demarcation between political and military responsibility in conflict was never less blurred than in the business of strategic bombing. Some form of *partnership* is inevitable in designing and executing effective strategy at the highest levels, and finding an appropriate balance will be an important challenge to any nation contemplating the high order strategic application of air power.

This brief coverage of *capability*, *intelligence* and *strategic acumen* as primary strategic strike enablers may raise more challenges than solutions to small nation prospects. However, the purpose has been to suggest that the biggest impediments to achieving a strategic air strike capability lie not in the size of the forces, nor even (particularly) in the sophistication of the equipment and systems, but more in the orientation and skill of leaders and their information infrastructure. These are, incidentally, among the less capital intensive factors one could be challenged to overcome.

Chapter Nine

CONCLUSION

This book has been about the feasibility of strategic air strike for small nations. It has been written primarily as a general and academic contribution to doctrinal debate regarding air power utility, but with intentional focus on small nations which all too infrequently feature in large nation research. The guiding influence for this work has been a genuine curiosity for how New Zealand and Australia (potentially accompanied by other small neighbours), with as few as 100 modern air strike platforms, might extract maximum value from modest air strike capability.

New Zealand currently undertakes to provide only offensive air support roles with its A-4 fleet, and the same roles are anticipated for its upgraded F-16A/Bs scheduled to replace the A-4s in 2001. Australian F-111s and F-18s are similarly employed in offensive air support activities and little formal methodology is apparent for the achievement of higher order tasks. New Zealand and Australia are not exceptional in their preoccupation with supporting surface forces. They are typical of a very large pool of small nation air power users who focus on the battlefield with little direct attention to the political/strategic level applications of air power.

Two factors have led small nation air power to concentrate on the support of surface forces instead of higher strategic aims. The first factor is a history of subordination to larger partners within colonial empires, superpower alliances and UN coalitions which has created a reliance on other parties for strategy formulation. Small nations have dedicated themselves to becoming tactically proficient — doing what they are told rather than seeking to understand and directly address enemy policy makers as the true source of conflict. The second and perhaps more significant factor is the long-standing tacit assumption that strategic bombing requires mass beyond small nation means. This falsehood has been reinforced by the major, so-called, strategic air campaigns of the 20th century — each involving many hundreds and even thousands aircraft, and weapons delivery in the order of 40 000 tonnes per month.

A fundamental re-examination of the nature of war and the utility of air strike reveals the possibility that what has been popularly perceived as the standard shape of strategic bombing operations is actually just the superpower interpretation. It is an interpretation which utilises the mass and sophistication of air weaponry at hand, with little need to ponder how nations more constrained for resources might alternatively extract the maximum benefit from their own air power.

History reveals a handful of campaigns (Operations Babylon, El Dorado Canyon and Deliberate Force) which have directly pursued very high order strategic aims with quite limited air campaigns. The suggestion that some form of strategic air strike might be achievable by small nations and small coalitions is thus made.

Strategic air strike can be defined as the *direct* pursuit of *primary* or *ultimate* political-military objectives through air power. However, the degree to which any given air action affects the primary objectives (namely the ultimate aim at the grand strategic level of war) is somewhat problematic. *Every* action must have *some* relevance to the ultimate aim for its existence to be justified. This book distinguishes as being of 'high order' strategic relevance, those air strike actions which focus directly on the resolve of the enemy's supreme decision-making body. Where the intended effects of an air strike are more immediately military (affecting the prospects or resolve of, say, a fielded land commander), then the operation is considered to be of 'low strategic order'. Thus, some order of strategic relevance is acknowledged for all offensive air operations. However, only operations of the highest strategic order are distinguished in everyday use as 'strategic air strike'.

The challenge this thesis puts to small nations is to raise the strategic order of air strike operations — to prepare not just for the direct and indirect support of fielded battle, but for the exploitation of opportunity to more directly influence the ultimate strategic aims in conflict.

