AEROSPACE CENTRE

CONFLICT, THE STATE AND AEROSPACE POWER

THE PROCEEDINGS OF A CONFERENCE HELD IN
CANBERRA BY THE
ROYAL AUSTRALIAN AIR FORCE

28-29 MAY 2002

EDITED BY

WING COMMANDER ALISTAIR DALLY
&
MS ROSALIND BOURKE

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NOTES ON CONTRIBUTORS

Air Marshal Angus Houston

Air Marshal Houston joined the Royal Australian Air Force (RAAF) as a cadet pilot in 1970 and spent the early part of his career flying Iroquois helicopters in various parts of Australia, Papua New Guinea and Indonesia. After graduation from Flying Instructors Course in 1975, Air Marshal Houston completed several instructional tours on Macchi, BAC Strikemaster and Iroquois aircraft. A posting to the Republic of Singapore Air Force (RSAF) from 1976-1978 was followed by two years at No 9 Squadron RAAF Base Amberley. In late 1979 Air Marshal Houston was posted to Hill Air Force Base, Utah for exchange duties with a US Air Force helicopter unit. In 1980 he was awarded the Air Force Cross (AFC) for an open sea rescue in gale force winds the previous year.

After a further posting to No 9 Squadron as the Executive Officer, and staff training at RAAF Staff College, Air Marshal Houston was posted to the Department of Air (Development Division) where he was involved in the Black Hawk Project. In 1987, Air Marshal Houston assumed command of No 9 Squadron in time for the introduction of the Black Hawk, relocation of the unit from Amberley to Townsville, and its transfer to Army. In 1989 he enjoyed one year as a Squadron Commander with the 5th Aviation Regiment. Air Marshal Houston was admitted as a Member of the Order of Australia (AM) in 1990 for his work in the transfer of responsibility for Blackhawk operations.

Following graduation from Joint Services Staff College, Air Marshal Houston was posted to the Joint Operations staff at Headquarters Australian Defence Force and was involved in strategic planning during the Gulf crisis of 1990/91. On promotion to Group Captain in July 1992, he assumed the post of Director Air Force Policy and negotiated the establishment of the RSAF Flying School at RAAF Base Pearce. After completing a C130H conversion in 1993, Air Marshal Houston commanded No 86 Wing from 1994-95.

Air Marshal Houston attended the Royal College of Defence Studies in London in 1996. He was Chief of Staff, Headquarters Australian Theatre in 1997-99, Commander Integrated Air Defence System from 1999-2000 and Head Strategic Command from August 2000. Air Marshal Houston was appointed as Chief of Air Force on 20 June 2001.

Senator the Honourable Robert Hill

Robert Hill BA LLB LLM FTIA was born in 1946 in Adelaide. He is married with four children.

Robert Hill was educated at Scotch College, Mitcham. In 1968 he obtained his law degree at University of Adelaide (St Marks College), and in 1970 his Masters of Law at the University of London (University College and the London School of Economics & Political Science). He then completed a Bachelor of Arts degree in Asian History & International Politics in 1982 at the University of Adelaide.

Senator Hill's interests include law reform (particularly taxation reform) and industrial relations, Australian and Asian history, legal and environmental education, environmental industry and small business.

Prior to his entry into politics, Senator Hill practised in both government service and in private practice, having been admitted to practise as a Barrister and Solicitor in South Australia and admitted as a Legal Practitioner in the Northern Territory in 1970.

Senator Hill has been involved with the Liberal Party of Australia for more than 25 years and has held many positions within the party including State President (SA Division) (1985 – 1987). He has been a member of the Federal Executive of the Liberal Party of Australia between 1985 and 1987 and since April 1990.

Elected as a Liberal Senator for South Australia in October 1980 (term commencing on 1 July 1981), Senator Hill has been continuously re-elected in March 1983, July 1987, March 1990 and March 1996. He was elected Leader of the Opposition in the Senate on 11 April 1990.

Senator Hill held a number of shadow portfolios while in Opposition, namely:

- Shadow Minister for Justice, the ACT and the Status of Women (16 September 1988 – 12 May 1989)
- Shadow Minister for Foreign Affairs (12 May 1989 – 7 April 1993)
- Shadow Minister for Defence and Public Administration (8 April 1993 – 17 January 1994)
- Shadow Minister for Public Administration (17 January 1994 – 26 May 1994)
- Shadow Minister for Education, Science and Technology (26 May 1994 – 7 March 1996)

When John Howard and the Coalition of the Liberal Party of Australia and the National Party of Australia won government on 3 March 1996, Senator Hill was appointed Leader of the Government in the Senate. He was also appointed Minister for the Environment and, after the 1998 election, he was given responsibility for the portfolio of Heritage. Senator Hill has been the longest-serving Environment Minister. After the Coalition was returned to Government on 10 November 2001, Senator Hill was appointed as the Minister for Defence. He has retained his office as Leader of the Government in the Senate.

William Arkin

William Arkin is an independent columnist, consultant, and educator.

Since September 11, he has written a regular military analysis column in *The Los Angeles Times* (where he broke the Bush 'Nuclear Posture Review' story in March). He also writes a military column for the *Washington Post's* online service and has written the 'Last Word' column in the *Bulletin of the Atomic Scientists* since 1985. Arkin is also an on-air commentator for NBC News and MSNBC.

William Arkin is the senior military adviser to Human Rights Watch (HRW), the largest human rights organisation in the US. Arkin is also senior fellow in residence at the Center for Strategic Education at the Johns Hopkins University Paul Nitze School of Advanced International Studies (SAIS). He also serves as an Adjunct Professor at the School of

Advanced Air power Studies (SAAS), US Air Force, Maxwell AFB, Alabama, and is a consultant to the US Air Force on targeting and civilian casualties matters.

Arkin served in the US Army as an intelligence analyst in West Berlin from 1974-1978. From 1981-1993, he worked at a number of non-governmental think tanks and organisations in Washington, pioneering independent research on nuclear weapons and US military activities. He co-authored the first volume of the *Nuclear Weapons Databook* series, a book the Reagan administration sought to suppress on secrecy grounds. He then wrote a best selling book in 1985 revealing the locations of US and foreign nuclear bases worldwide. He was one of the first westerners to visit Soviet nuclear facilities, and co-authored 'Soviet Nuclear Weapons', the fourth volume of the *Nuclear Weapons Databook* series.

As the Cold War was ending, Arkin was the director of military research for Greenpeace International, where he was working on nuclear weapons at sea. He then headed Greenpeace's war response team and co-authored *On Impact - Modern Warfare and the Environment: A Case of the Gulf War* - the first independent study of the civilian and environmental effects of the war. Arkin visited Iraq in 1991 after the ceasefire to evaluate civilian damage and subsequently conducted one of the most methodical on-the-ground bomb damage assessments conducted by any civilian. Subsequently, he has conducted additional bomb damage assessments in Iraq, Lebanon, Yugoslavia, and Afghanistan, visiting a total of more than 750 targets that have been the subject of attack and pioneering the method of independent field work and research to investigate the effects of weapons and warfare on civilian populations.
The work on civilian effects of warfare is largely as a consultant to Human Rights Watch. There, he also focuses on the humanitarian implications of warfare and new weapons technologies. His research was central to the 1995 Defense Department reversal of its longstanding policy opposing an international ban on blinding laser weapons. He has produced numerous reports for Human Rights Watch on cluster bombs and civilian casualties in warfare. He is currently working on the questions of targeting methodologies and practices, as well as why civilians die in high-tech warfare.

Arkin is author or co-author of several books, and has authored or co-authored over 400 articles and conference papers on military affairs, as well as chapters in more than two dozen edited books. His articles have appeared in publications as diverse as the leftist *The Nation*, as well as military journals such *Air power Journal* and *Marine Corps Gazette*. He has contributed to the yearbook of the Stockholm International Peace Research Institute (SIPRI) since 1984 and co-authors the bi-monthly NRDC 'Nuclear Notebook', the standard accounting of the world's nuclear arsenals. He often writes for the trade newsletter *Defense Daily*.

Arkin has briefed the findings of his various investigations before the Office of the Secretary of Defense, the CIA and other intelligence agencies, the military services and war colleges, as well as before academic and NGO audiences. General Charles A. ('Chuck') Horner, commander of air forces during the Gulf War, said in a tenth anniversary interview about the Gulf War in U.S. Naval Institute *Proceedings* that the briefing Arkin gave him on the air war and its effects in Iraq was the best he'd received after the war. In addition to his work with NBC, Arkin's work has been frequently featured on CBS' *60 Minutes*, BBC, CNN, and the History and Discovery Channels. Arkin has appeared in countless documentaries, lectured regularly at college campuses, at World Affairs Councils, at the US military war colleges, and to local organisations and groups throughout the US and in thirteen foreign countries. His books have been translated into Chinese, German, Russian, Spanish, and Japanese. He is listed in *Who's Who in America*.

Ian Wing

Ian Wing is the Director, Corporate Intelligence, of The Distillery Pty Ltd, a highly successful Australian software research and development company, with domain expertise in national security intelligence and law enforcement.

He holds a Bachelor of Arts with Honours (UNSW 1982), a Masters Degree in Defence Studies (UNSW 1995), Graduate Diplomas in Information Management and Analysis, and Management Studies, and a Diploma in Personnel Management. His PhD thesis, *Australian Defence in Transition: Responding to New Security Challenges* (UNSW 2002), is being examined. The thesis argues that Australian defence is undergoing a transition from old security thinking to new, and this is evidenced by changes in policies and practical activities. Ian is the author of over 30 published papers and monographs, a member of the Australian Committee of the Council for Security Cooperation in the Asia-Pacific (CSCAP) and the President of the Australian Institute of Professional Intelligence Officers (AIPIO).

He joined The Distillery after 25 years service with the Australian Defence Force. His military postings included the Special Air Service Regiment, the US Army Intelligence Center, the Parachute Battalion, the Peace-Keeping Force in East Timor (serving as Australia's Senior Military Observer), the Joint Intelligence Organisation, the Defence Intelligence Organisation, the ADF Intelligence Centre, Headquarters 6th Brigade, Army Headquarters, the Australian Defence Studies Centre (as the 1998 CDF Scholarship Fellow), and the Land Warfare Studies Centre.

Air Vice Marshal Professor R.A. Mason CB CBE MA DSc FRAeS DL

Air Vice-Marshal Tony Mason retired from the Royal Air Force in 1989, where his last appointment was Air Secretary. He is a graduate of the RAF Staff College and USAF Air War College. He holds a degree in History from St Andrews, a post-graduate MA in War Studies from London, and a DSc from Birmingham for his work in the field of air power studies.

He holds a personal Chair in International Security at the University of Birmingham and is Air Advisor to the House of Commons Select Committee on Defence. In recent years he has contributed to policy studies for several air forces, including the RAF, USAF, RNZAF, RNLAF, RNoAF, RDAF, GAF, RTAF, Indian and Taiwanese Air Forces.

Tony Mason is a frequent contributor to the BBC, ITN, and other international media on air power related issues. He has written and spoken internationally on air power in crisis and conflict for the last 25 years. His books include: *Air Power; A Centennial Appraisal* (Brasseys 1994, 1995); *The Aerospace Revolution* (Brasseys 1998), *Air Power in the Nuclear Age* (with Sir Michael Armitage) (MacMillan 1984, 1986); and *War in the Third Dimension* (ed) (Brasseys 1986).

He is currently working on a study of air power from 1990 onwards to be published in 2004 by Brasseys, provisionally entitled *Air Power: First Choice or Easy Option*?

Dr Chris Reus-Smyt

Chris Reus-Smyt (BA Hons., MA (La Trobe), Dip.Ed, (Melb); MA, PHD (Cornell)) is Senior Fellow and Head in the Department of International Relations, Research School of Pacific and Asian Studies, Australian National University. He is the author of *The Moral Purpose of the State* (Princeton University Press, 1999), co-author of *Theories of International Relations* (Macmillan, 2001) and co-editor of *Between Sovereignty and Global Governance* (Macmillan, 1998). His articles have appeared in a range of journals, including *International Organization*, *Review of International Studies, Millennium*, and the *European Journal of International Relations*. He is a recipient of the two major prizes awarded in Britain for journal articles: the Northedge Prize (1992) and the BISA Prize (2001). He has held teaching positions at Monash University and La Trobe University, and visiting positions at Princeton University and the University of Melbourne. He has held fellowships from the Social Science Research Council, the MacArthur Foundation, the Mellon Foundation, and the Australian Research Council. His research interests focus on international relations theory, international history, international law, international ethics, institutional theory, and the application of social and political theory to the study of global politics. He is a member of the Council for Security and Cooperation Asia-Pacific, and a member of the 20 member national Foreign Affairs Council.

Professor Subrata Mitra

Professor Subrata Mitra is Professor and Head, Department of Political Science at the South Asia Institute, Heidelberg University, and a Visiting Fellow at the Centre for the Study of Developing Societies, Delhi. He has studied at the universities of Delhi, Jawaharlal Nehru University and the University of Rochester and taught at the Universities of Hull (Great Britain) and California, Berkeley. Governance, sub-nationalism, rational choice theory, quantitative applications in Political Science and South Asian politics and security are among his main areas of interest. His publications include *Culture and Rationality* (Sage, 1999), *Democracy and Social Change* (Sage, 1999), *Power, Protest and Participation: Local Elites and Development in India* (Routledge, 1992), *Governmental Instability in Indian States: A Study of West Bengal, Bihar, Uttar Pradesh and Punjab* (1978), *Subnational Movements in South Asia* (Westview, 1996), *Citizen Participation in Rural Development* (1982); *Democracy in South Asia*, (1992). His articles have appeared in the *Journal of Commonwealth and Comparative Politics, International Journal of Punjab Studies*, the *British Journal of Political Science, Comparative Politics*, *World Politics*, *Comparative Studies in Society and History*, *The International Social Science Journal, West European Politics*, *Third World Quarterly,* and *Comparative Political Studies.* Professor Mitra is currently engaged in a comparative study of governance in six Indian States. In addition to his academic responsibilities, Professor Mitra has been involved with several international organisations including the UNESCO and the European Union as a consultant.

Air Commodore John Blackburn

Air Commodore Blackburn was born in Portugal in 1956 where his father was stationed with a British engineering firm. He graduated from Melbourne Boys High School in 1972 and flew privately in Australia and New Zealand until joining the RAAF in 1975 as an aircrew cadet. He completed pilot training at RAAF Base Pearce in 1976, graduating as dux of his course

and was posted to RAAF Base Williamtown for operational conversion to the Mirage aircraft, also graduating as dux of his course. As a junior officer he then flew operationally with 77 Squadron at RAAF Base Williamtown and 3 Squadron in Butterworth, Malaysia.

In 1980 Air Commodore Blackburn attended the Empire Test Pilots School at RAF Boscombe Down where he won the McKenna Trophy as dux of his course. He subsequently served as an operational test pilot at the Aircraft Research and Development Unit (ARDU) until a posting to Washington with the Tactical Fighter Project Office, which managed the introduction of the F/A-18 aircraft into service with the RAAF. Three years in Washington were followed by a posting to Tulsa, Oklahoma where he was the Australian representative managing an F/A-18 simulation project. As a result of his project work, he was admitted as a Member of the Order of Australia in the 1989 Australia Day Honours.

On return to Australia, Air Commodore Blackburn was posted to RAAF Base Williamtown for operational conversion to the F/A-18 aircraft, graduating as dux of his course. He then flew operationally as Flight Commander 77 Squadron (1988-89), Executive Officer 77 Squadron (1989-91) and later as Commanding Officer 77 Squadron (1994-96). As a senior officer his appointments have included Deputy Director Airspace Control at Headquarters Australian Defence Force, Officer Commanding 41 Wing at RAAF Base Williamtown and Director General Policy and Plans – Air Force within Air Force Headquarters.

Air Commodore Blackburn attended both the Joint Services Staff College and the Australian College of Defence and Strategic Studies. He holds a Graduate Diploma of Defence and Strategic Studies, a Master of Defence Studies and has just completed a Master of Arts in Strategic Studies. He has accumulated over 3,000 flying hours in over 20 aircraft types.
Air Commodore Blackburn's hobbies are golf, woodworking and sailing, and his interests include military strategy and knowledge management. He and his wife Judy have no children.

Lieutenant Colonel John W. Blumentritt

Lieutenant Colonel John W. Blumentritt serves as Deputy Commander, 34th Education Group, US Air Force Academy, Colorado Springs, Colorado. He is a command pilot with over 3000 flight hours in HH-3E 'Jolly Green Giant' and MH-60G 'Pave Hawk' combat rescue and special operations helicopters. While permanently serving in Okinawa, Alaska, Nevada, Iceland, and Florida, he deployed worldwide to fly missions in the Philippines, Korea, Japan, Kuwait City, and Scotland, earning the annual Air Force 'Mackay' Trophy, Aviator's Valor Award, and Ira C. Eaker Outstanding Airmanship Award from the US Air Force Chief of Staff. He has a Bachelor of Science degree from Angelo State University, a Master of Science degree from Michigan State University, a Master of Arts degree in National Security and Strategic Studies from the US Naval War College, and a Master of Air power Art and Science degree from the School of Advanced Air power Studies. Prior to his assignment at the US Air Force Academy, he served as the Chief of Unconventional Warfare and Special Operations Strategy at the Pentagon, Checkmate Division, and then as the Chief, European and Pacific Strategy Team. Lieutenant Colonel Blumentritt is married to the former Darlene Becknell of San Angelo, Texas. They have three children; Christopher, Sonja, and Ashley.

Group Captain Peter Gray, RAF

Group Captain Gray joined the Service as a University Cadet in 1971. After graduating from the University of Dundee, he completed officer training at the RAFC Cranwell followed by navigator training at RAF Finningley. Group Captain Gray was then posted to the Phantom as an air defence navigator and completed tours on 43(F) and 29(F) Squadrons. After a tour as a personnel staff officer at Headquarters 11 Group, he was promoted to Squadron Leader and posted as a flight commander to 19(F) Squadron, RAF Wildenrath in Germany. Group Captain Gray returned to the United Kingdom in 1988 and served for two years as a desk officer in the Air Secretary's department, and attended No 12 JSDC in 1991. He was promoted to Wing Commander in July 1991 and was then seconded to the Cabinet Office for three years, during which time he completed a London University external LLB. Group Captain Gray completed his MPhil in International Relations at the University of Cambridge in 1995. He then returned to flying, commanding 101 Squadron (VC10K aircraft in the air-to-air refuelling role). After six months in the Ministry of Defence (Directorate of Force Development), Group Captain Gray was appointed to his current post of Director of Defence Studies (RAF). He is also a graduate of the Higher Command and Staff Course and was appointed Assistant Director for the 2001 Course.

Group Captain Gray is married with two sons and a daughter.

Professor Christopher Bellamy

Christopher Bellamy is Professor of Military Science and Doctrine at Cranfield University and the Royal Military College of Science, now part of the UK Defence Academy. He joined Cranfield in 1997 as a Reader and was made Professor three years later. He designed and implemented the Cranfield MSc in Global Security, of which he is Academic Leader. The program forms a key part of the UK's Defence Diplomacy initiative, attracting, among its diverse students, senior officers and officials from around the world, and already numbers a national Chief of Defence Staff among its graduates. His particular research interests include the conceptual component of fighting power; the nature of future conflict; peace support operations; Russia and eastern Europe; information warfare and the role of the media in conflict.

Before joining Cranfield Professor Bellamy was for seven-and-a-half years Defence Correspondent of the *Independent* newspaper and reported from the Gulf War in 1991, from Bosnia many times between 1992 and 1996, from Chechnya in January 1995 and from Rwanda in 1994. He was shortlisted for Foreign Reporter of the Year in the British Press Awards, 1996, for reporting from Bosnia and Chechnya. Prior to that he completed his PhD on *The Russian and Soviet View of Future War* at Edinburgh University under the supervision of Professor John Erickson, following service in the British Army and the MoD Civil Service. He also holds a first degree in history from Oxford, an MA with distinction in War Studies from King's College, London and another first degree in Russian from the Central London Polytechnic, now the University of Westminster.

His major books include*: Knights in White Armour: the New Art of War and Peace* (1996,1997); *Expert Witness: a Defence Correspondent's Gulf War* (1993); *The Evolution of Modern Land Warfare* (1990); *The Future of Land Warfare* (1987) and *Red God of War* (1986). He was Consultant Editor (Eastern Front) for *The Times Atlas of the Second World War* (1989). Most recently he was Associate Editor of, and a principal contributor to *The Oxford Companion to Military History* (2001).