The task of devising a realistic approach by which small nations might attempt such direct influence on ultimate aims demands an understanding of the nature of war in general, and the small nation perspective on war in particular. First, small nations do not pursue unconditional surrender. History shows that war has been successfully terminated by other means, and sensibly limiting the objectives greatly increases the authority of limited force. The aim of war is the abandonment of an enemy's political aims, and this may not necessitate the complete collapse of the enemy nation's ability to function and support war. Second, the real focus of war is the enemy's supreme decision-making body. This, after all, is the body which formulates, upholds and potentially relinquishes the offending policy about which war is fought. Recognising the ultimate focal point of one's war effort greatly enhances one's chances of correctly directing one's limited energy. Third, small nations do not argue for the unilateral decisiveness of strategic air strike. History suggests that single-handed air power victory is an illusion. By approaching air power as one chess piece on a board of many national power elements, its effect can be amplified through collaboration and synergy. Small nations seek a coordinated contribution from air strike, and not a complete solution.[1]

Armed with these understandings, and with a full comprehension of coercion theory, methodologies for the high order strategic application of small nation air strike can be contemplated. Small nations cannot realistically generate and sustain mass, tempo and simultaneity in air strike. They could however, given sufficient intelligence, work to

[1] For air power zealots this study will be somewhat deflating because it steps back from the long standing but elusive prospect of a 'knock out' blow. It sees air power as an independent function, but one inextricably woven into the national power fabric; not a hero but a worker.

identify coercive opportunities against the enemy leadership. Such opportunities need not gel into a comprehensive plan constituting a *strategic air campaign*, as such. Individual opportunities might be exploited, instead, as ad hoc supplements to a *grand strategic campaign* involving similarly focused stratagem within other streams of national power (economic, diplomatic and political). Discrete offensive strategic air actions might be conducted for their value in directly supplementing and compounding the existing pressures brought to bear on the enemy leadership (including, if necessary, whatever pressure can be brought to bear by ongoing conventional fielded battle). There is a certain optional 'in-and-out-wait-and-see' quality of air power which promises some utility in this context.

Strategic Persuasion Oriented Targeting, or *spot bombing*, is offered as one alternative approach for the utilisation of existing air strike capabilities. It is an approach which accommodates the constraints of small nation air power, yet still concentrates on affecting the ultimate objectives of the enemy. It borrows from revolutionary warfare theory, exploits 'impact' rather than 'tempo', capitalises on asymmetric warfare, employs high level communication, and tests the laws of armed conflict — and as such represents a new paradigm for the use of small nation air power. Yet, while promising high order strategic effect, and offering to minimise casualties, seize initiative and increase deterrence, it detracts nothing from existing small nation offensive air power preoccupations.

The ability of small nations to carry out offensive air support missions like CAS, AI and maritime strike is uncompromised by the suggestion that strategic strike options might also exist. Strategic air strike is promoted simply as an extra dimension to existing air power applications, offering choice to the grand strategist — a potent extra device to variously employ in manoeuvres for peace. The 'optionality' is important, as coercion opportunities against the enemy leadership may not always be apparent, and in low level conflict a *strategic* bombing approach may not be warranted. In such cases, small nation air power would simply revert to, or remain with, the lower orders of strike currently preferred. After all, while a lower prize than the mind of the supreme decision-maker, the mind of the fielded enemy military decision-maker is still highly valuable..

The notion of *spot bombing* is not primarily intended for routine consideration in low level conflict or OOTW. It is meant, instead, for supplementing existing options when the stakes are at their highest (such as in matters of national survival). As an option, it does not involve a change in force structure, but it does involve extensions in planning orientation. It does not, of itself, necessitate the acquisition of new or extra technology, but it does demand the 'beefing up' of intelligence processes, and the cultivation of strategic acumen in our personnel.

Spot bombing is mooted as a demonstration that strategic bombing should be considered feasible for small nations. This book has been intended to encourage a strategic orientation to air strike in those who have so far considered it the exclusive franchise of superpowers or large nation coalitions. It has been inspired by a number of perceived needs: the need to plan in the post-Cold War era for the possibility that American combat forces may not turn up to all small nation crises; the need to anticipate the potential of Australian and New Zealand air power in an 'Anzac plus'

coalition under Australia's new pledge to be able to defend itself without the US; the need to get the best value out of air power for the satisfaction of economic rationalists seeking maximum potential out of minimum inventory; and, importantly, the need to know our full local potential as a simple matter of air power professionalism.

Nothing in this book suggests that small nations should reorientate exclusively to independent or small coalition military operations. Nothing in the concepts promoted here would detract from a small nation's ability to function in a superpower-led coalition. The book does introduce a new and complex way for small nations to think about enemies — but a home-grown strategic orientation to conflict can only strengthen the contribution that small nation militaries bring to large coalition campaigns.

The added bonus for small nations contemplating strategic air strike is that the process forces them to also examine their own vulnerabilities to such operations. One is encouraged to consider factors such as the strength of one's own national economy; the identity and likely physical and psychological accessibility of the supreme decision-making body; the depth of organic supporting industry; the likely reliability of specific third parties; the likely resilience and vulnerabilities of the national population under stress; and the accessibility of (and redundancy levels in) financial, communications and other civil infrastructures, to name a few.

Readers of this book may or may not be impressed with the specific notion of *spot bombing*. However, it is hoped that readers will appreciate the general suggestion that the current employment of air power by small nations is suboptimally focused at the battlefield; that we have generally failed to dream (as Douhet and Trenchard dreamed) of more direct ways of influencing the outcome of conflict, and that failure to seek such ways is a fundamental failure to understand and harness the true potential of air power.

The challenge for small nations is to gear up to apply air power where its effects on the overall conflict are most significant — raising the strategic order of application. While all air operations have a strategic dimension, the specific entity called 'strategic air strike' should be concerned with elevating effort to the highest possible or practical order for maximum effect with minimum effort. While there may be preferred hardware and infrastructural pre-requisites, the main difference between a strategic air force and a tactical one is a matter of owner orientation. Strategic air power is about improving strategy to maximise the value of existing capability. It is about thinking harder rather than working harder; about attacking problems at their trunk not their limbs; and about treating diseases rather than symptoms.

It is hoped also that the reader will take away the notion that small nations are not necessarily well served by the abundance of large nation air power doctrine. There is a general need for small nations to look more discerningly at the strike doctrine of large nations and to ask more searching questions about their own maximum potential with modest means. There is too little original doctrinal material being generated by small nations attending to their own particular circumstances.

One of the difficulties with bidding to raise the strategic order of small nation air strike is the clear lack of historical precedent for it. As students of war we are (obsessively) students of history. However, air power in age and development is still in its infancy. When Basil Liddell Hart speculated on continental strategy, he drew on the experience of twenty-five centuries of land-based conflict. In his book *On Strategy* he studied in detail 30 major conflicts embracing more than 280 campaigns.[2] By comparison, the database for analysis of coercive air strike is tiny, comprising no more than 35 such campaigns.[3] On Air Vice-Marshal H.N. Wrigley's 27 century time line of warfare, military air power is but a 90 year blip.[4]

Our understanding and application of air strike is still in its most primitive years and there is a great deal more to look forward to than back on. Therefore, with due respect to history, we should make it our servant rather than our master. Small nations and small coalitions have simply not had the need or opportunity to think strategically about air strike. But the post-Cold War world is an uncertain place, characterised more by large numbers of small nation wars than the small numbers of large nation wars in our deeper past. The challenge may call for more creative foresight than historical analysis. It was General Heinz Guderian's creativity and innovation which led to *Blitzkreig*,[5] not some slavish adherence to historical precedent. It was Colonel John Warden's ingeniously fresh combination of ideas which contributed to Gulf War victory, not blind reverence to extant doctrine. We celebrate these strategic architects for *creating* precedent, not *copying* it.

Small nations thinkers and writers should not be afraid to invent. An understanding of air power from a uniquely small nation perspective has barely begun. Which country do *you* come from? What do *you* need and expect from *your* air power?

[2] Liddell Hart, *Strategy*, p. 161.
[3] See a suggested inventory in Pape, *Bombing to Win*, p. 49.
[4] Wrigley, *The Decisive Factor: Air Power Doctrine*, p. 7.
[5] *Blitzkreig*: 'the brilliant combination of fast-moving armour, infantry and strike aircraft which constituted one of the genuine war-fighting break-throughs of the 20th century.' Alan Stephens, 'Changing Technology and Interoperability' in *ANZUS After 45 Years: Seminar Proceedings, 11-12 August 1997*, Parliament House, Canberra, September 1997, p. 84.