Professor Paul Dibb

Professor Paul Dibb is Head of the Strategic and Defence Studies Centre in the Research School of Pacific and Asian Studies at The Australian National University. He was previously Deputy Secretary for Strategy and Intelligence in the Australian Department of Defence and Director of the Joint Intelligence Organisation. His earlier positions included: Ministerial Consultant to the Minister for Defence, Senior Assistant Secretary for Strategic Policy and Head of the National Assessments Staff of the National Intelligence Committee. As Deputy Secretary, Paul Dibb was responsible for managing the Australian Department of Defence's intelligence programs, strategic policy, and force structure decisions, as well as programming new equipment bids worth $15 billion.

He is the author of five books, including *The Soviet Union: The Incomplete Superpower* (Macmillan Press Ltd, London, 1986), *Review of Australia's Defence Capabilities*, Report to the Minister for Defence (Australian Government Publishing Service, Canberra, March 1986), *America's Asian Alliances* (co-edited with Robert D. Blackwill, MIT Press, Cambridge, Mass., 2000). His more recent journal articles include *Towards a New Balance of Power in Asia* (Oxford University Press for the IISS, Oxford, 1995), *The Revolution in Military Affairs and Asia's Security* (IISS, London, 1997), *The Strategic Implications of Asia's Economic Crisis* (IISS, London, 1998), *Asia's Insecurity* (IISS, London, 1999), *Strategic Trends: Asia at a Crossroads* (Naval War College Review, Winter 2001), and *Indonesia's Grim Outlook* (*Orbis*, Fall 2001).

Professor Dibb provides independent defence policy advice to Dr Allan Hawke, the Secretary to the Department of Defence.

Professor John Ferris

Dr John Ferris received his PhD in War Studies, King's College, London, in 1986. He is Professor of History at the University of Calgary, of which he was Head between 1996-2001. He is the author of *Men, Money and Diplomacy: The Evolution of British Strategic Policy, 1919-1926*, (1989) and of 40 academic articles and chapters, and editor of *The British Army and Signals Intelligence in The First World War* (1992). His works discuss strategic policy, the history and theory of intelligence and C3I, air power and Anglo-Japanese strategic relations. At present he is preparing two monographs: one regarding how policy makers use intelligence and should do so, the other a three volume study of British signals intelligence, 1890-1945. He also is working on monographs on Anglo-Japanese strategic relations, 1854-1945, the evolution of British air defence, 1914-1950, and communications, intelligence, operations, deception and command in the desert campaign.

Dr Christina Goulter

Dr Christina Goulter is a Senior Lecturer at King's College, London, and teaches at the Joint Services Command and Staff College. She is Head of Air Power Academic Studies, and is the Air Academic, Higher Command and Staff Course. From 1994 - 1997, she was Associate Professor of Strategy at the US Naval War College, Newport, Rhode Island. Her publications include works on air power history, including *A Forgotten Offensive: Royal Air Force Coastal Command's Anti-Shipping Campaign, 1940-1945* (Frank Cass, 1995), and other publications on intelligence, economic warfare and the Special Operations Executive in World War II. She is preparing a manuscript on the Ministry of Economic Warfare in World War II, and current research is on the Greek Civil War.

Dr Alan Stephens

Dr Alan Stephens is a senior lecturer at the University of New South Wales at the Australian Defence Force Academy, where he teaches courses in aerospace power history and strategy. Previously he has been a member of the Royal Australian Air Force, where his experience included commanding a squadron; a principal research officer in the Australian Federal Parliament, specialising in foreign affairs and defence; and a foundation member of the Aerospace Centre.

Dr Stephens has published extensively on defence and security, and has lectured throughout Australia, Southeast Asia, Europe and North America.His most recent book is a history of the RAAF, published as part of the Oxford Centenary of Australian Defence series.

Air Vice-Marshal Chris Spence

Air Vice-Marshal Spence was born in Sydney in 1951 and joined the Royal Australian Air Force Academy at Point Cook, Victoria in 1969, graduating with a Bachelor of Science degree. After completing pilot training in 1974, Air Vice-Marshal Spence was posted to fly Iroquois helicopters with No 5 Squadron, at RAAF Base Fairbairn. Four years of operational flying included disaster relief operations throughout Australia (including Cyclone Tracy), deployments to Papua New Guinea and a six month tour with the United Nations Emergency Force II, based in Ismailia, Egypt.

In 1979, Air Vice-Marshal Spence completed flying instruction training and was posted to No. 2 Flying Training School to instruct on Macchi jet trainers and in 1980, was posted to Central Flying School to train flying instructors. In 1981, Air Vice-Marshal Spence undertook an exchange posting with the Royal Air Force's Central Flying School, during which he flew a Vampire aircraft with the RAF's Vintage Pair Display Team. On return to Australia in 1984, Air Vice-Marshal Spence attended RAAF Staff College and was posted as a staff officer within the Air Force personnel branch. In 1987, Air Vice-Marshal Spence assumed command of No. 35 Squadron, based at RAAF Base Townsville, flying both Iroquois helicopters and Caribou tactical transport aircraft. Following Exercise Kangaroo 89, he returned to Canberra on posting and completed a conversion to the Pilatus PC9 training aircraft, prior to his posting to the position of Staff Officer to the Chief of the Air Staff. In 1991, Air Vice-Marshal Spence was posted to the US Air Force Air University in Montgomery, Alabama. Upon completion of the Air War College Course, he returned to Australia and assumed the position of Staff

Officer Air Operations, a part of the Joint Operations Staff at Headquarters Australian Defence Force.

In 1994, Air Vice-Marshal Spence was promoted to Group Captain and posted to the newly formed Logistics Systems Agency at Headquarters Logistics Command, Melbourne as Director Logistics Development. In 1995, he assumed command of No 86 Wing, flying C130 Hercules aircraft. In 1997, he was promoted to Air Commodore and posted to the position of Chief of Staff, Support Command Australia. Air Vice-Marshal Spence was posted to the position of Commander Training - Air Force at Headquarters Training Command on 6 March 2000. He was promoted to Air Vice-Marshal and assumed his present appointment as Deputy Chief of Air Force on 18 June 2001.

Air Vice-Marshal Spence was appointed a Member of the Order of Australia on Australia Day, 1998. Air Vice-Marshal Spence is a Member of the Australian Institute of Transport, a Fellow of the Australia Institute of Management and a Fellow of the Australian Institute of Company Directors.

ABBREVIATIONS

ADF   Australian Defence Force
ADHQ   Australian Defence Headquarters
AEC   Atomic Energy Commission
AEW&C   Airborne Early Warning and Control
APS   Australian Public Service
ASC   Air Support Control
ASSU   Army Support Signals Unit
AST   Australian Theatre
AWE   Advanced Warfare Experiment

BAe   British Aerospace
BJP   Bharatiya Janata Party

C2W   Command and Control Warfare
C4ISR   Command, Control, Communications, Computers, Intelligence, Surveillance
             and Reconnaissance
CAF   Chief of Air Force
CDF   Chief of Defence Force
CENTCOM   Central Command
CEO   Chief Executive Officer
CHOGM   Commonwealth Heads of Government Meeting
CIA   Central Intelligence Agency
CINCPAC   Commander in Chief, Pacific Command
CIS   Commonwealth of Independent States
CN   Chief of Navy
CNA   Computer Network Action
CNA/E   Computer Network Action/Exploitation
COA   Course of Action
COSC   Chiefs of Staff Committee
CSCE   Conference on Security and Cooperation in Europe
CTBT   Comprehensive Test Ban Treaty

DBK   Dominant Battlespace Knowledge
DCP   Defence Capability Plan
DFID   Department for International Development
DIA   Defence Intelligence Agency
DJFHQ   Deployed Joint Force Headquarters
DMO   Defence Materiel Organisation
DMZ   Demilitarised Zone
DSTO   Defence Science and Technology Organisation

ECSS   Expeditionary Combat Support Squadron
EEZ   Exclusive Economic Zones
EMI   Electro-magnetic Interference

FASL   Forward Air Support Link
FDA   Force Development and Analysis

GDP	Gross Domestic Product
GMT	Greenwich Mean Time
GNP	Gross National Product
GoM	Group of Ministers
GPS	Global Positioning System
HQ	Headquarters
HQADF	Headquarters Australian Defence Force
IAEA	International Atomic Energy Agency
ICBM	Intercontinental Ballistic Missile
IDF	Israeli Defence Force
IDP	Internally Displaced Person
IDSA	Institute for Defence and Strategic Analysis
IGMDP	Integrated Guided Missile Development Programme
INTERFET	International Force for East Timor
IO	Information Operations
IPKF	Indian Peace Keeping Force
IS	Internal Security
ISAF	International Security Assistance Force
ISR	Intelligence, Surveillance and Reconnaissance
ISTAR	Intelligence, Surveillance and Target Acquisition Radar
IW	Information Warfare
JDAM	Joint Direct Attack Munitions
JFACC	Joint Force Air Component Commander
JSF	Joint Striker Force
JSOC	
JV	Joint Vision
JWP	Joint Warfare Publication
KPC	Kosovo Protection Corps
LTTE	Liberation Tigers of Tamil Eelam
MC2A	Multi-sensor Command and Control Aircraft
MDP	Ministry of Defence Police
MoD	Ministry of Defence
MTCR	Missile Technology Control Regime
NATO	North Atlantic Treaty Organisation
NCW	Net Centric Warfare
NDA	National Democratic Alliance
NGO	Non-Governmental Organisation
NOD	Non-offensive Defence
NPT	Non-Proliferation Treaty
NSA	National Security Agency
NSC	National Security Council
NZ	New Zealand

OODA	Observe, Orient, Decide, Act
OSCE	Organisation for Security and Cooperation in Europe
PACOM	Pacific Command
PAF	Permanent Air Force
PGM	Precision Guided Munitions
PJHQ	Permanent Joint Headquarters
PLAN	People's Liberation Army Navy
PM&C	Prime Minister and Cabinet
POTO	Prevention of Terrorism Ordinance
PPP	Purchasing Power Parity
PSNI	Police Service of Northern Ireland
PSO	Peace Support Operations
RAAF	Royal Australian Air Force
RAF	Royal Air Force
RedR	Register of Engineers for Disaster Relief
RMA	Revolution in Military Affairs
SAM	Surface-to-Air Missile
SASR	Special Air Service Regiment
SDB	Small Diameter Bomb
SDD	Systems Development and Demonstration
SIOS	Society of Indian Ocean Studies
SLOC	Sea Lines of Communication
UAV	Uninhabited Aerial Vehicle
UCAV	Uninhabited Combat Air Vehicle
UK	United Kingdom
UN	United Nations
UNDP	United Nations Development Program
UNMK	United Nations Mission in Kosovo
US	United States
USAAF	United States Army Air Forces
USN	United States Navy
WMD	Weapons of Mass Destruction

OPENING ADDRESS

AIR MARSHAL ANGUS HOUSTON, AM AFC

Senator the Honourable Robert Hill, Minister for Defence, Admiral Barrie CDF, Admiral Shackleton CN, visiting Chiefs of Staff, distinguished guests, ladies and gentlemen. I would like to extend to you a very warm welcome to the 2002 Aerospace Conference.

I am delighted that so many people have come to what promises to be a thought provoking conference on 'Conflict, the State and Aerospace Power'. I look forward to the presentations and hopefully some lively and stimulating debate during the question and answer sessions.

I am particularly pleased to welcome Air Force Chiefs or their representatives from around the world, particularly those from our region. I would also like to offer my congratulations to my good friend General Suleiman, Chief of the Royal Malaysian Air Force, who has just been honoured with the award of the title 'Dato Seri Panglima'.

I also welcome our speakers, whose contributions are essential to the success of the conference. Some have travelled long distances to be here and have made room for us in busy schedules. I am grateful for their support.

'Conflict, the State and Aerospace power' is the seventh in the Royal Australian Air Force's biennial series of conferences.

Since our last conference in 2000, we have seen some significant changes to the nature of conflict. On 11 September last year, terrorists hijacked civilian airliners to attack targets in the US. In response, the US formed a coalition and deployed forces to South Asia to destroy the terrorists, their bases and the supporting regime in Afghanistan.

In the Middle East we have seen the widespread use of suicide bombers against the Israeli population. Israel has responded with the full weight of conventional military power. In the Sub Continent we see increasing tension over Kashmir. With large Defence Forces massed and prepared for action, and nuclear weapons on both sides, there is no room for miscalculation. We all hope that a peaceful resolution can be found but if conflict ensues, what will be the nature of that conflict?

So as we commence our discussions in Canberra on this peaceful autumn day, we should ask ourselves these questions:

- How will the concept of conflict change over the next two decades?

- Will we and our friends be engaged, more often than not, in fighting non-state actors?

- Will we be able to call such conflict war?

- If it is not war, then what is it, and what are the implications of that?

- And finally, and importantly, what must we do to meet the new challenges?

Since 2000 we have observed both negative and positive developments in regard to 'states' in our own region. On the down side, we have seen some small states characterised by poor governance, weak institutions and a lack of respect for both constitutional and legal process. On the other hand, we saw the birth of a new state. The nation of East Timor was created on 20 May amidst much celebration and optimism.

States under threat, one state newly created. So how will they evolve? More broadly, how will the concept of the state change? Is the state an outdated concept in a world that is fast becoming a global village or will states remain the glue that holds the international system together?

And what about aerospace power?

Since the Gulf War, warfighting concepts and application have become increasingly joint. In Australia it is inconceivable to visualise the use of aerospace power in isolation. It is very much an integral part of the Australian Defence Force Joint Combat Effect.

Aerospace power enabled by battlespace management and sophisticated information, surveillance and reconnaissance technologies continues to increase in effectiveness.
Operations in Bosnia and Kosovo demonstrated how aerospace power could be used in a limited but coercive way to gain political concessions. In Afghanistan, we have seen the sensor to shooter gap reduce markedly to enable engagement of mobile targets by aircraft carrying precision weapons by night, by day and in all weather.

But how will aerospace power evolve in the future? What part will it play in the new millennium? I look forward to hearing the speakers today and tomorrow. Many of them have outstanding credentials and hopefully they will not only answer a range of questions about conflict, the state and aerospace power, but will also offer us alternate points of view and possible solutions that will challenge us to think about what role aerospace forces will play in future conflicts.

I also look forward to some lively debate. I would like to see some of the younger Air Force members asking the challenging 'why' questions.

I should also note here that conferences like this do not happen without significant support from the private sector. I am delighted to be able to thank our sponsors: BAe Systems, Rolls Royce, Qantas, Defcredit, Smartcover and Defence Health have all been very generous. To all of them, thank you for making this conference possible. I deeply appreciate your generosity.

Now—in the words we regularly hear from one of our sponsors, I would like you to sit back, relax and enjoy the flight!

But before we do that I have one final and important task to perform. We are privileged to have the Minister for Defence, the Honourable Robert Hill to deliver the Keynote Address. I am most grateful that the Minister has made the time to come here this morning during what is always a busy schedule.

Ladies and Gentlemen, please welcome the Minister for Defence to deliver the Keynote Address for the RAAF's 2002 Aerospace Power Conference, 'Conflict, the State and Aerospace Power'.

KEYNOTE ADDRESS

SENATOR ROBERT HILL

Air Marshal Houston, distinguished guests, ladies and gentlemen.

It gives me great pleasure to be with you today for the opening of the Air Force's seventh Air Power Conference, or perhaps more notably and correctly, the first 'Aerospace' Conference, with the emphasis now on aerospace and not just air power.

I know there are many overseas visitors attending this conference and I would like to especially welcome all our distinguished guests, many who are regional Air Force Chiefs and senior General Officers.

Your presence emphasises the importance of the Air Force Aerospace Conference in enhancing our understanding of each other's perspective and the vital, and at times pivotal, role that aerospace power will continue to play into the twenty-first Century.

It is appropriate however, before I begin, to take this opportunity to publicly acknowledge on behalf of the Federal Government and the Australian people the outstanding efforts of the men and women of the ADF in the ongoing contribution to the International Coalition Against Terrorism.

The professionalism and dedication demonstrated by all members of the ADF in conducting the war against terrorism, including those supporting our people deployed overseas, is both recognised and appreciated. It is also particularly impressive to the background of the many other operations around the world now engaging the ADF.

The events of 11 September have demonstrated the asymmetric nature of much of today's conflict. To be able to respond effectively to this unpredictability will shape the armed forces of many nations, including Australia, well into this new century.

The development of increased capability, particularly aerospace capability, is what this conference is all about.

I would like to discuss this from three perspectives: firstly, the role of aerospace power; secondly, future aerospace capability, and finally; the role of the Aerospace Industry as part of Australia's defence into the future.

THE ROLE OF AEROSPACE

The 2000 Defence White Paper established a benchmark for the ongoing development of the ADF over the next decade.

It discusses Australia's military strategy and states in very simple and succinct terms that the first task for the ADF is the defence of Australia.

However, the Government also expects the ADF to contribute to the security of our immediate neighbourhood and to contribute to international coalitions of forces to meet crises beyond our immediate neighbourhood.

The foundation of this three tiered strategy is the recognition that an air combat capability is an essential capability for the defence of Australia, as it is for so many other military operations.

Aspects of our air capability have been tested as part of the International Coalition Against Terrorism.

Our air-to-air refuelling aircraft, based in Kyrgyzstan, are providing crucial support in sustaining air operations over Afghanistan.

And only last week, our F/A-18 contingent returned from active duty on Diego Garcia.

Our C-130s are now providing strategic transport into Afghanistan and our AP3 surveillance aircraft have been available for deployment.

We also had air combat capability recently deployed over the skies of southern Queensland, during the Commonwealth Heads of Government Meeting in March.

This time last year, the concept of deployments in Afghanistan against terrorism and of homeland defence involving combat air patrol would have seemed incredible.

Today it is a reality—thus further emphasising the need for Australia to develop capabilities that can satisfy both domestic requirements as well as being interoperable in offshore international coalitions.

As for the future, it is no accident that this is our inaugural 'Aerospace Conference', making the transition from 'air power' to 'aerospace' power.

Aerospace power represents the ability to project military force in the boundless third dimension, that is both air and space.

The boundless dimension of space in particular, and our ability to exploit its unique characteristics, is also no longer a fantasy; it is a reality.

Space has played a crucial role in the war against terror.

Technologies based on the Global Positioning System, integrated into targeting systems and guiding weapons launched from both manned and unmanned aircraft have further demonstrated the pervasiveness and precision of aerospace power in the international coalition environment.

These characteristics of aerospace power, along with other aspects such as flexibility, reach, speed and casualty minimisation, will form the basis of our thinking for the role of aerospace power in the future, as well as inform our deliberations on future aerospace capability acquisitions.

FUTURE AEROSPACE CAPABILITY

Allow me to now look to the future for a moment.

The Air Force's Order of Battle will be substantially renewed during the next two decades, and the Government has clearly stated the tasks it expects the RAAF to undertake in the White Paper.

The Government believes that Australia must have the ability to protect itself from attack, and control our air approaches, whilst maintaining an air-combat capability at least comparable to any in the region.

As I said, Air Force will also need to offer the potential to effectively contribute to regional and wider Coalition commitments.

However, planning is not constrained by thoughts of **replacement** of hardware, but rather is focussed on the **capability** we wish to deliver.

Whilst we must take on board changes in military needs and requirements as a result of recent events, we must ensure that we are not **reactive**, but that we are in fact **proactive**.

That we are not simply responding to world events and crises, but looking beyond, and well into the future.

That we are considering and analysing all options that we **may** require, not necessarily always focussing only on what it is that we **will** require.

This emphasis on a broad suite of capability, rather than capability to address specified threats, has been what has changed in recent years.

In air combat, we have embarked upon Project AIR 6000, the ADF's future strike and air control capability. We have time to make wise decisions in what will be Australia's largest ever Defence procurement.

The F/A-18 and F-111 forces are the mainstay of our current air combat and strike requirements. The Government is determined to ensure that these aircraft maintain a credible capability.

Boeing Australia has nearly completed Phase 1 of the upgrade to the fleet of 71 F/A-18 Hornets, and has recently commenced Phase 2.1.