Appendix I

AIR STRIKE CENSUS: ESTIMATED BASIC AIR STRIKE CAPABILITY BY NATION[1]

Serial	Nation*	Total No. of Fixed-Wing (F/W) Aircraft**	No. of F/W Aircraft with Air Strike Capability ***	Main Surface Attack Types****
1	Afghanistan	241	179	MiG-21, 23; Su-22, 25
2	Albania	149	120	MiG-15, 17
3	Algeria	327	253	MiG-21, Su-20, 22, 24
4	Angola	182	102	MiG-21, 23, 29
5	Argentina	375	167	Super Etendard, A-4
6	Australia	311	180	F-111, F-18
7	Austria	90	70	Draken, Saab 105
8	Bahrain	19	17	F-16, F-5
9	Bangladesh	142	104	'Fishbed', 'Farmer', 'Fantan'
10	Belarus	297	247	MiG-23, 29; Su-24, 25, 27
11	Belgium	209	137	F-16
12	Belize	17	14	Cessna O-2
13	Bolivia	151	16	T-33, PC-7
14	Bosnia and Herzegovina	Unavailable	Unavailable	MiG-21, Galeb.
15	Botswana	46	31	F-5, Strikemaster
16	Brazil	701	475	F-5, Mirage, Tucano
17	Brunei	16	6	SIAI-Marchetti SF.260
18	Bulgaria	434	366	MiG-21, 23, 29; Su-22, 25
19	Burkina Faso	16	5	MiG-17, SIAI-Marchetti SF.260
20	Burundi	11	7	SIAI-Marchetti SF.260
21	Cambodia	33	19	MiG-21
22	Cameroon	37	14	Aermacchi 326, Alpha Jet
23	Canada	424	292	F-18
24	Central African Republic	9	2	Rallye 235
25	Chad	17	5	PC-7, SIAI-Marchetti SF.260
26	Chile	331	168	Mirage, F-5, CASA C-101
27	China	8086	6051	'Farmer', 'Fishbed', 'Fresco', 'Fantan', 'Badger', 'Beagle'
28	Colombia	242	115	Mirage, Kfir, OV-10
29	Costa Rica	16	3	Cessna O-2
30	Cote d'Ivoire (Ivory Coast)	14	5	Alpha Jet
31	Croatia	84	45	MiG-21, Galeb
32	Cuba	423	307	MiG-21, 23, 29

[1] Data for this table extracted from Rene J. Francillon, *The Naval Institute Guide to World Military Aviation 1997-1998*, Naval Institute Press, Annapolis, Maryland, 1997.