These two phases of the upgrade, worth $1.5 billion, will bring the aircraft to a similar configuration and combat capability to the US Navy's later-model Hornets and will help them remain combat-effective until their projected retirement date of 2012-15.

We are similarly continuing to invest in the F-111s which, despite their age, offer a capability unmatched within this region.

The next 10 years will also see the introduction of capabilities not previously seen in the ADF.

The Wedgetail AEW&C aircraft will be a potent force multiplier, providing greatly enhanced situational awareness to all our forces, on land, sea and air.

Our new aerial refuelling aircraft will increase the persistence of surveillance and combat assets in theatre.

Further, the commitment through Global Hawk to better understand the ability of Uninhabited Aerial Vehicles to enhance maritime surveillance will usher Australia into a new era of operating sophisticated unmanned platforms.

Concurrently, Project AIR 7000 will investigate the capability requirements of systems to follow the tasks and roles conducted by the P-3C Orion aircraft.

The ADF is also extending its aerospace capabilities through the use of space-based capabilities.

Aircraft are being equipped with satellite navigation systems, thereby achieving increased mission accuracy.

As well, our weapons inventory will also make the leap into this realm, with satellite guidance enabling the degree of accuracy and reduction in collateral effect.

State of the art command, control, communications, computers, intelligence, surveillance and reconnaissance systems, wedded to force multipliers such as precision guided munitions will be what makes the difference in the future. Remembering also the need for interoperability as coalitions tend to become the norm rather than the exception.

THE AEROSPACE INDUSTRY IN AUSTRALIA — ITS ROLE INTO THE FUTURE

I mentioned previously that there will be substantial change in the ADF aerospace capabilities in the next two decades.

The Australian aerospace industry must play an important part in the provision of the necessary capabilities, as well as the overall provision of a broader range of options to Government.

Before addressing the aerospace industry, however, I would like to briefly mention the policy Government adopted last year in relation to defence industry.

In one sentence, we want to have a long term alliance relationship with fewer cost effective primes in a sustainable demand environment.

We also want to ensure that these primes, and the significant number of Subject Matter Experts that subcontract to them, provide for those Defence needs that are critical for the success of ADF operations at the same time as reducing in service support costs.

The aerospace sector plan currently under development will articulate the arrangements for these new projects and for existing capabilities at the prime contractor level, and first

indications are that Defence could have strategic alliances with a handful of prime contractors to support the range of aerospace weapons systems.

As I mentioned at the Pacific 2002 conference earlier this year the aerospace sector plan (and the broader policy) will benefit Defence by sustaining critical capabilities in industry, by reducing project risks and making savings through commonality and rationalisation of platforms.

It will benefit industry by allowing continuity of work, and a capacity to make long-term investment in infrastructure, skills, training and research and development.

We expect to go back to Cabinet on the details of the aerospace industry plan late this year.

CONCLUSION

The Federal Government, and the people of Australia, will continue to look to the RAAF to ensure that we continue to be a regional leader in the ability to project aerospace power.

The development and integration of new capabilities, in conjunction with a vibrant Australian aerospace industry, will provide Government with the options necessary for the defence of Australia and support of our friends.

To facilitate a vigorous and well informed debate on these issues—I have great pleasure in officially declaring 'Conflict, the State and Aerospace Power', the seventh air power and first aerospace conference, open.

National Power, States, Non-state Actors and the International System

William Arkin

Modern air power is barely in its adolescence. Less than a dozen years ago, we got the first inkling of what precision and agility could do: air power could actually leapfrog over fielded military forces and indeed strike at the enemy's core. The attacker was largely immune from the attacked. Precision was vindicated and stealth meant practical invisibility. Civilians were immune in a way they had never been in previous large-scale wars.

Since then, the world has experienced at least two more major modern air wars: in Yugoslavia and now Afghanistan. And it has seen the similar application of air power in lesser conflicts, in Iraq, Bosnia, by Israel in Lebanon and against the Palestinians.

Still, the orthodoxy is that magnificent armies with stunning manoeuvres won the Gulf War. Many remain convinced that air power alone could not achieve NATO's goals in Yugoslavia. The official line these days is that air power facilitated the success of a combined special operations and proxy ground war in Afghanistan. As General Franks said recently about Operation *Anaconda*, 'The sure way to do work against the enemy is to put people on the ground.'

In short, air power is just not ground power. Peoples and nations have been fighting wars— we don't even need to say ground wars—as long as people and nations have existed. To most people, 'real' war **is** ground war, so much so that we don't even use the term ground power. The 'field' commander is automatically assumed to be a ground officer.

So the World Trade Center and Pentagon tragedies occur, and President Bush calls in the chiefs of the services and tells them he needs immediate military options for dealing with Afghanistan.

The Chief of Staff of the Air Force snaps to attention and says, 'Sir, we'll have a master attack plan, an air tasking order, target folders, and seven binders of annotated imagery on your desk by close of business today.'

The Air Force does have the reputation of being the most efficient and technologically competent of the services.

The Chief of Staff of the Army snaps to attention. They don't have the reputation of being the smartest of the services. 'Where's Afghanistan?' he asks.

Then the President looks at the Chief of Naval Operations. The Navy, you know, has the reputation for being the most independent and obstreperous of the services. The Chief of Naval Operations thinks for a minute, and finally says: 'No.'

As you well know, each service has a culture, and air forces in particular have a reputation.

Contrary to what most people think, nevertheless, air power is neither victim of, nor is it condemned by, its own history. There is no empirical evidence that prior to World War II, the Air Corps leaned too heavily on strategic bombing at the cost of not supporting ground commanders. The facts seem to indicate that strategic bombing, once undertaken, had unique effects inside target countries, whether Germany, Japan, Vietnam, or Iraq. The notion that bombing merely stiffens civilian morale doesn't stand up to scrutiny. Civilian casualties from ground wars, or blockades and embargoes, dwarf those from aerial bombing, whether calculated throughout the twentieth century or in the past dozen years. With the exception of a couple of outstanding and vocal air power advocates, airmen have never really contended that they could win wars all alone.

Air power may still be a 'spoiled brat,' but the evidence and arguments used against it are very thin.

You may have heard the wisecrack: the difference between an F-16 and a fighter pilot is that when you turn off the engine of an F-16, it stops whining.

So now that I've softened you up a bit, let me make my personal position clear. We misunderstand air power at our peril. If we misapply it, it will have profound effects for our society, for our security, and the future.

The danger is that in not understanding air power, both supporters and detractors will lead us down the path to failed military and political campaigns that consequently will result in a less just and less peaceful world. This will happen because both supporters and detractors will continue in their ignorant belief that air power is arrogant and impervious to change, that it has failed and is in constant search of a 'Douhetian' model emphasising strategic bombing and waging war on innocent civilians.

For air power supporters, the struggle means the constant search for a Holy Grail of strategic effects that in essence ignore the fundamental principle of 'distinction' between civilians and militaries. In other words, feeding the belief of some that it is psychological factors and non-destructive means that win wars.

For detractors, a misunderstanding of air power means believing that ancient 'Douhetian' principles govern the application of air power. This means ignoring the truth that increased casualties—friendly, enemy, and civilian—obviously result when ground forces are introduced. It means believing that some medieval principle of chivalry and fairness should still govern the use of force.

The very definition of air power, aerospace power, air and space power, whatever you want to call it, is modernity. In comparison with three millennia of constant human warfare, aircraft are barely celebrating their centennial. Everything military about the information age and 'transformation' and twenty-first century warfare is about air power. Mind you, I'm not just referring to specific aeroplanes or weapons. Air power is a way of thinking: it is about distances and speed and effects not constrained by geography or time or physical confrontation.

So what's wrong with modern air power?

First, all of the most interesting pieces of evidence about air power's dominance and decisiveness are in complete dispute. Though modern air power defeated the Iraqi army

before the front lines were ever crossed by coalition armoured and mechanised divisions in 1991, close air support of ground forces continued to be problematic and irritating. Bombs weren't perfect. Aircraft didn't destroy as many tanks or armoured vehicles as enthusiasts claimed. Scud missiles, and nuclear, biological and chemical weapons weren't found. Saddam Hussein wasn't toppled. Intelligence lagged behind air power technologies. Most fixed targeting was boilerplate and unimaginative. The parallel effects of air power remain just a theory. Iraq wasn't defeated because of a five-ringed model or from the inside out. Coercion is unproven.

Yet something profound happened. Nothing really went as predicted by most who were doing the predicting: the costs to the American public weren't bank breaking, the environment survived, chemical and biological weapons weren't used, no terrorist attacks occurred, Israel was not dragged in, there were not tens of thousands of coalition body bags. Those who stated that the value of air power was exaggerated and that the war would drag on Vietnam style were proven wrong. High-tech weapons worked, and the US military performed brilliantly. Air power won in a magical display. But neither strategic attack against the Iraqi leadership nor defeat of the Iraqi army can solely claim victory.

And if there is any method to madness, despite the US military's performance, Saddam Hussein won by losing. He could say to himself and to the Arab world that he survived the best that the entire world could throw at him. We may have followed a brilliant choreography, accumulating impressive statistics, flying invisible aeroplanes, but we completely failed to understand our opponent. There was, and is, some fiendish prestige in defeat by a form of warfare portrayed as distant and inhumane.

Yours is a society that cannot accept ten thousand casualties, Saddam bragged before the Gulf War, bating the US to fight his version of some ancient grotesque battle.

I hope we are such a society. Somehow I know we are.

As the Bush administration prepares for another war with Iraq, I'll go way out on a line and say that Iraq still likes America. The typical Iraqi male who served in Saddam's Army during *Desert Storm* has a deep respect bordering on awe for the US military. They've seen what American technology, training, and teamwork produced. The Gulf War is probably as close as we will ever come to a full-scale war that is at the same time filled with humanity. Iraqi soldiers were killed and injured by the thousands to be sure, but the way in which military force was used, for all of the mistakes, the miscues, and the criticisms, probably paved the way for restoration of peaceful relations.

Contrast the Iraq experience with the attitude of those who served in the Yugoslav military during Operation *Allied Force* in 1999. When I was in Yugoslavia in August 1999 after the war, it struck me that the conscripts and officers and ministers had nothing but contempt and deep-seated hatred for America. This feeling emanated not only from a sense of historic Serbian victimisation, but also because of a belief that NATO and the US did not do what was courageous and engage the Yugoslav military on an honourable field of battle. Obviously, there is dementia in the fantasy that the Yugoslav Army could have emerged victorious. Yet I can't help but think that air power provokes these kinds of emotions, even if it is not intentional. And the hesitant and perhaps even incompetent use of force breeds future antagonisms.

The Yugoslav war was the most politically constrained operation of the past dozen years. But perhaps for the sake of our humanity we should ask whether contrary to the view of many political decision-makers, some warfighters, and most critics, taking greater risks in Yugoslavia—hitting harder—might not only have shortened the length of the war, but at the same time, it likely would have opened up the Yugoslav civilian population to no greater dangers.

For air power theorists and practitioners, here is my vision of the future. Some future American President is grappling with the best way to use force in some looming conflict. The Air Force Chief of Staff requests a meeting with the President to make the best case for air power. Sir, he says, please don't constrain air power, don't gradually escalate, don't place too many constraints on targeting, or hesitate because of fear of civilian casualties. The Gulf War model, not Yugoslavia, is the best application of air power.

And the President thinks for a moment, and says: Well, General, Slobodan Milosevic is at The Hague and Saddam Hussein is still in power. How do you explain that?

There are, of course, a million explanations.

After Operation *Allied Force*, competing post-war arguments have also been made about what NATO actions 'won' the war and why Milosevic decided to surrender when he did. Was it strikes in Kosovo or the 'threat' of a ground war? Did attacks on civilian morale targets such as electricity and news media, or so-called 'crony' attacks on Milosevic and his internal Mafia win?

What we know is that Milosevic, like Saddam, had his own skin uppermost in mind. When he failed to disrupt NATO's war, when civilian casualties didn't bewilder Europe into submission, when the Russians and then the Chinese didn't save him, he was finished.

Both in Iraq and Yugoslavia, and now in Afghanistan, what was bombed and when is central to the development of future strategies. Promiscuous claims can only have the effect of sowing confusion about air power and its place. Promiscuity shields air warriors from the need to develop finer targeting doctrines, from making choices, from in essence growing up.

In the absence of proof, the air power clergy makes extravagant claims that 1991 or 1999 somehow proved current air power theory and doctrine, or at least their theory, that air power is now dominant, or that it is an independent form of warfare, that it can be modelled, that the effects can be predicted, that physical destruction and occupation and attrition are somehow blasé, that warfare has changed.

This is the same dynamic that is at play when air power adherents blame everyone else when things don't go the way they want. It's easier to lament an ignorant citizenry and a craven civilian leadership or a money driven liberal media or even the Army for standing in the way of some idealised perfect smart war. It's easier to do that than to look inward and ask what it is about air power itself that demands an ever greater degree of openness and creativity so that a completely new image of warfare can be created.

When I was in Yugoslavia in 1999, the strange quality of today's post-modern and highly discriminate wars was very apparent: Two hundred and twenty-eight thousand air-delivered weapons were expended in Iraq; about one tenth that number were used in Yugoslavia. Now, every bomb and missile can be audited. Because of precision, evaluation can be fine art,

specific intended targets are separable and obvious, even individual civilian injuries can be inspected, and broken windows are noteworthy.

In some ways, it is a terrible burden for a mode of warfare that has demonstrated the potential to be so less destructive and deadly than its ground counterpart. And yet, the targeting demand on precision weaponry and warfare is that every weapon counts, targets have to be meticulously chosen, the choreography and pace of a conflict is essential.

In the absence of rigorous analysis of targeting and effects, of what made the largest contribution, of what the enemy thought and why, everyone by default becomes an air power expert. This is especially the case if 'effects-based' and information warfare proponents argue that it is psychological strategies—information strategies—that are the most likely to achieve war aims at the least cost in terms of lives and destruction.

If it's a debate over psychology, over what is the best target to 'convince' Milosevic or Saddam, then of course, everyone has an opinion.

So what is Afghanistan, this war in the shadows? When I look at the seven-month old operation, I ask myself whether decisions made in the formulation of the initial war plan contained miscues that ultimately let much of the Taliban leadership and Osama bin Laden get away. The Taliban were overrated and Al Qaeda underrated. With new intelligence sources, weapons, and many innovations, air power was used to great effect in attacking an army in the field, but the application of air power was uninspired. Strategic attack was suppressed, and an air power strategy to close off the exits of the country was never developed. We could argue about all of these things, but the essence seems to be a presumption on the part of air power's sceptics who favoured and believed that only ground forces and covert operations could win.

We should be very careful of the implications of this type of warfare that we can not see. For we live in a society where images—the World Trade Center, Osama bin Laden videos, real and imagined destruction and carnage—dominates everything. Just look at the impact of gun camera videotapes from the Gulf War. When first seen, the very quality of the tapes, black and white and grainy, gave them a quality that contrasted with, and seemed more real than, over-produced professional television.

But the gun camera tapes also spawned disparaging labels like 'Nintendo' or video war by those who did not believe what they were seeing. To some, the selection of tapes that always suggested successful strikes was a deception that masked carpet bombing and World War II like fire storms and atrocious casualties that were being hidden from view. After all, that was still the dominant image of air power.

Naturally, a debate soon enough begins in every air war over death being waged behind the scenes, about civilian collateral damage and hidden mistakes. In other words, there is a struggle between two diametrically opposed images of war, pre-air war and post-air war. This is a debate that began long before people started to bellyache about any politically driven casualty aversion on the part of the Clinton administration.

My absolute favourite story about the Gulf War is a story about two young Marine sergeants given the task on the second day of the ground war to drive a flat bed tractor trailer loaded with 200 captured Iraqis from Kuwait back to the prisoner holding area in Saudi Arabia. Just the two of them, driver and security guard, with 200 of the 'enemy.'

It's a long drive, and when they get to the collection point, off in the distance, one of the sergeants sees a general officer, and he runs up to him and says, 'Sir, could you come here, please, I want you to see something.'

And the General responds, 'you know soldier, I have seen things all day.'

But the Marine sergeant insists, 'no, you have to see this.'

So the General comes around the side of the truck, and there are 200 frightened bedraggled faces peering down at him. And the sergeant looks up at the truck and sings, 'Old McDonald had a farm ...'

And they all respond, every single one of them, 'E-I-E-I-O.'

What can you say about a war that ends with 90,000 prisoners? A war in which there is so little animosity between combatants? What can you say except thank God that through our technology and our overwhelming force we are slowly finding humanity even in the most inhumane of enterprises?

In February 1991, a terrible fight was anticipated against a capable foe. Because the damage done by air power was never fully appreciated by military and political decision-makers, expectations of what might happen at the end were never revised. Clearly Generals Schwarzkopf and Powell themselves saw the results in very old-fashioned images of carnage, and here's how they justified the decision to stop the fighting.

'We had closed the back door. The bridges across the Tigris and Euphrates were out ... It was literally about to become the Battle of Cannae, a battle of annihilation,' Schwarzkopf said.

'We had achieved our military mission, we had achieved the political objective we had been assigned,' Powell agreed. 'It was time to stop the killing ...'

Earlier this year, I visited yet another war zone. In the Darul-amin neighbourhood of southern Kabul, there is one of those extraordinary sights that Schwarzkopf and Powell and Franks, make that anyone who makes decisions about the use of force, needs to see. For three miles along the old boulevard going out to the old palace created in the 1920's, there is not a building left standing. The old Soviet Embassy, ministry buildings, cultural centre, national assembly, homes, factories, schools, are all broken and pockmarked from blast and shrapnel.

Here is where the Soviets fought and lost the capitol, where the communists were defeated, where the Taliban marched to power, where the Northern Alliance attempted to topple them. Here are the effects of ground warfare: not a home is undamaged, there are hardly any trees left.

What is the equivalent for modern air power? When the Amiriyah shelter was bombed in Baghdad in February 1991, 400 civilians were killed in the mistake. Yet few seemed to see the lesson behind the incident. If air power with modern precision weapons wants to kill civilians, here is what just two bombs can do. Four weeks into an intense air war 400 civilians were killed in a single incident, as many Iraqi civilians as had been killed in the previous month of bombing. And this is and was the exception rather than the norm. Yet there is

something about the invisibility of air power, and the distorted view during its coming of age, that leaves us with other images.

I said at the beginning that modern air power allows civilians to be more immune than they have ever been in previous large-scale wars. But modern air power, and frankly, modern societies, also makes civilians potentially more vulnerable.

What we indeed witnessed in 1991 was how rapidly modern militaries can inflict great damage. Environmental calamity on a global scale never occurred, but destruction was unprecedented in its efficiency, especially for a conflict that only lasted forty-three days. Iraqi damage inflicted in Kuwait was wanton and indiscriminate. The worst coalition damage, on the other hand, occurred not because of indiscriminate attacks or intent to inflict physical harm, but mostly because of unanticipated effects due to the increased accuracy of weapons and the interconnectedness of society. The effects of precision bombing reverberated through a surprisingly modern Iraqi system. The objects that were and are traditionally military targets, such as electrical power, telecommunications, transportation, or in the case of Iraq, oil, turned out also to be the essentials of modern life, particularly urban life.

During and since *Desert Storm*, air wars have largely spared civilians from the effects of bombing. Yet in Iraq we got our first taste of the other side of living in a networked and modern society. The focus of attacks on electrical power efficiently disabled life support systems with unintended effects on the very non-combatants who were specifically not the object of attack. By taking away electricity, we also removed the essential of modern life: water distribution and purification, sewage treatment, air conditioning, and heating. Civilian harm was ironically compounded by the very fact that civilians were otherwise spared the direct effects of bombing in a highly discriminate campaign.

For whatever criticisms I make of strategy and targeting and operational lessons learned, there is no question as a result of what I have seen on the ground in Iraq, Yugoslavia, and Afghanistan that modern air wars are fought with the utmost concern for civilian casualties and damage. A greater percentage of smart weapons are being used in each subsequent conflict. Targeting is more and more scrutinised and 'micro-managed' at every level. Enormous efforts are made in weaponeering and targeting, largely successful, to avoid short- and long-term civilian effects. In Afghanistan, no attacks on infrastructure such as electrical power or bridges were even allowed.

When mistakes or complaints do occur these days, changes are rapidly implemented, and many unpublicised restrictions are levied. Altogether, the accumulation constitutes a rich fabric of operational history, one that cries out for greater airing. These include informal rules about when to bomb things and where not to use certain weapons. Here, non-American aesthetics, about new warfare health 'syndromes,' about controversial weapons such as cluster bombs or depleted uranium, make a huge difference. In Yugoslavia, some decry the fact that the French and other allies opposed the dominant targeting dogma. I applaud it.

Somewhere in the middle are a lot of people—including politicians and civilian leaders—who don't quite know if there is a truth. They are buffeted by embedded historic and Hollywood images of war, by inter-service rivalries, by their own government propaganda, by pundits who don't know what they are talking about, by special interests. Once again in Afghanistan, US air warriors were thwarted in fighting their perfect war because of parents who took away the car keys and grounded them. Those parents still don't get the magic.

I said at the beginning that modern air power is in its adolescence. As a result, it suffers all of the attributes of youth: petulance, poor self-image, a sense of both omnipotence and inferiority.

Because we are still learning, there are some important questions to be asked about the meaning of air warfare life.

First and foremost, what happens when bombs hit their targets? Do we really know? In modern air warfare, American style, the effects are no longer—are hardly ever—firestorms and rubble. Most targets are parts of networks, and meaningful effects are measured not only in terms of physical destruction, but also in terms of systemic (or functional) impact. This is at least the theory. Where air warfare theorists fail is in their claim that they understand these effects or can predict the impact attacks will have on enemy militaries and decision-makers.

Second, why do civilians die? The Gulf War represented the maturation of so-called smart war, and was on the cusp of the Cold War and pre-Cold War aesthetic of total destruction. Smart weaponry and overwhelming conventional force fed into a new aesthetic, the human rights aesthetic, where people like myself could for the first time measure the effect on the civilian population. This was for the simple reason that for the first time war could be fought amongst the civilian population while sparing them many of the physically destructive products. If bombing was not so accurate, there would be no argument about this or that target decision or weapons selection, for the overall damage would be so great as to obscure the details.

Secretary of Defense Donald Rumsfeld can claim that Operation *Enduring Freedom* is the least bloody conflict in history, but how does he know? How many civilians died, and how does that compare with Yugoslavia or Iraq? Have we indeed done the best we can? The US government and military makes no systematic study of the question, even as it becomes the central feature of every inherently less destructive war.

Which brings me to the third question. Is there any shame in the lopsided military victories that the US has achieved when it has employed air power in the last twelve years? This is not an argument that we need to place ourselves in a position to die in the name of chivalry. It is, however, a recognition that our use of a remote instrument, our magnificent ability to largely remain above the battlefield and the enemy, our tendency to fall back upon secrecy because of increasingly exotic intelligence sources and targeting strategies, all feeds a distrust and contempt in our adversaries and potential adversaries. The next generation of terrorist is being spawned today because of some of these factors. Asymmetric strikes are spawned at Khobar Tower and USS Cole and World Trade Center because of the very fact that no military can hope to successfully confront us on the battlefield, not at least in the air.

This is another special burden for air power, one that challenges our humanity. If we doggedly claim that we 'won,' that we always win, without seeing the political and spiritual damage done by the very mode of warfare we engage in, if we merely content ourselves with the limited war aims we constantly seek, then we are merely creating a world of permanent confrontation.

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DISCUSSION

Air Commodore Norm Ashworth (Ret'd): Mr Arkin, I think a theme running through your very excellent presentation was the fact that war is a political act. It always has been a political act and will always be a political act in the future. I think one of the mistakes that military thinkers often make is that they fail to realise that the ultimate aim that they are working towards is a political aim, not a military one.

William Arkin: And the ultimate failure of the military is to recognise that because war is changing so rapidly that they need to spend a lot more time and energy educating civilian decision-makers so that they understand the very instruments that they will use.

Air Marshal Ray Funnell (Ret'd): On that same point, and I think this was writ large in the war in Kosovo is how do you educate our political leaders and the staff with which they surround themselves into the application and effective application of military power? In general there is nothing in their background to prepare them for this and yet at very short notice, as recently with your own president, thrust into a position of having to use it and having to use it wisely. So we can say this should occur, but how can we make it occur?

William Arkin: I think the answer is twofold; one, I wouldn't want you to misunderstand anything I said today as to not indicate that most of the heavy lifting falls to the military itself. So that you cannot merely blame civilians who do not have military experience or competence. So I think that part of the answer is that the military itself needs to understand its own mode of warfare. There is so much interservice rivalry, and there is so much competition for budgets, and there is so much theoretical unresolved business, and there is even just the empirical reconstruction of what happened in the last dozen years that stands in the way of there being a unified voice on the part of militaries to make people understand what is actually going on in military affairs. On the other side of the coin I would like to just stress that this is not a partisan political issue. My observation from Washington would be that despite the fact that 'adults are in the White House' they are as pigheaded about their own theories of how warfare should be employed as was the last administration, and they have made as many miscues as have the last administration. They have been as hesitant in the use of force, they have been as likely not to employ power because of coalition concerns or because of political concerns or because of domestic concerns as have the last guys. So these seem to be immutable elements of the use of force in our modern society.

So what can the military do? Well, it can't make politicians not be politicians and it can't ever hope to fight wars without political direction. Get over it. That's what all wars are, as you said, sir. But they can, I think, do a better job of recognising where we are in warfare and educate each other and create a greater consensus within the military as to what is needed. I think we've seen in Operation *Enduring Freedom*, in particular, a tremendous amount of inter-mural anger and frustration between the air force and the army, between different factions within the US military, over the strategy, and that should go away. If we indeed are in an era of joint warfare then therefore it has to be joint. But the reality is we're really not in practice and we haven't gotten there in our professional military education system, we haven't gotten there in our doctrine, we haven't gotten there in our overall practices. Hell, we do not even in the US right now have a joint Department of Defense lessons learned project underway for the war in Afghanistan. That should tell you a lot.

Flight Lieutenant Reece Lumsdon: I'm with the architecture's office under the Chief Information Officer. The use of air power seems to imply that the force with the air power is fighting against a defined tangible enemy. What happens when you have a non-state actor that doesn't identify itself as a defined tangible enemy, exists in a distributed fashion, doesn't have any tangible infrastructure, doesn't own any tangible assets? Wouldn't this be a case where air power ceases to become relevant? I suggest that, in fact, future war or future warfare and future adversaries are obviously not going to attack the US in a conventional manner. How do you see air power being relevant in these type of conflicts?

William Arkin: Well, again I would stress that air power is not about aeroplanes. It's about a way of thinking. So in some ways the elements of the model of how the military was employed in Afghanistan to me represents air power, which is to say that it represents information warfare, an agility and speed and less limitation by virtue of distances and time than would traditional ground power. In Operation *Anaconda*, as an example, to deploy 2500 ground troops into the mountains took approximately three weeks to go after an enemy that was itself estimated to be in the two hundreds. Well, to me that's one form of warfare and it's a form that you can choose and it may even be a form that is necessary under some circumstances. But to define every conflict as a conventional war and then to employ a conventional power is a mistake. Some conflicts are just not.

I said in my talk that it would be interesting to ask the question, a question that no-one dares ask, was there a mistake made in October that leads us to where we are in May? Was a mistake made in terms of thinking through the question of what was the best way to defeat Taliban and Al-Qaeda then, so that we find ourselves now with these huge areas of Afghanistan which are not under coalition control and in which the enemy has managed to escape? If you would have assumed, if you could have fast-forwarded to where you are in May, would there have been a different air power strategy and theory that would have been the result? My answer is absolutely yes. So I think that one of the problems in looking at Afghanistan is the very first night of the war, 7 October, when Secretary of Defense Rumsfeld stood up at a podium and said, 'There are no conventional targets here. This is not a conventional war'. Well, Rumsfeld does not know of what he speaks. I have been to Afghanistan and there are dozens of barracks, depots, air defence sites, airfields, terrorist training camps, cave complexes, etc., that are all perfectly suited for the application of air power. But why did Rumsfeld say what he said? He said what he said because the notion was in his head that this was a war that was going to be won by ground forces and was going to be won by covert and CIA and special operations forces—ergo the air force was less important. He had that prejudice already sitting in his head. It's an important prejudice to understand because this is the way real decisions are made.

I once had an opportunity to interview President Carter on the 10th anniversary of the Desert One operation, the failed rescue attempt of the Americans being held inside the Iranian Embassy. I said to President Carter, 'Why did you approve that operation?' He thought for a minute and he said, 'It was a really good briefing'. I think that that's a very prophetic statement because I believe that sometime between 11 September and 7 October the CIA and Taskforce Sword, the JSOC command, trotted out a very impressive briefing; 'We are going to get these guys. Just keep air power out of our way.' And that is why air power was not allowed to strike at leadership targets and that is why air power was not allowed to hit infrastructure and that is why the cave complexes in eastern Afghanistan were not hit, because of a very good briefing.

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Yet where's the after action report and the searing analysis as to whether or not the claims of the special operators and the covert operators was true? We don't have that analysis and we'll never have that analysis. We will never know whether or not the crony targeting campaign in Yugoslavia was or was not a success. We will never know whether or not the leadership aerial assassination campaign in the Gulf War was or was not a success because these wars don't exist. They're black wars. They're covert wars. So we go through a process in our professional military education and in our doctrine-making, and in our weapons selection, and in our political education and in our military in which we have two parallel wars that are going on at the same time and we don't understand them very well.

So my answer to your question is a good briefing may be as valuable as a good aeroplane, or a good weapon, or a sound military strategy, but I'm waiting for the day when a Chief of Staff of an air force actually stands up with a better briefing and says, 'My plan B is better than your plan A'. It didn't happen in Yugoslavia, it didn't happen in Afghanistan and we'll see whether it does happen in *Desert Storm II*. But that's an incredibly important part of our understanding the military and I'll turn over the podium for all those good briefings to come. Thank you.

REFOCUSSING CONCEPTS OF SECURITY

IAN WING

INTRODUCTION

Chief of Air Force, distinguished guests, ladies and gentlemen. It is a great honour to have been invited to address you today on the implications of the changing meaning of security.

The greatest duty of a responsible government is the provision of security to its citizens. As the most fundamental element of a national defence and security strategy, defence against armed attack has historically dominated all other considerations. Despite this tradition, the intellectual framework of national security is changing in many countries. This paper demonstrates that our understanding of security is reflected in defence policy and missions—and they are interdependent and undergoing change.

This paper addresses these issues in four sections:

• The first section describes the traditional meaning of security, which I refer to as 'old security thinking'.

• The second section shows how this understanding is being refocussed by theories, which I refer to as 'new security thinking'.

• In the third section, I survey changes in the security policies and activities of a range of western democracies.

• The fourth section deals with Australian defence, which I refer to as 'refocussed national security'.

Before I commence the analysis, a word on the importance of theory—a frequently underestimated analytical tool. Military analyst Steven Metz notes that abstract ideas 'may seem alien' to official decision-makers who may choose to rely purely on pragmatism.[1] Yet, influential political analyst, Joseph Nye, contends that theory is an essential part of policy-making:

> *Theory ties facts together. It helps the policy-maker to understand and predict. Even the most pragmatic policy-makers fall back on some theoretical constructs because neither all the facts nor their relationships are ever known.*[2]

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[1]   Metz, S., 'The Army and the Future of the International System', *Parameters*, Summer 1994, p. 85
[2]   Nye, J., 'The Contribution of Strategic Studies: Future Challenges', *The Changing Strategic Landscape*, Part 1, Adelphi Paper 235, International Institute for Strategic Studies, London, Spring 1989, pp. 32-33.

OLD SECURITY THINKING

Central to the analysis presented in this paper is the concept of **security**. Security is an ambiguous term, defying a universal definition. It has become, to use W.B. Gallie's term, an 'essentially contested concept'.[3] Literal definitions of security describe it as a state of mind free from threats, danger, risk, care, apprehension and doubt.[4]

Despite this broad literal definition, the traditional academic and policy-making perspective on security narrows it to 'national security'. Writing in 1943, Walter Lippmann asserted that: 'A nation has security when it does not have to sacrifice its legitimate interests to avoid war and is able, if challenged, to maintain them by war.'[5] According to this narrow interpretation of security, defending a state against armed invasion by other states is paramount and other activities are little more than incidental. This approach has a lengthy heritage. Nation states have provided the building block of international affairs since the 1648 Treaty of Westphalia recognised their pre-eminent position. The state is thus the *'**referent***', for which security is sought, within old security thinking.[6] Such thinking has sought to understand security within two major streams of international relations theory—'realism' and 'idealism'.

'Realism' emphasises the importance of power, taking a pessimistic view of human nature by following Thucydides' logic of the fifth century BC: 'the strong do what they have the power to do and the weak accept what they have to accept.'[7]

In a similar vein, sixteenth century Italian political strategist Niccolo Machiavelli argued that the humans are fundamentally selfish unless kept in check by other forces.[8] For this reason, he advised that: 'it is much safer to be feared than loved'.[9] Writing in the seventeenth century, English philosopher Thomas Hobbes took a particularly pessimistic view of the potentially violent effect of the fundamental self-interest within human nature: 'a warre of every man against every man'.[10] These classical realists desired strong governments to ensure domestic order, but they believed the international system should be uncontrolled—allowing states to wage war to suit national interests.

This approach led to World War I, calling realism into question. When he declared war on Germany in 1917, President Woodrow Wilson announced that:

> *...the same standards of conduct and of responsibility for wrong done shall be observed among nations ... that are observed among the individual citizens of civilised states.*[11]

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[3] Gallie, W.B., 'Essentially Contested Concepts', *Proceeding of the Aristotelian Society*, Vol. 56, 1955-56, p. 167.

[4] *The Macquarie Dictionary: The National Dictionary*, The Macquarie Library, Sydney, 1995, p. 1587. *The Oxford English Dictionary*, 2nd Edition, Clarendon Press, Oxford, 1987, Vol. XIV, pp. 853-54.

[5] Lippmann, W., *US Foreign Policy*, Hamish Hamilton, London, 1943, p. 32.

[6] The term 'referent' or 'referent object' has gained currency since its use by Barry Buzan in his work; *People, States and Fear: An Agenda for International Security Studies in the Post-Cold War Era*, Second Edition (first published 1982), Harvester Wheatsheaf, London, 1991.

[7] Thucydides, (translated by Warner, R.), 'The Melian Dialogue', *History of the Peloponnesian War*, Penguin Books, Ringwood, Victoria, 1972, Book Five, paragraphs 89-90, pp. 401-2.

[8] Machiavelli, N., *The Prince and the Discourses*, The Modern Library, New York, 1950 .

[9] *Ibid*, (*The Prince*, Chapter XVII) p. 61.

[10] Hobbes, T., *Leviathan*, Part I, Chapter XIII, J.M. Dent & Sons, London, 1959, p. 64.

[11] Wilson, W., 'Special Message to Congress for Declaration of War Against Germany April 2, 1917', Vexler, R. (Ed.), *Woodrow Wilson 1856-1924*, Oceana Publications, Inc., New York, 1969, p. 78.

This second school of thinking became known as 'idealism' and it dominated security thinking between the world wars. The idealists believed that progress could be made in making the world a more peaceful place and that democracy and law could replace authoritarianism and tyranny.[12] Although states were the only recognised actors in this international system, morality and legality were the primary referents leading to the Covenant of the League of Nations.[13] Yet idealism was to prove a disappointment because it failed to prevent World War II.

As a result, realism regained its place as the most widely-accepted approach to the understanding of international relations. E.H. Carr wrote that: 'The supreme importance of the military instrument lies in the fact that the *ultima ratio* of power in international relations is war.'[14]

The UN Charter contained the possibility of compromise between the poles of idealism and realism. Its underlying philosophy is idealist, recommending collective security to uphold international law, but its emphasis on states and the dominant role of the Security Council are realist.[15]

Realism and idealism have sought to explain the operation of the international system and how it provides security. While realists consider 'what is', idealists look for 'what should be'—both ultimately reaching an unsatisfactory conclusion. Old security thinking fails to pay sufficient attention to individuals, groups other than states and the environment—and it over-emphasises war by failing to pay sufficient attention to other threats to security.

The next section of my paper will demonstrate how the refocussing of security changes and increases perceived threats. This refocussing has gained momentum over the last twelve years.

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[12]   For the origin of the term idealism see Bull, H., 'The Growth of a Discipline', Porter, B. (Ed*.), The Aberystwyth Papers: International Politics 1919-1969*, Oxford University Press, London, 1972, p. 34.

[13]   The preamble to the covenant expressed revulsion for warfare and sought to guarantee security through international law:

The High Contracting parties,

In order to promote international cooperation and to achieve international peace and security -

by the acceptance of obligations not to resort to war,

by the prescription of open, just and honourable relations between nations,

by the firm establishment of the understandings of international law as the actual rule of conduct among Governments, and

by the maintenance of justice and a scrupulous respect for all treaty obligations in the dealings of organised peoples with one another,

Agree to this Covenant of the League of Nations.

'The Covenant of the League of Nations', Butler, G.C., *A Handbook to the League of Nations*, 2nd Edition, Longmans, Green and Co., London, 1925, pp. 150-65.

[14]   Carr, E.H., *The Twenty Years' Crisis, 1919-1939*, St Martin's Press, Second Edition (first published 1939), New York, 1966, p. 109.

[15]   Simma, B. (Ed.), *The Charter of the United Nations: A Commentary*, Oxford University Press, Oxford, 1995, pp. xix-xxxviii; Article 1, Chapter 1, p. xix.

NEW SECURITY THINKING

The end of the Cold War in 1990 marked the closure of a period of relative global peace that had lasted since 1945, described by John Lewis Gaddis as 'the long peace'.[16] Cold War security thinking was realist, being primarily concerned with national security, and exemplifying the zero-sum operation of realism. The end of the Cold War in 1990 saw a reordering of the strategic environment as the US became the pre-eminent world power, described by Charles Krauthammer as 'the unipolar moment'.[17]

With the end of the Cold War, the advanced countries reduced the size of their military forces, re-orienting for low to mid-level conflict rather than major war.[18] Large conventional and nuclear forces could not respond to the emerging range of security challenges—information warfare, asymmetric threats, terrorism and weapons of mass destruction. Instead, elite special forces offered greater versatility for a variety of specialist missions. Meanwhile, developments in technology led to uninhabited aerial vehicles and cruise missiles, which offered the opportunity to wield force with lower levels of risk.

The end of the Cold War was thus a turning point in international relations and they became subject to forces that did not fit within previous theories. Four 'mega-trends' began to shape the world—democratisation, nationalism, regionalisation and globalisation.[19] Of these, globalisation is the most important. It involves the 'supra-territorial' dimension of social relations and geography, and it has a corrosive effect on states.[20] It causes states to lose control of national culture, currency, information systems, the environment, health, crime, drugs and migration. Non-state actors such as transnational corporations, financial organisations and media empires now make decisions that affect the world's affairs.[21]

Samuel Huntington points to other forces that might supersede the state: supra-state cultural groupings he calls 'civilisations'.[22] The 'fault-lines' between these groupings cause conflict and the resulting 'fault-line wars' are 'violent and ugly'.[23] Martin van Creveld's analysis of trends in contemporary warfare finds that it has undergone a 'transformation' towards sub-national factions fighting for ethnic and religious causes.[24]

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[16]   Gaddis, J.L., 'The Long Peace: Elements of Stability in the Postwar International System', *International Security*, Vol.10, No.4, Spring 1986, pp. 99-142. Gaddis, J.L., *The Long Peace*, Oxford University Press, Oxford, 1987.

[17]   Krauthammer, C., 'The Unipolar Moment', *Foreign Affairs*, 70, No.1, Winter, 1990/91, pp. 23-33.

[18]   For example, between 1990 and 1998, the UK made significant reductions: spending down by 23 per cent; armed forces personnel numbers down by 32 per cent; conventional submarines reduced by 59 per cent; tanks reduced by 45 per cent; aircraft reduced by 30 per cent; destroyers and frigates reduced by 27 per cent; and infantry reduced by 27 per cent. 'Future Military Capabilities', *The Strategic Defence Review: Supporting Essays*, The Stationery Office, London, July 1998, p. 6-1.

[19]   Symonides, J. and Volodin, V., 'Concept and New Dimensions of Security: Introductory Remarks', *Non-Military Aspects of Military Security: Peace and Conflict Issues*, UNESCO Publishing, Paris, 1995, pp. 12-14.