Serial	Nation*	Total No. of Fixed-Wing (F/W) Aircraft**	No. of F/W Aircraft with Air Strike Capability ***	Main Surface Attack Types****
33	Cyprus	4	4	PC-9, Britten-Norman Defender
34	Czech Republic	220	167	MiG-21, 23; Su-22, 25; L-39Z Albatros
35	Denmark	97	92	F-16, SAAB T-17
36	Democratic Republic of Congo	45	27	MiG-17, 21
37	Dominican Republic	37	15	A-37B Dragonfly, T-6G Texan
38	Ecuador	146	83	Kfir, Jaguar, A-37B Dragonfly
39	Egypt	941	762	F-16, 'Fishbed', Mirage, F-4 Phantom, MiG-21, 'Farmer'
40	El Salvador	48	28	A-37B Dragonfly, Cessna O-2
41	Ethiopia (Note 1)	160	132	MiG-21, 23
42	Finland	180	122	F-18, Draken, Hawk
43	France	1204	694	Mirage, Etendard, Jaguar
44	Gabon	33	18	Mirage, Magister
45	Germany	754	565	Tornado, F-4 Phantom
46	Ghana	33	19	Aermacchi 326, 339
47	Greece	777	524	F-16, F-5, F-4 Phantom, A-7
48	Guatemala	35	14	A-37B Dragonfly, PC-7
49	Guinea	13	10	MiG-17, 21
50	Guinea-Bissau	15	11	MiG-17, 21
51	Guyana	8	5	Britten-Norman Defender
52	Haiti	25	11	SIAI-Marchetti SF.260, Sentry O-2
53	Honduras	73	47	F-5, Tucano, A-37B Dragonfly
54	Hungary	152	119	MiG-21, 29; Su-22
55	India	1869	1381	MiG-21, 23, 27, 29; Harrier, Jaguar
56	Indonesia	327	116	A-4, F-16, F-5, Hawk
57	Iran	484	251	F-4 Phantom, F-5, F-14, MiG-24, 27, 29, 31
58	Iraq	431	300	MiG-21, 23, 25, 29
59	Ireland	26	15	SIAI-Marchetti SF.260, Magister
60	Israel	673	543	Kfir and variants of F-15, F-16, F-4 Phantom, A-4
61	Italy	814	616	Tornado, F-104, Harrier, AMX
62	Jamaica	4	2	Britten-Norman Defender
63	Japan	1141	595	F-15, F-4 Phantom, Mitsubishi F-1
64	Jordan	254	117	F-5, Mirage
65	Khazakhstan	213	210	MiG-23, 25, 27, 29, 31; Su-24, 25, 27
66	Kenya	65	23	F-5, Hawk
67	Korea (North)	1009	712	'Beagle', 'Fresco', 'Farmer', MiG-21, 23, 29
68	Korea (South)	583	494	F-4 Phantom, F-16, F-5
69	Kuwait	87	65	F-18, Mirage, Hawk
70	Laos	76	40	MiG-21
71	Lebanon	22	16	Mirage, Magister, Hawker Hunter
72	Libya	897	799	Mirage, MiG-23, 25; Su-22, 24, 'Blinder', SIAI-Marchetti SF.260
73	Madagascar	28	15	MiG-17, 21
74	Malawi	13	1	Britten-Norman Defender
75	Malaysia	185	112	MiG-29, F-5, Hawk
76	Mali	35	26	MiG-21
77	Mauritania	18	7	Britten-Norman Defender

Serial	Nation*	Total No. of Fixed-Wing (F/W) Aircraft**	No. of F/W Aircraft with Air Strike Capability ***	Main Surface Attack Types****
78	Mexico	396	131	AT-33A, PC-7
79	Mongolia	50	15	MiG-21
80	Morocco	211	131	Mirage, F-5, Alpha Jet
81	Mozambique	52	32	MiG-17, 21
82	Myanmar	103	82	'Fishbed', 'Fantan', PC-7
83	Netherlands	201	165	F-16
84	New Zealand	72	43	A-4, Aermacchi 339, P-3
85	Nigeria	179	100	Jaguar, Alpha Jet, MiG-21
86	Norway	111	80	F-16, F-5
87	Oman	72	47	Jaguar, Hawk
88	Pakistan	841	546	'Fishbed', Mirage, F-16, 'Farmer', 'Fantan'
89	Paraguay	62	15	Tucano, Xavante, AT-33A
90	Peru	323	157	Mirage, MiG-29, Su-20, 22, 25
91	Philippines	145	103	F-5, Britten-Norman Defender, OV-10
92	Poland	714	631	MiG-21, 23, 29; Su-22, PZL Iskra
93	Portugal	264	153	F-16, A-7, Reims-Cessna FTB 337G, Alpha Jet
94	Qatar	17	12	Mirage, Alpha Jet
95	Romania	694	578	MiG-17, 21, 23, 29; IAv Craiova IAR-93B
96	Russia	7620	4806	MiG-23, 25, 27, 29, 31; Su-17, 22, 25, 24, 27, 30; 'Mail', 'Backfire'
97	Rwanda	7	2	SOCATA Guerrier
98	Saudi Arabia	452	311	F-15, Tornado, F-5
99	Senegal	24	12	Magister, SOCATA Guerrier
100	Seychelles	4	1	Britten-Norman Defender
101	Singapore	229	199	A-4, F-5, F-16
102	Slovakia	186	145	MiG-21, 29; Su-22, 25
103	South Africa	250	135	Variants of Kfir, Mirage
104	Spain	561	312	F-18, Mirage, F-5, AV-8B
105	Sri Lanka	62	35	'Fishbed', Pucara, Kfir, SIAI-Marchetti SF.260
106	Sudan	50	33	'Fishbed', 'Farmer', 'Fresco'
107	Suriname	5	4	Britten-Norman Defender, PC-7
108	Sweden	554	514	Viggen, Draken, Gripen
109	Switzerland	250	178	F-5, Mirage, F-18
110	Syria	826	754	MiG-21, 23, 25, 29; Su-20, 22, 24
111	Taiwan	599	472	F-5, AIDC Ching-Kuo, F-104
112	Tanzania	61	31	'Fishbed', 'Farmer', 'Fresco'
113	Thailand	568	243	F-16, F-5
114	Togo	29	16	Alpha Jet, Xavante, Magister
115	Tunisia	60	44	F-5
116	Turkey	735	465	F-16, F-4 Phantom, F-5
117	Uganda	34	27	MiG-17, 21
118	Ukraine	1831	1059	MiG-23, 25, 29; Su-24, 25, 27; Tu-22
119	United Arab Emirates	157	117	Mirage, Hawk
120	United Kingdom	1251	867	Tornado, Harrier, Jaguar
121	United States of America	9931	5472	F-117, F-15, F-16, B-1, A-10, F-4, F-14, F-18, P-3
122	Uruguay	94	28	A-37 Dragonfly, Pucara
123	Venezuela	238	109	F-16, Mirage, F-5