[20]   Sholte, J.A., 'Beyond the Buzzword: Towards a Critical Theory of Globalization', Kofman, E. and Youngs, G. (Eds), *Globalization: Theory and Practice*, Pinter, London, 1996, p. 46.

[21]   Armstrong, D., 'Globalisation and the Social State'*, Review of International Studies*, Vol.24, No.4, 1998, pp. 462-3. For an historical examination of the retreat of the state see van Creveld, M., *The Rise and Decline of the State*, Cambridge University Press, Cambridge, 1999.

[22]   Huntington, S.P., *The Clash of Civilizations and the Remaking of World Order*, Simon and Schuster, New York, 1996, pp. 26-7, pp. 45-8.

[23]   *Ibid*, pp. 252-4.

[24]   van Creveld, M., *The Transformation of War*, The Free Press, Sydney, 1991.

At this point it is relevant to briefly consider work from the field of psychology. Abraham Maslow's 'hierarchy of needs' demonstrated that basic human needs make up the fundamental levels of the hierarchy and that when these needs are satisfied, higher needs emerge, ultimately leading to the highest human goal of 'self-actualisation'.[25] Forces that reduce individual well-being are important in understanding security, and states do not necessarily provide individual security.

A prominent example of new security thinking was Barry Buzan's proposal that the concept of security 'broaden' to bridge the gap between the realist and idealist schools. He argued that security policies should work on four levels: individual, state, regional and international, and that the threats to security fall into five broad sectors: military, political, societal, economic and ecological.[26]

I contend that the narrow interpretation of security, found in old security thinking, is being refocussed by new concepts of security, comprising two broad groups:

• The first group involves broadened **threats** to national security, not necessarily military in nature, and may include non-state actors involved in criminal activity such as terrorism.

• The second group utilises different **referents** for security—other than the traditional referent of states.

New security thinking on the security of states is reflected in a range of approaches:

• First, 'common security' which is a non-adversarial approach first proposed by the 1982 Palme Commission's report on disarmament.[27] This required a new strategic approach known as 'non-offensive defence' (NOD) emphasising defensive capabilities and confidence-building measures.[28]

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[25]   Kimble, G.A., Garmezy, N. and Zigler, E., *Principles of Psychology*, 6th Edition, John Wiley & Sons, New York, 1984, pp. 292-4. Maslow, A.H*., Motivation and Personality*, 2nd Edition, Harper & Row, New York, 1970 (first published 1954), pp. 35-51. The hierarchy is listed below, from the most fundamental requirements up to self-actualisation:
   • physiological needs,
   • safety and *security* needs,
   • love and belongingness needs,
   • the need for self-esteem, and
   • the need for self-actualisation.

[26]   Buzan, B., *People, States and Fear: An Agenda for International Security Studies in the Post-Cold War Era,* Second and Revised Edition (First Edition published in 1982) , Harvester Wheatsheaf, New York, 1991, pp. 116-34.

[27]   *Common Security: A Blueprint for Survival: The Independent Commission on Disarmament and Security Issues,* under the Chairmanship of Olof Palme, Simon and Schuster, New York, 1982, pp. 138-9. For a detailed description of common security see Stockholm International Peace Research Institute, *Policies for Common Security*, Taylor & Francis, London, 1985.

[28]   Graeme Cheeseman has described the strategies which have been proposed under the rubric of non-offensive defence. They are:
   • 'Frontier defence'—in which enemy forces are met and destroyed approaching the border to, or at the border of, the defended territory.
   • 'Territorial defence'—in which enemy forces are destroyed by dispersed defenders using a defence in depth strategy.
   • 'Para-military defence' or 'guerrilla warfare'—in which armed force is used to harass enemy forces of occupation.

• Second, multi-dimensional 'comprehensive security' which was developed in 1987 by the Brundtland Commission's report to the UN General Assembly.[29]

• Third, 'cooperative security' which underpinned the Conference on Security and Cooperation in Europe (CSCE); the later Organisation for Security and Cooperation in Europe (OSCE); the policies of former Canadian Secretary for External Affairs, Joe Clark; the work of former UN Secretary-General Boutros Boutros-Ghali; and the writings of former Australian Minister for Foreign Affairs, Gareth Evans.[30]

In addition to these new approaches to state security, new security thinking also includes a wide range of approaches to security in which the state is **not** the primary referent.

• 'Societal security', which concerns cultural identity and can lead to ethnic and religious conflict.

• 'Economic security', which when neglected led to the national collapse of the Soviet Union.

• 'Non-gendered security', which reflects feminist dissatisfaction with gender biases and the lower security of many women.

• 'Environmental security', which includes threats caused by environmental issues, such as resource scarcity, and threats to the well-being of the global environment.

• 'Global security', which seeks to expand security beyond the state to include the security of people and the planet.[31]

The broadest and most comprehensive conceptualisation of new security thinking is termed 'human security', and its referent is the human condition.[32] The UN Secretary-General, Kofi Annan, declared in 1998 that 'we must put people at the centre of everything we do'.[33] If human beings are to attain the highest levels of Maslow's hierarchy of needs, security must mean more than the mere absence of military threats; it must involve the literal meaning of security.

• 'Non-military resistance' or 'civilian defence'—in which non-violent activity such as strikes and boycotts are used to harass enemy forces of occupation.
Derived from Cheeseman, G., *An Alternative Defence Posture for Australia*, Working Paper No.59. Peace Research Centre, Australian National University, Canberra, 1989, pp. 19-25.

[29]   *Our Common Future: World Commission on Environment and Development*, Oxford University Press, London, 1987 (Australian edition published in 1990).

[30]   Dewitt, D.B., *Common, Comprehensive and Cooperative Security in Asia-Pacific*, Canadian Consortium on Asia-Pacific Security, Paper No.3, March 1994, pp. 12-13. Boutros-Ghali, B.*, An Agenda for Peace: Preventive Diplomacy, Peacemaking and Peace-keeping*, report of the Secretary-General pursuant to the statement adopted by the Summit Meeting of the Security Council on 31 January 1992, United Nations, New York, 1992. Evans, G., *Cooperating for Peace: The Global Agenda for the 1990s and Beyond*, Allen & Unwin, St Leonards, NSW, 1993.

[31]   *Our Global Neighbourhood*, Report of the Commission on Global Governance, Oxford University Press, Oxford, 1995, p. 48, p. 78.

[32]   United Nations Development Program, *1994 Human Development Report*, United Nations, New York, 1994, p. 22.

[33]   Annan, K., *We the Peoples: The Role of the United Nations in the 21st Century, Millenium Report to the General Assembly for the United Nations*, 3 April 2000, http://www.un.org/millenium/sg/report/index.html p. 7, accessed 1 November 2000.

INTERNATIONAL CASE STUDIES

The third section of my paper surveys changes in the security policies and activities of five western democracies. The data supports the thesis that practice is following theory and that security is refocussing away from old security thinking towards new. The paper distils the analysis of a large body of data, collected during six years of PhD research, using a seven-part framework for analysis.

The first indicator is defence expenditure. The level of defence spending has fallen in all five case study countries. It should be noted that within each analysis, empirical data is averaged across three-year periods to prevent skewing of the data. The first period, 1987-89, reflects Cold War security, while the second, 1998–2000, reflects recent events.

Defence Expenditure	UK	NZ	Canada	US	Australia
1987–1989 (% of GDP)	4.2%	2.2%	2.0%	5.8%	2.3%
1998–2000 (% of GDP)	2.7%	1.1%	1.1%	3.2%	1.9%
Change in % of GDP	-1.5%	-1.1%	-0.9%	-2.6%	-0.4%
Relative Change in % of GDP	36% decrease	50% decrease	45% decrease	45% decrease	17% decrease

Table 1. Comparative Statistics—Defence Expenditure[34]

It is reasonable to assume that smaller defence forces, placing less emphasis on warfighting, cost less. In some cases, however, defence budgets will increase in response to the demands of the new security agenda, examples being the cost of the ADF's operations in East Timor and the current 'War on Terrorism'.

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[34] The information contained in the tables within this paper is derived from: *Defence Report 1988–89*, Australian Government Publishing Service, Canberra, 1998; *Defence Annual Report, 1999–2000*, Defence Publishing Service, Canberra, 2000; *The Defence of Australia,* presented to Parliament by the Minister for Defence, Senator the Hon. Robert Ray, Parliament House, 30 May 1991; *Defence 2000: Our Future Defence Force,* presented to Parliament by the Prime Minister the Rt. Hon. John Howard, MP, Defence Publishing Service, Canberra, 6 December 2000; *The United Kingdom Defence Programme: The Way Forward,* presented to Parliament by the Secretary of State for Defence by Command of Her Majesty, Her Majesty's Stationery Office, London, June 1981; *The Strategic Defence Review: Modern Forces for a Modern World*, The Ministry of Defence, UK, July 1998; *Defence of New Zealand*, *Review of Defence Policy 1987,* Laid on the Table of the House of Representatives, Government Printer, Wellington, 1987; *Report on the New Zealand Defence Force for the Year Ended 30 June 2000*, Wellington, 2000; Hansen, J., *New Zealand Involvement in Multilateral Peacekeeping 1952–1993,* Master of Arts Thesis, University of Auckland, Auckland, 1994; *Challenge and Commitment: A Defence Policy for Canada—A Synopsis of the Defence White Paper,* Ministry of Supply and Services, Canada, 1987; *White Paper 1994,* National Defence Headquarters, Ottawa, Canada, 1994; The White House, *A National Security Strategy of Enlargement and Engagement,* Washington, D.C., February 1996; Cohen, W.S., 'Report of the Quadrennial Defense Review. Special: The Secretary's Message', *Joint Force Quarterly*, Summer 1997, pp. 8-14; *The United States Security Strategy for the East Asia-Pacific Region 1998*, Office of International Security Affairs, Department of Defense, Washington, D.C., November 1998; *The Military Balance*, International Institute for Strategic Studies, Brassey's, London, 1987–88, 1988–89, 1989–90, 1998–99, 1999–2000, 2000–2001; and *Encyclopedia Britannica Yearbooks,* Encyclopedia Britannica, Chicago, 1987–2001.

The second indicator is personnel strength. The full-time strengths of the five armed forces have fallen by at least 23 per cent since the Cold War. The Canadian Forces experienced the most significant decrease in size of 41 per cent, while the ADF fell by 23 per cent.

Personnel Strength	UK	NZ	Canada	US	Australia
1987–1989	315,683	12,600	86,067	2,148,700	70,200
1998–2000	211,930	9,550	50,750	1,379,633	54,400
Percentage Change	-33%	-24%	-41%	-36%	-23%

Table 2. Comparative Statistics—Full-time Uniformed Personnel Strength

The third indicator concerns reserve forces. The reserve forces of the five case studies show mixed results both in changes to their size and the ratio of reserve forces to full-time forces.

Personnel Strength	UK	NZ	Canada	US	Australia
1987–1989	302,460	9,584	24,300	3,997,500	27,091
1998–2000	331,483	6,250	43,300	1,858,984	27,193
Percentage Change	+10%	-38%	+78%	-53%	0%
Percentage change in ratio of reserve to full-time	+60%	-10%	+60%	-60%	+20%

Table 3. Comparative Statistics—Reserve Forces Personnel Strength

The varying characteristics of the five countries are causing differing outcomes—more so than within any other indicator. The US no longer needs a huge mobilisation capability and is down-sizing its reserve. The UK and Canada, on the other hand, have decided that their reserves should expand—to enable them to mount an increasing range of post-Cold War operations. The Australian reserves are unchanged in size although their size relative to the full-time force has risen by 20 per cent. The process of post-Cold War restructuring is ongoing and a common trend is yet to emerge.

The fourth indicator deals with defence policy. It is measured using the empirical analysis of column space within published official defence policy.

Proportion of defence policy devoted to non-warfighting missions	UK	NZ	Canada	US	Australia
1987–1989	33%	66%	50%	10%	10%
1998–2000	75%	75%	90%	50%	75%
Increase	+42%	+9%	+40%	+40%	+65%

Table 4. Comparative Statistics—Defence Policy

Since the end of the Cold War, all five countries have placed greater emphasis within their defence policies on the range of non-warfighting missions derived from the broadened security agenda. Canada's transition in this critical area has been the most complete. The defence policies of Australia, the UK and New Zealand demonstrate similar emphasis on new security missions. The increasing emphasis within Australian defence policy has been particularly significant, in part because like the US it started from a low base.

The fifth indicator concerns peace operations. All five countries have experienced highly significant increases in their personnel commitments to peace operations since the Cold War, from three to 37 fold. Canada's commitment has 'only' tripled in size because of its already high levels of Cold War commitments. Australia's increase was second only to that of the US, which had started from a very low base. Taken in isolation, the ADF's percentage in 2000 (which included major operations in East Timor) was a very high 14 per cent.

Percentage of full-time uniformed personnel deployed on Peace Operations	UK	NZ	Canada	US	Australia
1987–1989	0.3%	0.4%	1.2%	0.03%	0.2%
1998–2000	4.8%	3.5%	4.1%	1.1%	4.6%
Proportion of increase	16 fold	9 fold	3 fold	37 fold	23 fold

Table 5. Comparative Statistics—Peace Operations

The sixth indicator is the degree of governmental transparency. Increases in governmental transparency in defence policy formulation are apparent in each case study. Such increases can be seen in processes of official consultation with the general public, regional consultation processes and vigorous public and media debate. The most transparent nations are the UK and Canada. New Zealand, the US and Australia lag some way behind.

Degree of openness in defence policy formulation	UK	NZ	Canada	US	Australia
1987–1989	Closed	Closed	Closed	Closed	Closed
1998–2000	Significant opening	Limited opening	Significant opening	Limited opening	Limited opening

Table 6. Comparative Statistics—Governmental Transparency

The final indicator is equal employment opportunity within defence forces. Each of the case study countries has increased the level of equal employment opportunities within their personnel employment policies. Australia and the US have shown the greatest percentage increases in equal employment opportunity. Canada and New Zealand place no restrictions on women serving in combat and have opened all defence employment to females.

Percentage of uniformed female personnel	UK	NZ	Canada	US	Australia
1987–1989	5.2%	11.5%	8.7%	9.9%	10.7%
1998–2000	7.5%	14.4%	9.9%	14.7%	15.5%
Percentage of Change	+2.3%	+2.9%	+1.2%	+4.8%	+4.8%

Table 7. Comparative Statistics—Equal Employment Opportunity

Up to this point I have outlined the intellectual process underlying the transition from old security to new, and provided a seven-part demonstration of its practical effects. The fourth and final section of my paper describes the implications for Australian defence.

IMPLICATIONS FOR AUSTRALIAN DEFENCE

The first trend is that the state remains a durable referent for security but it is increasingly under challenge by other important referents. This trend means that the realist objective of maximising Australia's national interests, with little concern for the resultant costs and suffering of others, is unsustainable. Australia now focuses more attention than ever before on international cooperation and it increasingly seeks to play the role of good international citizen.

The second trend is that the security referent of the individual is increasingly important. The ADF is committed to assistance to the civil community, particularly Australia's indigenous people. It provides for search and rescue, responses to natural disasters and international engagement—with the important by-product of encouraging the objectives of civil society.

The third trend is that countries now face a range of threats originating from the broadened security. These include the illegal exploitation of natural resources, environmental damage, illegal immigration, trafficking in illicit drugs, piracy and terrorism. The ADF is increasingly required to respond to these challenges and Australian security operates within a broader range of sectors than the once privileged military sector.

The fourth trend is the increasing importance of international humanitarianism, which increasingly leads to peace operations. Peace operations are becoming recognised as ADF 'core business' influencing Australian defence policy and ADF force structure.[35]

These trends have influenced, but not fundamentally altered, the Australian government's concept of national security. This concept uses old security thinking to define security as the absence of armed attacks. In meeting the demands of this concept, Australia has gained considerable experience in waging war—but war itself is changing. It is being complicated by developments such as the revolution in military affairs, information warfare, peace operations and non-lethal conflict. Despite the evidence of the declining utility of war between advanced countries, the potential for armed conflict will not disappear. For this reason, deterrence and coercion will remain important roles for armed forces.

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[35]   For example, the remark made by Minister for Defence, Senator Robert Hill, when opening the International Peace Operations Seminar in Canberra on 29 April 2002 that peace operations are 'very much core business', *Australian Defence Business Review*, Vol.21, Nos.5/6, 30 April 2002, p. 18.

It can be seen that the reconceptualisation of Australia's security has not reached the point at which the interests of individuals, society, the region or the global commons would take precedence over the government's emphasis on the protection of 'national interests'. Perhaps the durability of war, albeit in changing manifestations, renders a complete transition to new security thinking an unachievable goal. Certainly, Australia is unable to undergo a complete transition unilaterally.[36]

Notwithstanding this finding, the influence of new security thinking is altering the Australian concept of security and it is best described as 'transitional security thinking'. It displays characteristics derived from both old and new security thinking, whilst in transition towards the new. I refer to the result of this thinking as 'refocussed national security'—and I will conclude with some thoughts on its outcomes and implications.

The first outcome is the increasing convergence of military and non-military tasks, described as 'overlap'. Early Australian history included many examples of the non-military employment of armed forces, but during the twentieth century, the focus of the armed forces of the advanced countries narrowed to concentrating on warfighting—with anything lying outside deemed 'non-military'. This is becoming increasingly problematic because there is no certainty on where the boundaries lie, especially with the rise of new security thinking.

The contemporary ADF is increasingly tasked to address contingencies for which it is not primarily configured, equipped or trained, and which official policy regards as less important than the core business of warfighting. With capabilities readily applicable to tasks other than warfighting, the ADF provides an expedient solution to a range of domestic and international problems. For this reason, the ADF is increasingly required to conduct activities within the fields of operation of other government agencies. At the same time, 'non-military organisations' such as government organisations, non-government organisations and multinational corporations are developing capabilities that were once the preserve of armed forces. As non-military organisations increase in capability, the ADF is increasingly conducting its activities in fields that have traditionally been their areas of operation, most particularly during complex peace operations.

The second outcome of refocussed national security is the over-utilisation of the finite resources of the defence forces, which is described as 'overstretch'. The advanced armed forces are rapidly accumulating new roles, particularly since the end of the Cold War. This phenomenon has not been balanced by any significant reduction in existing roles. It leads to growth in missions using under-resourced armed forces—and places pressure on force structures. The range of post-Cold War missions is stretching even the mighty US Armed Forces. In their analysis of the US military commitment to Asia, Robert Scales and Larry Wortzel found that it must be capable of:

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[36] The restrictive policies enforced by the Australian government in response to the arrival of asylum seekers in 2001 arguably reversed this trend towards human security and civil society. The implementation of these policies was an intriguing interplay of the new security agenda (illegal population movements), new security thinking (the moral obligation to care for other members of humanity), reconceptualised national security (border control) and old security thinking (the desire to resist 'invasion'). Evidence suggests that the reversal in the trend towards human security and civil society may be temporary, and the moral and intellectual forces causing the trend are likely to lead to its return.

> *...fighting and winning manoeuvre wars. But all of the military forces in the region...must also be robust enough to carry out other missions, including noncombatant evacuation operations; humanitarian and disaster relief missions; de-mining; peacekeeping or peace enforcement; resolving serious, destabilising urban unrest; addressing conflicts over resources; and addressing problems that are partially law enforcement matters, such as smuggling and free trade.*[37]

Similarly, Chris Dandeker describes the UK armed forces, which are reducing in size while their missions increase, as 'the overstretched military'.[38]

Overlap and overstretch present many challenges to armed forces. This paper recommends a response strategy of 'integration', following two principles. The first principle is 'whole-of-government security'. The most important outcome of this trend may be the establishment of a National Security Council (NSC) responsible for the management of Australian national security in a broad sense. Such a council would transcend the current sectoral approaches to security of defence, diplomacy, trade, economics, border control and law enforcement. In so doing, it would aim to overcome the tendency of government departments to conceptualise security in terms relevant to their 'core business'—the Department of Defence as military power; the Department of Foreign Affairs and Trade as diplomacy; the Attorney-General's Department as the rule of law; Justice and Customs as border control, and so on.[39]

The creation of the NSC would bring representatives of the elements of Australia's security bureaucracy into a unified organisation, able to respond to issues of national security at a level higher than that achieved within individual departments. The NSC could operate as an agency of the Department of the Prime Minister & Cabinet (PM&C) incorporating watch office personnel from many departments such as the Protective Services Coordination Centre and the Office of National Assessments. These could provide the capabilities for strategic operational coordination and strategic intelligence.

The idea is not new. Ross Babbage suggested the creation of a high-level policy development and coordination staff and he was supported by the 1990 Wrigley Report.[40] Gary Brown suggested an independent Australian National Security Staff, perhaps as an 'outrider' to PM&C, in 1994.[41] The creation of the National Security Committee and the Secretaries' Committee on National Security, by the Coalition Government elected in 1996, does not fulfil this requirement. These bodies are essentially *interdepartmental* rather than *supra-departmental* in nature, allowing rivalry between the departments to continue. The decision of the recent Leader's meeting to give the Commonwealth primacy in national security incidents

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[37]   Scales, R.H. and Wortzel, L.M., *The Future Military Presence in Asia: Landpower and the Geostrategy of American Commitment*, Strategic Studies Institute, US Army War College, Carlisle, Pennsylvania, 1999, p. 17.

[38]   Dandeker, C., 'The United Kingdom: The Overstretched Military', Moskos, C, Williams, J. and Segal, D. (Eds) , *The Postmodern Military: Armed Forces After the Cold War*, Oxford University Press, Oxford, 2000, pp. 32-50.

[39]   The operation of the Australian governmental processes of external security is described in Trood, R., 'Bureaucratic Politics and Foreign Policy', Mediansky, F.A. (Ed.), *Australian Foreign Policy: Into the New Millennium*, Macmillan, South Melbourne, 1997, pp. 33-52.

[40]   Babbage, R., *A Coast Too Long: Defending Australia Beyond the 1990s*, Allen & Unwin, Sydney, 1990, pp. 206–7. *The Defence Force and the Community: A Partnership in Australia's Defence*, Report to the Minister for Defence by Alan K. Wrigley, AGPS, Canberra, June 1990, pp. 465–8.

[41]   Brown, G., *Australia's Security: Issues for the New Century*, Australian Defence Studies Centre, Canberra, 1994, pp. 159–69.

demonstrated the need for improved responsiveness and coordination, and this may herald further changes in Australia's security architecture.

Other changes are likely to be necessary to improve the ADF's performance in providing whole-of-government security. Following practice in the US and NATO, the improved communications and data management of the information age should be exploited to reduce the number of ADF headquarters.[42] The information age facilitates the 'flattening' and 'de-layering' of command and control structures through 'networking'.[43] These processes will eventually enable the 'operational level of war' (between the strategic and tactical levels of war) to be discarded. The operational level was a feature of industrial age wars and it applies an additional level of bureaucracy to all planning and decision-making. The utility of the operational level is increasingly questionable in the information age and it is out-of-step with more modern thinking on organisational efficiency.

It is instructive that the command and control arrangements for Australia's largest military operation since 1945, INTERFET, bypassed the operational level headquarters, contradicting the ADF's doctrine of three levels of command and control. The operations were strategically managed from Australian Defence Headquarters (ADHQ, located in Canberra) and tactically conducted from Headquarters INTERFET, based on the Deployed Joint Force Headquarters (DJFHQ, located in Dili, East Timor).[44] The demise of the operational level, which was presaged by INTERFET, may be facilitated by its relocation to the Canberra region, enabling it to be gradually re-absorbed into ADHQ.

The need for three separate armed forces is also under question. The ADF is declining in size while 'joint operations' are the norm in contemporary military operations. The successful example of the US Marine Corps, which includes naval, military and air forces within a single force, reducing the number of headquarters and mitigating inter-service rivalries, remains an option for the ADF—particularly if it declines any further in size.

The second principle requires the creation of 'sustainable partnerships' between the ADF and non-military organisations.[45] This concept requires all parties to understand each other's motivations and aims, in order to appreciate areas of complementarity and areas of potential

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[42] The three levels of ADF headquarters are as follows:
- The Strategic Level: Australian Defence Headquarters (ADHQ), Navy Headquarters (NHQ), Army Headquarters (AHQ) and Air Force Headquarters (AFHQ)—located in Canberra.
- The Operational Level: Headquarters Australian Theatre (HQAST), Headquarters Maritime Command, Headquarters Land Command, Headquarters Air Command and Headquarters Special Operations (HQSO)—located in Sydney.
- The Tactical Level: Deployed Joint Force Headquarters (DJFHQ) formerly Headquarters 1st Division, which is normally located in Brisbane; Deployable Joint Force Headquarters Afloat (DJFHQ-A) which is to be created aboard *HMAS Manoora* and duplicated aboard *HMAS Kanimbla*; Headquarters Northern Command (HQNORCOM)—located in Darwin; and the many and various naval, military and air force formation headquarters—located throughout Australia.

[43] Vlahos, M., 'The Emergence of the Infosphere and its Impact on Military Operations', Campen, J. and Dearth, D. (Eds), *Cyberwar 2.0: Myths, Mysteries and Reality*, AFCEA International Press, Fairfax, Virginia, 1998, pp. 77-92.

[44] Three organisations cooperated at the strategic level: the East Timor Policy Unit and INTERFET Branch of ADHQ, and the DFAT East Timor Crisis Centre. Ryan, A., *'Primary Responsibilities and Primary Risks': Australian Defence Force in the International Force East Timor,* Study Paper No.304, Land Warfare Studies Centre, Canberra, November 2000, pp. 38-39.

[45] This term sustainable partnerships is used in *The United Nations and Civil Society: The Role of NGOs*, Proceedings of the 30th United Nations Issues Conference 1999, The Stanley Foundation, Muscatine, Iowa, 1999, p. 2.

disagreement. The health of the relationship depends on the frank and complete exchange of information, as unnecessary secrecy breeds distrust.

These findings will not please everybody. The conservative ethos of the ADF is simultaneously a great strength and a great weakness—providing for its robustness and its stubbornness. In a thought-provoking piece on military conservatism entitled 'The Ghosts of Omdurman', Daniel Bolger pointed out that 'armies tend to persist in things they appreciate, and to dismiss unpleasant interim experiences as aberrations'.[46] John Keegan's examination of war reached the same findings, noting that traditionalist military elites cling to outdated military skills.[47] In order to meet Australia's security needs, the ADF must overcome its resistance to change. Change requires 'rule-breakers', who use unorthodox solutions to complex problems. These characteristics have proven most vital during war, when the stakes are highest and risks are omnipresent.

Other types of missions will affect force structure in the manner of counter-terrorism, maritime patrol and peace operations. It seems likely that the threats posed by information warfare and weapons of mass destruction will also lead to changes, as will the need to protect the environment. In addition to this expanding range of new missions, the ADF will become responsible for 'homeland defence'. Very versatile and adaptable force elements are required to meet this range of challenges and the ADF should follow the force-structuring principles of 'versatility and adaptability'. Capabilities which meet only highly specialised requirements provide fewer options to the Government, and 'multi-role' capabilities should be preferred.

An important question raised by the use of the ADF in operations derived from the broadened security agenda is whether military equipment designed for warfighting is suitable for less-demanding roles. Could the same missions be achieved at less cost using purpose-designed equipment? The force-structuring tensions between the requirements of warfighting and operations-other-than-war will continue to feature within Australian defence debates.

Compared to the contemporary ADF, the future ADF will be further influenced by new security thinking, displaying eight important characteristics:

• The further reductions in personnel strength accompanied by greater reliance on reserves and civilians.

• The increased exploitation of information technology serving to improve intelligence and reduce the number of headquarters.

• The maintenance of warfighting skills, including the maintenance of deterrent and coercive functions, to enable participation in war and peace enforcement operations.

• Increased emphasis on missions derived from the new security agenda—law enforcement, border control, resource protection, disaster relief and humanitarian operations—including operations in new environments such as Antarctica.

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[46]   Bolger, D., 'The Ghosts of Omdurman', *Parameters*, Autumn 1991, p. 32. See also Carl Builder's analysis of the continuity of US military thinking from the American Civil War and particularly since World War II in Builder, C., *The Masks of War: American Military Styles in Strategy and Analysis*, RAND, Baltimore, MD, 1989.

[47]   Keegan, J., *A History of Warfare*, Hutchinson, London, 1993, p. 225.

- Policies leading to greater unit versatility and adaptability reflecting the need to operate in joint and combined operations.

- The increased use of ad hoc formations to meet the demands of complex peace operations placing greater reliance on transport aircraft and ships—and demanding more specialist intelligence, medical, engineering, civil affairs, military police and logistics capabilities.

- Increased commitment to homeland defence—responding to asymmetric threats such as information warfare and terrorism.

- Increased emphasis on maintaining public support, reinforcing the need for the minimisation of casualties.

The transition towards the increasing use of the ADF in activities derived from the new security agenda carries risks. The government must consider the costs of overusing the ADF, which may include the exhaustion of its personnel; the reduction in its ability to conduct necessary training and maintenance; and the loss of warfighting skills as they are replaced with skills required in new security activities.

The evidence supports my belief that, in order to remain relevant to Australia's needs, the ADF of the future will combine the ability to wield discriminate coercive force with the ability to meet the demands of the new security agenda. The ADF will work to address security concerns far broader than those of old security thinking—measuring its efforts in terms of human security, civil society and global survival.

Ladies and gentlemen, that concludes my presentation. I would be very pleased to answer your questions.

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DISCUSSION

Colin Martin, DSTO: You made reference to the League of Nations/United Nations in your retrospective look back. I remember in 1989 the then Senator Evans said at the fall of the Berlin Wall that the United Nations would now have a much more important role in the world. It seems that as the threat has become broader the United Nations has actually weakened. How do you feel about their role in the future?

Ian Wing: Thank you for that question. It's probably one of the most interesting questions in international relations because simultaneously the UN has been strengthened and weakened by the end of the Cold War. The strengthening was that we were freed of the bipolar balance of terror and the way the Security Council was hamstrung by vetoes. But unfortunately national interests continue to dominate the security agenda. I shouldn't use the term 'unfortunately', that's a loaded term—that's a reality. Nations tend to look after themselves and that has meant that the United Nations have increased in power when it has suited the major powers—the best example being the Gulf War. When the United Nations could have been obstructionist, which I suppose was a response to Kosovo, it was simply sidetracked by the use of NATO. Maybe the positive I could take away from this is that the increased reliance on coalitions of nations, the almost inability for unilateral military action—and

Afghanistan might represent something of a contradiction of what I'm saying—but generally major powers prefer to operate as part of coalitions. That is a step forward towards the international legality and morality that I think most countries would prefer. Nations taking it upon themselves to attack each other for individual reasons is what the League of Nations and the United Nations were fundamentally trying to stop. I certainly concede there is a long way to go.

Flight Lieutenant Reece Lumsdon, RAAF: Your talk seems to suggest that the ADF will become a very small part of a increasingly larger defence force as such. War is such an inefficient means of getting what you want and it's very explicit in that you're identifying to another party, 'Hey, here I am, I want to attack you'. I'd suggest then that what would happen if, say, someone like McDonalds, IBM, Microsoft, declares war on some other state? In fact, I'd say that even now currently we are under cultural and perhaps even economic attack but we don't do anything about it because we don't recognise it as a threat, but that doesn't mean it's any less real than the military threats we currently face. I'd just like to hear your thoughts on that.

Ian Wing: Thank you for that question. I have given that some thought and didn't cover it in the paper. There's no doubt in my mind that geoeconomics is replacing geopolitics as the most important force in the international system. To use a cynical example, the motivations behind the Gulf War did include the requirement to sustain Western oil suppliers. Our response to other similar situations has been less forceful. So economics are vitally important. I think the proliferation of professional military companies, which are termed by some mercenary companies, has been astounding over the last 10 to 15 years. They are major players in Africa now. Some nation states in Africa can't exist without the support of mercenary forces. As those mercenary forces come and go contracts wax and wane. Countries like Sierra Leone virtually cease to exist until they bring in more mercenaries or the UN comes to hold them together for a little while longer. Within the Third World that is a very dangerous trend. It has not yet intruded into our region but I think economic entities are so powerful and, unconstrained by the UN, that it is a trend that we should watch.

Squadron Leader Bill Crompton, HQADF: Ian, I noticed that a large proportion of the construct you've outlined seems to be triggered by the collapse of the Soviet empire, whereupon we went from old world security thinking to new world security thinking. I put it to you that if we have a rise of another—to use Ronald Reagan's term—'evil empire' that we could just as quickly see our security thinking snap back to what it was before. Also, I noticed the presentation has a very Western centric view which seems to leave about 80 per cent of the world's nations and population sitting out there in limbo. Was that deliberate or can you broaden?

Ian Wing: Thanks very much, Bill. I'll get you for those two criticisms after this, thank you. But they're two particularly valid criticisms of the work that I've been doing and I acknowledge them both in a more substantial presentation of this work. The first thing is there is no proof that the trend that I have outlined will continue inexorably. If it did continue inexorably the world would be at peace, let's say, a hundred years from now. Well, there are going to be problems and it's not going to happen. The trend and the indications and the forces that it reveals are still worthy of study. The second criticism is particularly valid also. The data I have collected from the original study was to study countries that were like Australia to see how trends within Australia compared with other like countries. Now, there's no question that within authoritarian nations, countries of other orientations, let's say not Western democracies, trends will be different.

The one counter-claim that I will make to a very valid criticism is that the predominance of the American Western liberal democratic culture which, like or not, is the predominant culture of the world—and I would freely accept that there will be people in the audience who would not like to hear that; the Cynic and Pan Arabic and other cultures are falling behind this new global culture—indicates to me that trends that emanate from the Western democracies will tend to be followed in other countries. Now, there's no proof of that. It is a trend that I have seen in many countries. The ultimate thing that I would say, going back to my first comment is that if a major war, an unforeseen major war broke out involving Australia, the US, we would snap straight back into old security thinking. That would be quite a legitimate response of our government, because the greatest responsibility of a government is the protection of its citizens. So the Australian Government must first and foremost protect Australians. If that means that non-Australians suffer then that is the harsh reality of the world. What I'm trying to say is that things are changing from that harsh reality but I've got no proof that the change will always continue.

Air Vice-Marshal Glen Torpy, RAF: Ian, your slide on integration, I fully support your view that we need to get more joined up in terms of cross governmental integration. Certainly in the UK I think it's now accepted that if you're seriously into conflict prevention you need to make sure that the problem is addressed not purely on a military line of operation but there's humanitarian, economic, political, diplomatic. But on the same slide you raised a question of doing away with the operational level headquarters. I would just really like to probe you on that and you dismissed it quite rapidly. We've actually strengthened our operational level headquarters in the UK and the delineation now between the strategic, the operational and the tactical level has been very helpful.

Ian Wing: This is one of the two contentious areas of my paper, I think, from the professional military's point of view and I understand that, well, it's contentious. My findings are that we do not require so many headquarters. My background, of course, is within the army and the army is the most likely to raise headquarters almost all the time. The operational level of war is a response to Soviet military thinking between the wars. It was successfully implemented by the Soviets and the Western militaries followed. The shrinking size of defence forces and the increasing requirement for defence forces to be answerable to the political dimension, from my data collected at least in Australia suggests the operational level of war is being bypassed routinely. Now, there'll be people here that will immediately disagree. But in our operations in East Timor we raised an ad hoc tactical headquarters in Dili and it responded directly to Canberra. There is an example. I would contend there is a complication in the process of translating a nation's political will to its tactical effects by placing a middleman in between. I'm not saying it doesn't work very well. I intend no offence to those of you who are working at Headquarters AST or any of the other important headquarters that we currently man. But the future of networking technology indicates that we won't have time to go through levels of command to execute national will. I have visited PJHQ, sir, and it is an impressive organisation.

Perhaps a defence that I could claim, and I must say I claim no all-pervading wisdom on this and there are two sides to every debate, the one thing I would claim though is that from an Australian perspective, and a force of only 50,000 personnel, I don't believe we have enough personnel to man all of these headquarters. The British Defence Force is significantly larger and I'm sure can accommodate those numbers better. The US Defense Force is so large that it might be that they can't dispense with the operational level of war, noting a commander such

as CINCPAC is himself almost a national commander. He is so influential. It might be that the US will persist with the levels and the United Kingdom also, sir.

Dr Tim McKenna, DSTO: Given your interest in information, I'd be interested in your views on what changes as security moves to this more, if you like, closer civil military impact, the issues of information management and the issues of public affairs in a defence organisation in this new security agenda.

Ian Wing: Thank you very much. I think some of these issues have been demonstrated by two sets of recent events. The first was the Olympic Games where we had some difficulty, which I think was overcome very well. I worked on the Olympic Games intelligence working group and the problem we faced there was that we had information at the highest levels of national security protection levels and a requirement for state and other police forces to operate in accordance with that information. Now, we have established procedures to sanitise information down, to make information available to lower levels. The problem comes with, let's say, an issue like terrorism where there isn't time to take top secret material and distil it down and in some way mask its source and then provide it to men on the ground who don't have the right to know where it came from. I think this is a problem of the information age. I don't really have an easy solution. It might be that we have to clear more people. It might be that we have to think of imaginative ways to move information around. That's one example of how things are changing and will have to change.

Another is closer to home. I won't stray too far into a political issue. I don't wish to have a political debate here, it's not my background. But the problems that we have experienced over information sharing, such as with the children overboard situation, to some extent reflect a misunderstanding of national security information and information that is unpalatable or difficult to disseminate or embarrassing. I think we need to be a little more rigorous in deciding what must be a secret and what is just information that maybe the Australian people can cope with. I think I've said enough on that, but information is going to be a critical factor.

Mr Bernard O'Connor, Defence: I notice the whole thrust of your discussion is the broadening of security. Do you see that as continuing to broaden what is considered core business for the Australian Defence Force? Or do you see the ADF becoming a major player in a new organisation with a larger gambit?

Ian Wing: Well, it's a great question once again. I mean, that is almost the bottom line question: what do we do? It's such a hard question. When I talked about overstretch, the Minister this morning outlined our policy which is the defence of Australia. That is the overarching reason for the Australian Defence Force and I must say I have no philosophical problem with that. But then he added to it without a pause, 'And we will also do work in sort of coalition, in the regional area, and we'll also do things around the world'. Well, I think that's getting harder and harder to do. If I could take an example from another nation, looking at our excellent alliance partners New Zealand. They are now facing critical decisions where they just can't do everything any more and they are going to have to not do some things. Now, that is an unfortunate situation for that country to be in and I know they recognise it. I'm not wishing to say anything particularly unkind. But they are now in a situation where the defence force is too small to do everything. I think the solution therefore is to join into coalitions which are not purely ad hoc. For instance, established arrangements for sharing responsibilities to perform certain types of operations. Many of these things are already in place. I think excellent work is being done, for instance, by Australia and New Zealand to make this happen.

As for ever broadening our range of roles, if we tried to do everything I don't think we would do anything very well. That's why I fall back on the fact that we must be able to wage coercive force first and foremost. If the armed forces can't destroy enemies then they are going to have a real problem. I mean, we don't want to turn into a humanitarian charity. We have to be able to wield deadly force, and we're not a police force. Their orientation is very different from us. I used the term 'we' as an ex-military man. I fall back into that very easily. Armed forces must be able to destroy and to serve the nation's interests. That will be a force that will curtail the broadening of security. I think there is good reason to rein this broadening back in to make sure we don't get too overstretched and we don't use all of our excellent capabilities for tasks they weren't designed for and we run the risk of exhausting our forces.

THE AIRMAN AND THE STATE

AIR VICE-MARSHAL PROFESSOR TONY MASON

SYNOPSIS

In 1957, Samuel Huntington wrote his seminal work, *The Soldier and the State*. It was essentially a study of civil-military relations in the US, concentrating almost exclusively on the US Army Officer. He examined *inter alia*, the functions and characteristics of the military profession and the relationship between military high command and political direction: all largely within the context of the nation state.

Since Huntington wrote, the international security environment has changed several times. The US endured and was scarred by Vietnam. The Cold War subsided. Its protagonists and their friends have moved from a confrontation with total commitment to the pursuit of individual interests, leavened by a pinch of humanitarian idealism. Latterly, the malign and amorphous presence of international terrorism has added a further complication. The transformation has been accompanied by the advent of information age warfare.

Individual states have reacted in different ways to the changes: from the retention of matchless military power by the US to the relegation of the armed forces by other states to the bottom of national priorities.