Serial	Nation*	Total No. of Fixed-Wing (F/W) Aircraft**	No. of F/W Aircraft with Air Strike Capability ***	Main Surface Attack Types****
124	Vietnam	301	222	MiG-21, Su-22, 27
125	Yemen	209	157	MiG-21, 23, 29; Su-22
126	Yugoslavia	646	491	MiG-21, 29; Super Galeb, SOKO Orao
127	Zaire	78	39	Mirage, Aermacchi 326, Reims-Cessna FTB 337
128	Zambia	108	71	MiG-21, Aermacchi 326, SAAB Supporter
129	Zimbabwe	106	74	'Fishbed', Hawker Hunter
	Total	**60327**	**39913**	

*Nations still organising basic air forces have been omitted (eg. Eritrea, Estonia). Not all air strike capabilities are harboured in air forces. Agencies counted here include navies, armies and national policing organisations.

**Aircraft counted include all those owned and in operation, plus those leased or in storage, but not those under negotiation or on order. The exclusion of rotary wing aircraft is acknowledged as an over-simplification. Some heavier combat helicopters can achieve greater destruction on the ground than their lighter fixed-wing counterparts. The exclusion is made, however, to assist comparison and simplify data for the simple purpose of the table. Numbers are only as accurate as the source material and where unconfirmed the highest estimate has been used. No allowance is made for poor serviceability, which is a significant factor for some organisations. Attrition since data collection will further affect accuracy.

***These figures include bombers, tactical strike fighters, tactical fighters with any multi-role capability and air defence aircraft with air-to-surface missiles, rockets and/or light bombing capabilities. They also include anti-shipping and anti-submarine platforms. All aircraft with *any* basic ground strike capability including those roled for CAS, BAI, COIN (counter insurgency) and light strike are included, along with fixed-wing gunships and dedicated training platforms fitted to carry cannon and/or bombs. While the inclusion of training aircraft appears to somewhat 'debase the coinage' in the census, it must be remembered that what are *basic* and *non-combatant* platforms in some larger nations are the leading offensive platforms in others.

****These types are indicative only. The most sophisticated and/or most numerous types only are shown. Types are described by their most commonly used names, generic titles or NATO designations.

Note 1. Most aircraft grounded.

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Militarily subordinated by greater partners within the settings of colonialism, Cold War and UN coalition, small modern nations have developed offensive air power capabilities predominantly geared for the 'fielded' battles of land, sea and air. 'Strategic bombing' against the enemy's very will and capacity for war has remained the exclusive franchise of greater nations.

Within superpower-led coalition, the traditional small nation focus arguably remains adequate. In the post-Cold War environment, however, as planners increasingly consider the absence of superpower intervention in regional dispute, attention must be directed at understanding the greater air power potentials of individual small nations and non-superpower coalitions.

What is the essence of strategic bombing? Is it within the reach of small modern nation offensive air power? Or are the demands of mass, tempo and sustainability — so characteristic of the century's classic strategic bombing campaigns — disqualifiers for small players?

MAR041_DPS/2001