This presentation will take some of Huntington's ideas as a start point before assessing the impact of these international and national developments on the military profession as a whole and in particular on the airman. It will then draw conclusions about the implications of change and continuity for recruiting, retention, motivation and leadership in the twenty first Century.

Editor's note: A copy of Professor Mason's PowerPoint presentation may be found on the Aerospace Centre website.

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DISCUSSION

Air Commodore Geoff Shepherd, RAAF: Thanks very much for your presentation, very interesting and very thought provoking. It drew parallels with a presentation some conferences ago, I remember, where we examined how we would recruit and train our senior air force leaders of the future. I remember you were at that conference. But it would be arrogant for us in the extreme to believe that ADF combat power or, indeed, specifically aerospace power is delivered only by us in uniform. I work for an organisation which is largely civilian. It has strategic reach right into the tactical environment. So I'd put it to you that you didn't touch upon, and probably for reasons of time, that dimension of the defence civilian and, indeed, our broader contractor partners in the delivery of combat power and often, as was shown in the Gulf War right at the battlefield itself. So might I ask you to just touch upon that issue very quickly?

Air Vice-Marshal Professor Tony Mason: Yes, thank you, Air Commodore. Could I ask you just to clarify a little? These defence civilians that you're referring to, do they have as part of their contract compulsory participation in a combat environment?

Air Commodore Geoff Shepherd, RAAF: No, but I suppose that's the point I'm getting to. That it would be arrogant for us to maintain an independent uniform military ethic when we are often embedded and working very closely with defence civilians and contracted people.

Air Vice-Marshal Professor Tony Mason: I would beg to disagree. I would argue that the military ethic is an essential requirement for those who contract to put their lives on the line on somebody else's demand in an environment over which they have no control. They have a legal contract to do that. With the greatest respect I would argue that if you have a civilian organisation in which people voluntarily are prepared to do that, but at the same time have the option not to do it, which was the case with the civilians, certainly the British civilians, in the Gulf War, I would argue that they fall outside my remit. Sorry.

Flight Lieutenant Reece Lumsdon, RAAF: Sir, it was mentioned in both talks this morning that war fighting is a component of the air force but between wars we've obviously got to do other things. I'd suggest, and this might be a bit of heresy here and I might be struck down for it but why is it that we have a uniformed person at the head of our organisation? Why is it that we just don't have a operational commander, say, a one star level, to worry about the … [unintelligble] … go to IBM, go to any of these other big multinationals, say, 'You are the guys that have to deal with all the same issues, non-combat issues, that our organisation is'— and that's what the air force is, non-combat, it's an organisation—and say to them, 'You come and run the air force, the non-combat elements of it'. What's wrong with that theory?

Air Vice-Marshal Professor Tony Mason: Well, again with great respect I'd question your fundamental rationale because we are not run by a uniformed leader. Both your country and mine are run by a civilian political leader and both your country and mine are responsible to, in various ways, further civilian control of our operations, whether it is civilian defence policy executives, such as we have in the Civil Service, or other civilian organisations like my own House of Commons Defence Committee. A whole raft of civilian inputs which actually control the shape, direction, function and everything else of the armed forces. Are you actually thinking of bringing in some civilian organisation, what, to run peacekeeping? I wasn't quite sure. Could you please clarify for me?

Flight Lieutenant Reece Lumsdon, RAAF: No, I was thinking of, say, instead of the Chief of Air Force running in effect the Air Force, going to industry and saying, 'Who's the CEO who's got a proven track record with running big corporations with diverse interests?'. Go to them and say, 'Here's an incentive, five years, seven years. If you complete your five or seven years before you prove that you're not eligible to do the job any more we'll give you an incentive. Otherwise continue on in that way.' Get a CEO from an organisation that has to deal with all this turmoil and all these things that the air force has to deal with in its non-combat type operations. Not so much peacekeeping, but all the other things we have to do to keep this organisation running.

Air Vice-Marshal Professor Tony Mason: So what you want to do is to separate the war fighting bit from the management bit? Can I just clarify that this is what you're actually suggesting.

Flight Lieutenant Reece Lumsdon, RAAF: Correct.

Air Vice-Marshal Professor Tony Mason: Dividing in an armed service the war fighting bit from the resource bit? How are you going to put those two together if in your confident contract placing of seven years, no war, tomorrow a Falkland Islands occurs or an invasion of Kuwait occurs or something else occurs? What do you do with your organisation?

Flight Lieutenant Reece Lumsdon, RAAF: I'm suggesting the operational management and operational assets be commanded by a Service person. The actual whole organisation, the Royal Australian Air Force, be run by someone who is a non-service person.

Air Vice-Marshal Professor Tony Mason: What benefit would that bring, do you think? I can't see any benefit at all. That's why I'm asking, you know, for what benefit it brings.

Flight Lieutenant Reece Lumsdon, RAAF: I'm asking what benefit does a Service person bring that would suggest they are better qualified to run an organisation than, say, a person who is a non-service person to run the organisation?

Air Vice-Marshal Professor Tony Mason: What you are doing there is questioning the underlying concept of the military profession, aren't you? It's rather like saying, okay, let's look at doctors. We can keep the doctors to do just the operation but what equipment they're given, when they do it, where they do it, how they do it, you know, we'll bring in McDonalds to do that as well.

Flight Lieutenant Reece Lumsdon, RAAF: No, I'm not suggesting that. I'm suggesting integrated approach. Haven't we agreed, or isn't it being suggested that the province of defence of Australia and its interests is no longer just the province of the military itself?

Air Vice-Marshal Professor Tony Mason: It has been suggested. I didn't suggest it.

Flight Lieutenant Reece Lumsdon, RAAF: No. Well, I'm suggesting to you then that it is something that it will no longer be the province of just the military.

Air Vice-Marshal Professor Tony Mason: What I've tried to suggest is that the core responsibility of the Australian armed forces is still the management of violence. All that has changed is the environments in which they're going to apply that violence, manage that violence, the degrees to which they're going to apply the violence and the rationale and the political objectives, the humanitarian objectives in which that violence is going to be applied. Now, that doesn't matter whether you are going after a criminal organisation or smugglers or gun runners or illegal immigrants. What you're talking about is an armed force which has been given a legal sanction by the government and by society to apply, if necessary, violence which would get you and I banged up in the nearest slammer if we tried it outside this conference this lunch time. Right. Now, my argument is that if you're going to bring in a civilian organisation into that environment you've got to make very, very sure, as armed forces have tried to do, that you keep a firewall between the two. Where you break the firewall, as I indicated to the previous question by the Air Commodore, you make very certain that constitutionally when you need to you can bring members of that organisation this side of the firewall into exactly the same disciplinary organisational compulsory mandatory organisation which an armed force has got to have to exist, to be dependent on and to do a job. So I say, as you're gathering, I have great difficulty in getting my head around that particular concept.

Flight Lieutenant Reece Lumsdon, RAAF: I don't want to labour the point but on that then, sir, given our current retention and recruiting issues and I won't say inability but our difficulties with meeting them and the difficulty we have with fitting today's society with the values we have for the people that we want, surely something has to give. Either we have to broaden those values in order to get more people that we want or we have to accept a more limited role.

Air Vice-Marshal Professor Tony Mason: Or you have to look for some other organisation. You've got to hive the work off. Your hypothesis, your suggestion was that you bring in that kind of an organisation to deal with the current military and the current military tasks. If you are facing that kind of problem you've got to ask a lot of different questions and that is whether you are, in fact, giving the armed services tasks which they aren't able to deal with physically because of recruiting and retention. Then you've got to come up with a whole lot of different answers. But my mandate, my particular concentration, was on those of us who stay in uniform, our responsibilities and so on.

Air Marshal Ray Funnell (Ret'd): I think you've probably presented more papers at our aerospace conferences than anyone else perhaps except Alan Stephens, and thank you again for your work this morning. My question comes in part out of the presentation, was spurred by something that Flight Lieutenant Lumsdon said from the rear and concerns this issue of leadership. In particular his contention is if you've got a leadership problem then you go and hire someone who's been a CEO of a successful organisation and bring him in and expect him to re-emulate his success, but also to some extent comes out of your presentation where you highlight leadership. But one of the things I find difficult is this notion of leadership being an entity that an individual either possesses or does not possess. I'm much more taken with the concept put forward by Ron Heiphets of Harvard University whose leadership is a process in which a very large number of people are engaged. The success or otherwise of that leadership process depends more on them than it does on the man that you have at the top at the present time. What I would like you to comment on is my assertion that the most appropriate way of getting an effective leadership paradigm working in a complex organisation such as a military force is to adopt that particular notion and encourage everyone from the airman or airwoman down on the shop floor right through the hierarchy to engage in developing the leadership requisite for the task.

Air Vice-Marshal Professor Tony Mason: Thank you. It's a great relief to be able to say I agree entirely with the questioner. But the serious observation is, yes. You may recall, that when I introduced that particular slide on leadership I did emphasise that with the exception of the last quality, which was political flexibility, every other element was germane to every aspect of leadership from the corporal right the way through to the chief. Obviously, as you know better than I, we can run a series of lectures on leadership born, developed and so on. I'm a very firm believer in an armed force of the need to try to get consensus among subordinates. You can't always get it. But I believe that part of effective leadership, as I explained earlier, stems from the ability to communicate, to explain and at the same time the reciprocal, to identify the needs, the requirements, the aspirations as a group and the two come together. If perhaps you just reflect in a slightly different way on two of those slides, the one on the one hand which identified what I believe are not the sole features of leadership, but those features which are particularly called upon by this combination of change. If one thinks of that slide, and then the other one, the expectations of the airmen and the airwomen, I think if you bring those together mentally for a moment you will see why my immediate response was, yes, I agree entirely with you, entirely with you.

Dr Steve Stephenson (Ret'd): I liked that list of General Hackett's qualities. Would you agree that it's important to start inculcating those at a much younger level, say, at least secondary education? If you agree, are you having any success in the United Kingdom in making that work?

Air Vice-Marshal Professor Tony Mason: Thank you, sir. It's interesting that there is a move in British education to, shall we say, put part of the clock back. There is a move to inculcate what one could call societal values, core values, which have for various educational reasons been subordinated to other considerations in the last two generations. But I'm not a specialist, I couldn't give you chapter and verse. Like anybody else I just read the occasional article which indicates what is happening at various levels of education. It doesn't happen in universities, that's for sure. But the fact that responsibility, social responsibility, has actually been included in a new national syllabus introduced by the current government I think indicates that there is an awareness of the kind of need you're implying. But my own comments there are based on a supposition that we probably as an air force have more inculcation to do on entry now than we did when I joined a thousand years ago. So, yes, there is a slight change but there's still an awful lot remains to be done and hence the need for us to do it.

MODELS FOR CONFLICT IN THE 3ᴿᴰ MILLENNIUM — AN ALTERNATIVE VIEW

DOCTOR CHRIS REUS-SMYT

Editor's note: A copy of Doctor Reus-Smyt's PowerPoint presentation may be found on the Aerospace Centre website.

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DISCUSSION

Air Commodore Norm Ashworth, retired): I'd like to challenge you, doctor, on your emphasis on the importance of international law in order to maintain the security of many nations around the world. I would suggest to you that international law is only effective if there are around the world nations with necessary military and economic power to enforce that particular set of laws. The laws themselves mean nothing unless there's someone there able to enforce them. I would also suggest to you that the enforcement of those laws rely very much on the existence in a number of nations of a liberal constituency that has ideas of humanity which it wants to stress to its country and employ around the world. Without that political drive, then international law would have no effect.

Dr Chris Reus-Smyt: I think you're absolutely right. There's no doubt that there is a necessary connection between the effectiveness of international law and the existence of political will and capacity to enforce international law. Having said that, I think it's very important to understand that international law works in very complicated ways in shaping the actions of states. We've seen, for example, almost without exception, 98 per cent of the time 98 per cent of states are observing the laws that they have contracted to observe. Now, that means first and foremost that there is a connection not only between enforcement but also long term rational interest on the part of states in the observance of international law. One of the things that states do in creating law is to deliberately create a framework of long term constraint that they know is necessary to maintain order in the international system. States invest considerable amounts of time and effort in actually fulfilling or acting within those constraints.

Now, to add another dimension to this, what we find when we study state compliance with international law is that states often, through their participation within international legal regimes, change their interests. The very process of the way in which a political issue is transformed when it enters the legal domain and the way in which states argue and negotiate in that context often leads states to change their underlying basic interests in ways that they would not have had to if they were not operating within that legal framework that they see is necessary for order. So what we see actually is a much more complex set of relationships, which is not to deny what you're saying at all but to suggest that, in fact, there is something much deeper operating in the relationship between politics and law than simply an equation of compliance with enforcement. I hope that answers your question.

Bernard O'Connor, Defence Civilian: You were talking about alternative modes of conflict and the state as a sovereign entity. So what I'd like you to address briefly is the role of the UN. We've also seen a growth in peacekeeping operations, which the Australian Defence Organisation has repeatedly been involved in, and yet we've also seen a continuing trend where we're involved in coalition forces rather than forces that are led and operated specifically by the UN. Does that trend—that change—indicate a conflict with the role of the state as a sovereign entity? Is the UN seen then as almost a barrier to the importance of a sovereign state?

Dr Chris Reus-Smyt: Okay, let me try a number of different tacks in answering that question. I think that it's crucially important to understand that for countries like Australia, as you would be aware, one of the principal calls on armed forces will be in peace making, peace building activities and peace keeping activities. I think that's likely to increase. In some respects I hope not, given the crises that often cause this but I think that's likely to increase. The question then is about the coalition basis of those kinds of activities as opposed to necessarily Security Council sanctioned or mandated activities. There is, I think, a gap that is emerging in the international system between the norms that states are starting to accept about the responsibilities of states to their populations, about the nature and limits of sovereignty, about the responsibility of members of the international community to the internal peace and stability of states. There is a development of norms that's occurring that is a good way ahead of the actual formal institutional and organisational capacity of the international system to pursue and uphold those norms. The UN is a very good example of that.

What we find, for example, and I think Kosovo is a good example of this where in terms of the advancing norms of the international system there was a very clear cut case for the type of NATO invention that occurred in Kosovo. But the UN Security Council apparatus was not amenable to the kind of decision making that was necessary for that to be Security Council sanctioned. So I think there's a gap that's emerging there. That's a gap that I would say I have a kind of dual attitude toward. I think on the one hand the fact that there are coalitions that operate outside the UN framework is often not a bad thing. I was a supporter of the Kosovo intervention and I think that it can be justified on legal grounds but not on charter grounds.

One of the strengths of the Kosovo intervention was that although it was not done through the UN, it was done through an established multilateral institutional and regional framework. What worries me is when you get ad hoc coalitions that are not necessarily as well grounded in genuine multilateral principles behind these kinds of operations. I would hope that we can develop mechanisms that enable us to better coordinate the need for underlying multilateral sanction and support with operating effectively. I hope that answers your question.

Flight Lieutenant David Parker, RAAF: Doctor, thanks very much for your paper. Just a quick observation and I was seeking your views on some of the changes which are happening in Europe at the moment with respect to, I suppose, the model which you purported, the liberal economic reform model which has been very much current since World War II. There was a view in yesterday's *Financial Review* ...(end of tape)… in fact, a number of the political changes happening in western Europe at the moment, or mainstream Europe, are in fact challenging this liberal economic view. You've got a bit of a swing to the right from what have been very much centralist governments with the election of Sylvio Berlusconi in Italy and also electoral challenges to the German administration and also challenges to the French administration recently. Do you think if Europe starts to stop the reform or stop the liberal economic model, how do you think that's going to impact on the broader global situation?

Dr Chris Reus-Smyt: Europe is very complicated because what Europe is trying to do is to pursue simultaneously a process of economic integration and political and social integration. It's not clear that the kind of move to the right that occurred in Holland, in Italy, in France is a response simply to backlash against economic integration. In fact, I think that it would be probably quite difficult to suggest that there's much backlash against that at all in the political move to the right. I think what is being felt in Europe at the moment is a concern among populations about the other aspects of integration. The move toward European citizenship, the move toward monetary union, the move toward the dealing with a simultaneous opening of borders internally within Europe but the development of closed borders on the outside of the European Union which has to do with the movement of peoples internally, I think it's all of those factors articulating with any sense of grievance that might be there to do with economic dislocation because of economic integration. So I actually think that that process, to really think about what's going in Europe you have to have holistic understanding of the integration process in Europe rather than focusing simply on the economic dimension, because I think you won't get at the heart of it through that.

Squadron Leader John Brown, RAAF: Do you see any recent trends by the US executive in regards to repudiation of certain treaties, failure to recognise the international court, reintroduction of tariffs in agriculture and steel as being any threat to the existing order, or is it just an aberration for short term gain?

Dr Chris Reus-Smyt: Let me answer that by drawing a distinction. Two terms are often used to describe powerful states, the term 'great power' and the term 'hegemon'. Let me distinguish between the two of those. A hegemon, I would argue, is a state that is dominant not only by virtue of its material capacities but also by virtue of a bargain that it has struck with other states in the system that it will lead, that it will establish rules of the international system, but that it will govern within those rules. In other words, hegemony is a social standing within the international system. A great power is a power whose status is based purely on its material capacities. It operates in the international system simply through the extension or use of that material capacity to produce outcomes that are consistent with its interests. Now, the US has in the post-1945 period oscillated between those two roles. But most of the time the US has conducted itself in the international system as a hegemon. It has worked in the international system partly through the exercise of its material power but also in the awareness that its long-term interests are dependent on its ability to maintain an order based on consensus among the other major powers. This has been a very successful formula for the US. In fact, much of its pre-eminence now comes from the very astute decisions that were made after World War II with regard to multilateral governance and the continuation of that policy by subsequent administrations.

Now, what I want to suggest is that I think under this current administration there has been a shift toward understanding American power in terms of a great power, a pre-eminent great power. But they have lost sight, I would argue, of the social basis of hegemony. Now, this is not an especially radical view, by the way. It's a view that Joseph Nye articulated in a recent issue of *International Affairs* and Nye is one of the most established Harvard professors, spent a lot of time in government. He's saying, 'If this administration does not re-engage with the multilateral system it will start to fundamentally undermine its own interests'.

Now, my worry is that unless the Bush administration re-engages with the foundations of American hegemony it will start to make mistakes, very substantial foreign policy mistakes, possibly cataclysmic mistakes. These mistakes will be, I think, based or informed on a view that material power resources automatically translate into political outcomes. But here I think

we need to distinguish between power resources, the material wealth that you have, the military resources you have, and power properly understood which is an ability to produce intended consequences. We ask two questions of the US at the moment: is the US well endowed with material resources? The answer is clearly, yes, it's the most powerful state in history in the sense of its material resources. Is it powerful in the ability to produce intended consequences? There I think the answer must have a big question mark over it. My own recommendation would be that the US, this administration, has to pull back, it has to re-engage with the multilateral foundations of its own power in order to preserve American interests.

EMERGING MAJOR POWERS AND THE INTERNATIONAL SYSTEM (AN INDIAN VIEW)

PROFESSOR DOCTOR SUBRATA KUMAR MITRA

INTRODUCTION: THE PROBLEM POSED

India's new and contested status as a nuclear power,[1] the scale of her arms purchases,[2] her investment in missile technology[3] and the huge deployment of ground troops on the western front against Pakistan are issues of immediate concern to her South Asian neighbours. Since tension feeds on tension, war in Afghanistan, terrorist attacks in Kolkata and Delhi, mounting tension between India and Pakistan over the issue of cross-border terrorism in Kashmir and the recent threat by General Pervez Musharraf to consider the first strike option as part of Pakistan's strategic response to Indian mobilisation have contributed to the seriousness of the situation. The probability of the regional conflict escalating into large scale nuclear war, or weapons of mass destruction finding their way into the hands of non-state actors, have drawn world attention to South Asia, which has had visits in quick succession by political leaders and military delegations from the US, UK, Germany, France, China and Russia.

The paper, focused on India's capacities, perceptions and institutional arrangements for the management of security, seeks to evaluate the significance of her status as an 'emerging' power for the security environment in Asia, and its implication for the international system. It analyses the main objective both empirically, and theoretically. The empirical aspect concerns the measurement of India's economic and military resources according to the conventional indicators of power.[4] These facts, based on experts' accounts, are supplemented by political and institutional factors which are significant for the estimation of the power of a country.

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[1]   Neither the five recognised nuclear weapon states, nor the signatory states of the NPT and CTBT and the members of the IAEA formally recognise India's and Pakistan's nuclear status. However, on the informal level, the major actors, above all the US administration, follow a rather pragmatic policy by engaging India in tacit negotiations and increasingly intense cooperation on nuclear safety and restrictions on technology transfer.

[2]   India, as Cohen reports, (2001, p. 31), 'has been in the midst of a major arms buying spree. A recent purchase from Russia for more than $4 billion worth of equipment will augment India's tank force and air fleet considerably and permit the acquisition of several important ships, including a second aircraft carrier. This included a $3 billion agreement to produce aircraft under license and acquire modern tanks and an aircraft carrier.' See 'India, Russia Sign $3 Billion arms deal', *Times of India*, 29 December 2000. Also 'India, Russia Ready Military Arms Dealer', CNN.com, 4 October 2000

[3]   'India's Integrated Guided Missile Development Programme (IGMDP) comprises four missile systems: Prithvi, surface-to-surface tactical battlefield missile; Akash, medium-range surface-to-air missile; Trishul, short-range surface-to-air missile; and Nag, third-generation anti-tank missile. Trishul is getting ready for user trials. Akash and Nag are in advanced stages of development. This program includes a development of the intermediate- range ballistic missile, Agni. The Department has developed and preserved convenience foods for the armed forces. It is vigorously pursuing the goal of technological self-reliance in defence systems through a 10-year national self-reliance mission. State-of-the-art technologies developed for missile program, LCA and other high technology systems are being canalised to make available bio-medical equipment at a much less cost.' (Singh, 1999, p. 140).

[4]   For the purpose, the paper draws on *India: Book of the Year 2002* for primary data and a broad range of expert accounts including those by Cohen (2001), Tellis (2001) and Perkovich (1999).

In addition, the analysis seeks to juxtapose the views of observers and actors, and locate the strategic perception of the Indian voter, an important factor in her political landscape in view of her active democratic process. These factors of contemporary politics are to be seen in the larger context of India's political and security culture, history, and the structure of the political system. The issue of contextualisation needs to be understood in terms of its methodological implication at the outset, because, while all states are members of the international system, the use to which they put international politics varies from one context to another. Western nation states, products of a long process of nation building, industrialisation and state-formation, seek the promotion of national interest through their strategic initiatives. Post-colonial state-nations, engaged in the process of nation-creation, are more complex in their rhetoric. For these actors, international politics, in addition to being used as an instrument of national interest, also plays a symbolic role in the building of a national profile. The paper seeks to combine both the material and symbolic aspects of Indian policy in the concept of a *security doctrine*, one that can bring potential power into an effective focus, in the absence of which mere appurtenances of power like guns and ships are just that and not much more. Since the stability of the doctrine, in addition to its coherence is an important parameter of the significance of Indian power, the paper also takes into account the problems of implementation as well.[5]

Though there is considerable force to the argument that South Asian security is crucially contingent on the India-China-Pakistan triangle,[6] India remains the biggest power in South Asia, and her significance, in terms of how India sees herself and how others see her, is a key consideration for regional politics. The need for a sophisticated methodological analysis arises paradoxically from the fact that India is a democratic state and an open society, both of which give a false sense of visibility to India's security profile.[7] Indians themselves are not too sure of the profile that India projects or the ideological commitments that underpin her politics.[8] Foreign observers, depending on their own national origin and the context, place their bets on predictions of India's next move either as the 'regional bully' or the 'regional push-over', and India, Janus-like, often proves both speculations to be right, appearing in the process to be either mystical-moral, or utterly devoid of principle or doctrine.[9]

The paper is in three parts. The first examines the state of play by *ranking India* with reference to her strategic resource endowments. The second part examines India's *strategic doctrine* and the organigram of security, and evaluates her potential power in the light of her doctrine. The third part makes a *prognosis* of the challenging path ahead for India with reference to the unsolved problems concerning her national security. The conclusion

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[5] As such, the paper seeks to balance the neo-realist approach, and the constructivist approach (Wendt, 1999), which connects the world of bombs and guns with the web of meanings specific to the stakeholders. The key texts used for this purpose in this paper include Jaswant Singh, *Defending India* (Macmillan: 1999), *Official Statements of the Government of India in Context of Terrorism and Related Issues* (Ministry of External Affairs, GOI: 2002) and the recently declassified *Reforming the National Security System: Recommendation of the Group of Ministers* (GOI: 2001).

[6] See Mitra (2001), Racine (2001).

[7] Notwithstanding Indian openness and garrulity, the preparations for the nuclear tests in Pokhran were kept secret up to the very last moment, a fact that is considered to be a major intelligence failure on the part of the American NSA.

[8] The rhetorical opening remark of Sunil Chilean's much-discussed *The Idea of India* (1997, p. 1) is characteristic of this genre. 'What is the history of India the history of?'

[9] Notice, for example, the tremendous costs in terms of lives and prestige paid for an Indian stand on Sri Lanka and the utter silence of the Indian regime on the most important settlement just concluded between the LTTE and the Sri Lankan government.

reconsiders the main issue posed in the introduction in the light of the analysis undertaken here.

INDIA AS AN EMERGING POWER

One of the main difficulties of approaching the theme of India's position as an emerging major power with any degree of certainty is that it is difficult to measure India's power with any degree of precision. Methods of ranking such as economic resources and military hardware, the reputational method and a 'class analysis' which measures a state's net power in relation to putative adversaries[10] come up with conflicting results. The net outcome is a sense of fluidity with regard to India's rank as a power and the conclusion that India belongs to the class of countries that are always emerging but never quite arriving.

The data on the conventional criteria of power such as population, economy, military personnel and hardware are generally accessible. In terms of gross indicators of size of the population and the economy, India is among the leading states in the world. As regards the number of inhabitants, India has the world's second largest population, having just passed the billion mark, and on current trends, could surpass China in the next few decades. India is far ahead of the US (270 million), and other points of reference like Russia, Indonesia, Japan, Pakistan, Brazil, and Nigeria all of which have between 100 million and 250 million people. According to the World Bank's *World Development Report* 1999/2000, India's economy is gigantic in terms of overall gross national product (GNP). It ranks eleventh in the world, with a total figure of $421 billion, compared with China's $929 billion, and Japan's $4,090 billion. When measured by purchasing power parity (PPP) taking into account local rates of exchange, India scores higher with $1,661 billion, the fourth largest in the world. As international politics recognises states as the main actors, these figures should rank India among the leading 'powers' of the world. But from the point of view of relative power, these figures are misleading, for the transformation of GNP to power must take into account the ability of an actor to mobilise the economy to a war economy, and for the population to be able to sustain a war over an indefinite period. Seen in this light, the impact of India's size is modest on her relative power position because of the poor performance on the per capita indicator. India ranks low in terms of GNP per capita, with a figure of only $430, far below China's $750. On social indicators, the picture is just as dismal, for India does rather badly on the human development index of the United Nations Development Program (UNDP).[11]

India, with a huge economy and a poor population, thus presents a somewhat contradictory picture. The picture has changed since the beginning of liberalisation in the early nineties, and the quality of life is slowly going up. But, in terms of relative power, this does not help India, for both GNP per capita and the quality of life are going up even faster among her competitors. It is also an intensely politicised society, and a contentious democracy, which, as will be argued below, affects the ratio of potential power to effective force, negatively.

With regard to India's defence outlay, the state spends approximately 3 per cent of its gross domestic product (GDP) on defence, amounting in 1998 to only $14 per person. By comparison, India's adversaries spend more. Pakistan spends over 6.5 per cent of national income on the armed forces, at about $28 per person, while China spends 5.3 per cent at $30 per person.[12] In terms of aggregate figures, India is usually in the top dozen states in terms of

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[10] See Cohen (2001), pp 25-31.
[11] See Cohen (2001) for details.
[12] See Cohen (2001), p. 29.

overall military expenditures, ranking twelfth in 1999–2000 with spending at about $14 billion.[13] This is modest compared to China's $40 billion or Japan's $37 billion, which is equivalent to the amount spent by most major European powers. Russia spends $54 billion, but the US, which spends well over $250 billion in military equipment and personnel is ahead of everyone else.

How do these figures translate into actual power? Cohen (2001) mentions a multiplier effect of 'low wages and generally high quality of Indian armed forces' which 'magnify the effect of India's mere $14 billion in defence spending.' India has the largest volunteer military establishment in the world, with well over 1 million regular soldiers, sailors and airmen, and nearly the same number of paramilitary forces. But, in terms of effective logistics, as we learn from Mr Jaswant Singh's influential *Defending India* (1999) a large part of this force is tied up with other tasks and as such, should be discounted when it comes to the calculation of national power. 'The growing use of the Army for Internal Security (IS) duties, senior Army officers fear, has affected the morale and fighting qualities of the soldier by realigning his mission and adversary orientation from external to internal enemies, which can be potentially very dangerous, blunting his battlefield skills—the time he would otherwise spend in training for conventional war is spent on IS duties, providing him no rest and respite, and exposing him to, and infecting him with, the lax and corrupt values of the police and paramilitary forces. It is not the occasional but full-time 'aid to civil power' which is the problem.'[14]

Singh's criticism of the Indian strategy of withdrawing troops from the border to employ Army personnel for the maintenance of internal security for which the Army was not intended, is echoed by the results of a high level inquiry commission set up by the Government of India which states that the withdrawal of paramilitary (Army) forces from the borders has in the past exacerbated the problems of border management (*Recommendations of the Group of Ministers* (2001), p. 60). This internal-external security link persists in recent discussions of India's security management and underscores the necessity for political science to see both themes as connected. India's contentious democracy and the worsening communal relations have greatly exacerbated the need for effective policing. The police are a State subject under the federal division of powers and, being under the control of India's regional governments, are not always considered politically neutral. At the slightest outbreak of communal violence, therefore, there is a clamour for the deployment of the army. Already over stretched in view of its engagement with anti-insurgency operations in Jammu and Kashmir, Punjab, the Northeast and sundry other trouble spots where the state is engaged in fighting Naxalites (left-wing guerrilla), the additional demands on its personnel greatly reduce the effective fire power of the armed forces.

In contrast to armed personnel, the situation is marginally better when it comes to hardware. As we learn from Cohen (2001, p.29) India's armed forces have a significant number of armoured vehicles: 4000 tanks, and about 500 armoured personnel carriers organised into 60 tank regiments. India also has almost 200 artillery regiments, including a few equipped with short-range 'Prithvi' missiles manufactured in India. To further improve and to modernise this arsenal, in 2000, India signed the biggest MBT-deal in Asia with Russia, which provides for the delivery of no less than 310 modern T-90S Main Battle Tanks, 184 of which will be build

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[13] These and other figures in the following paragraphs are drawn from the various national entries in International Institute for Strategic Studies, *The Military Balance, 1999-2000* (Oxford University Press, 1999), pp.20, 112, 161-63, 166-67, 186, 300-05. They are exclusive of the costs for the nuclear program.

[14] Singh (1999), p. 262.

in India by licence.[15] Indian air power has an edge over Pakistan in terms of numbers, with almost double the aircraft (India has 774 combat aircraft, mostly multipurpose fighters; Pakistan has only 389). But in comparison, China is better endowed than India, with a vast armoured force, more than 8000 tanks and more than 3000 combat aircraft. Ironically, India, China and Pakistan share vintage Soviet air technology for a variety of reasons: China because of the old Soviet links in the early years after World War II, India because of the years of close collaboration and technology transfer and Pakistan because of the trading relation with China! However, Cohen writes that each of these three countries possesses a small core of advanced fighters, capable of serving as delivery vehicles for nuclear weapons. India and China possess the nuclear-capable Sukhoi 30; India and Pakistan each possess a variant of the Mirage 2000; although Pakistan is the only air force in this triad that flies the advanced but rapidly ageing American F-16.

India had sought in the past to increase her room to manoeuvre against Pakistan through diversification in arms procurement which lowers the dependence on any particular arms supplier, and through a program of indigenisation which required supply contracts to include a provision for production in India under licence. The 1965 Indo-Pak war had demonstrated the efficacy of this strategy for India, unlike Pakistan, was not dependent on an outside supplier for spare parts, or for continued supply. But these advantages, as the paper will argue below, have been neutralised through nuclearisation, which has helped Pakistan bridge the 'strategic depth' against India, and the ability of Pakistan to draw on both China and the US against India. In addition, there have been allegations that Indian armed forces are suffering from waste and corruption and are under-equipped compared with even Pakistan.[16] A recent 17 per cent increase in defence spending will still have a limited impact on India's power projection capabilities.[17]

India and Pakistan are self-declared nuclear powers and their devices, with the multiplier of delivery vehicles, must also be factored into the regional military balance. China is supposed to have nearly 300 deployed nuclear weapons. While the question of deployed nuclear weapons in India is still subject to speculation, India is supposed to have the capacity for building between 25 and 100 warheads, and Pakistan to have enough fissile material to produce between 10 and 15 devices, although recent reports suggest that Pakistan holds the larger inventory.[18] It remains unclear as to how many weapons are deployed at a given time, but one can safely assume that both have at least a few devices and could produce many more on fairly short notice. China is believed by some Indian analysts to have several nuclear weapons deployed in bases in Tibet. As for delivery, aircraft still remains the main mode, but Pakistan is assumed to be moving toward a missile-based capability. Some experts assert that India lags behind Pakistan in this category, with only a few short-range missiles (the Prithvi) in its inventory, and a medium-range missile (the Agni) still under development. China has nearly seventy medium-range missiles, a few long-range intercontinental ballistic missiles

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[15] Zulkarnen, Isaak: 'Main Battle Tank Developments In The Asia-Pacific', *Asian Defence Journal* November 2001, S. 18-21 (18).

[16] See the scathing pre-Kargil critique by a BJP sympathiser, Mohan Guruswamy, 'Modernise or Perish', *Indian Express*, 26 January 1998. After Kargil, he and others pointed out the considerable qualitative disadvantages held by India's larger forces when confronted with the Pakistani forces.

[17] International Institute for Strategic Studies, 'India's Military Spending: Prospect for Modernization', *Strategic Comments*, vol. 6 (July 2000).

[18] For an analysis, confirmed in part by recently retired US officials, see Robert Windrem and Tammy Kupperman, 'Pakistan Nukes Outstrip India's, Officials Say', MSNBC News, at www.msnbc.com/news/417106.asp?cpl=1 accessed 24 January 2001. 'Pakistan, though nominally weak (compared to India) is actually stronger than it is commonly perceived.' (Tellis 1999, p. 730).

(ICBMs), and a dozen sea-launched medium-range missiles (India has neither an ICBM nor a sea-launch capability, although programs for development of both are under way). Most of these Chinese systems could theoretically target major Indian cities or Indian nuclear weapons based in northern and eastern India.[19]

In terms of naval power, India's fleet is smaller than China's, but anecdotal evidence suggests that it is better trained and more experienced. Indian ships range throughout the Indian Ocean, paying regular calls on ports in East Africa and Southeast Asia. Although in terms of quantity, the Indian navy is shrinking, since many obsolete vessels are being retired, and although a new carrier[20] may be out of (financial) reach for the Indian Navy, the quality of the Indian warships is gradually improving through the acquisition of Russian *Kashin*-Class destroyers and Russian *Granit*-SLCMs for India's Kilo-Class submarines. So, the Indian Navy may currently not be able to conduct sustained operations far from base (for example in the South China Sea), but it is definitely well positioned to defend India's interests in the Bay of Bengal and in the Arabian Sea.

As far as India is concerned, a brief perusal of her nuclear program quickly reveals a long, expensive engagement with technical development but without the backing of a well conceptualised doctrine. [21] The program started way back in 1944, with the founding of the Tata Institute for Fundamental Research under the leadership of the noted physicist Homi J. Bhabha who had the ear of Nehru. The original intention was to use nuclear research as a source of energy which nicely dovetailed into Nehru's economic plans for self-sufficiency in energy-deficient India. In 1948 the Atomic Energy Commission (AEC) was established. In 1956 and 1960 the first two civilian nuclear reactors were opened. An inconclusive national debate about exercising this option ensued, chiefly between Homi Bhabha and V.K. Menon, India's defence minister. China tested its nuclear bomb for the first time in 1964. India, with enough nuclear material and the necessary technology, had the option of 'going nuclear' for the first time in 1965. However, no clear policy evolved during these politically turbulent times of India. From 1968 onwards a second nuclear debate began due to pressure to sign the Nuclear Non-Proliferation Treaty (NPT) from the West, the Soviet Union and Japan. India developed the counter argument of the 'discriminatory' international nuclear order. In 1974 India tested a 'peaceful nuclear device' for the first time at Pokhran. During the 1970s India gained respect for its nuclear advances but failed to develop a plan for the future policies on nuclearisation. The 1980s show India developing a nuclear doctrine (Jasjit Singh 1997) of 'recessed deterrence', meaning nuclearisation to a point where deployable weapons can be produced at very short notice, but short of full weaponisation, since the threat of that should suffice politically. This form of nuclearisation has gained a following because an open nuclearisation was believed to help stabilise the region and to fend off political intruders in the region, in India's 'natural sphere' of influence.

The bomb gradually came to acquire the aura of a symbol of India's power. Support for this view ranged from the Hindu nationalist Bharatiya Janata Party to others, including the socialist George Fernandes, originally opposed to the bomb, but even more opposed to the bullying by other nuclear powers. The 'Subrahmanyam logic', so-called after the most celebrated Indian 'hawk', pressuring the 'nuclear haves' into disarmament while protecting

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[19] Cohen (2001), p. 30. See Perkovich (1999) for a detailed account of the development of India's nuclear program. For a projection of future growth of India's nuclear weapons program, see Tellis (1999), p. 720.

[20] Some sources like Jane's Navy International (January 2001) claim that the Indian Navy has bought the ex-Soviet carrier Admiral Gorshkov, though those remain to date unsubstantiated rumours.

[21] See Cohen (2001), pp. 157-71.

India against nuclear blackmail of nuclearisation (dating back to the mid-1970s) still applies today to India's official position.

The push towards nuclearisation appears to have been authorised by Prime Minister Rajiv Gandhi in the late eighties after his own de-nuclearisation initiative was cold shouldered by western powers. In Indian eyes, from 1990 Pakistan was considered a nuclear weapons state. From 1995–1997 the NPT/Arms Control Regime became greatly tightened, threatening closer scrutiny of India's nuclear program. The advent of the Bharatiya Janata Party to power turned the bomb into a symbol of Indian nationhood and an act of peaceful resistance to international bullying. The integration of India's search for power and her nuclearisation is however far from complete. In Cohen's view, if at all India is to be viewed as a major power, it is '**despite** [and] not **because** of its overt nuclear capabilities.'[22]

The last variable that needs to be taken into consideration with regard to national power is 'morale', that ultimate force-multiplier, which Cohen holds to be high in the case of India.[23] But still, the sum of the parts is less than the whole. Pulling all these factors together, Cohen concludes that 'for the past several decades, India has had a weak or at least highly variable reputation, as judged by the ability to influence without attempting to exercise influence, ... one that is easily written off as a regional power.'[24] India's relative weakness was not fully visible at the height of the Cold War. Inevitably, her ranking has been adversely affected by the decline of the Soviet Union, though the fact does not appear to have been fully registered by Indian policy makers. India of course continues to be regarded warily by her neighbours but any comparison with her neighbours is seen by Indian policy makers as condescending towards India and unappreciative of her true power.

India's ambiguous profile results from the hiatus between self-perception and the evaluation by others. This is compounded by the contradiction between nostalgic self-perception as a major player in the international arena at par with China which would require a commensurate strategic engagement, and the current commitments in South Asia which restricts her strategic vision and engagement basically to the region. This hiatus between the perception of India and her self-perception also causes her to shuttle uneasily between grandstanding on the one hand, and inexplicable acquiescence with situations that are contrary to her interests or declared principles on the other, lowering, in the process, her credibility even further.

Thus, though India, buoyed by the aspirations of her increasingly vocal middle class, has been reaching out for a global market and a global role, in terms of power-ranking, the intentions have not become a reality. As Sandy Gordon suggests, the complexity and difficulty of the South Asian environment have forced India's attention to focus more on the problems associated with its immediate neighbourhood and on nation-building than those of the Indian Ocean region, let alone the world. 'This fact is not without irony. While it is the problems of the neighbourhood that have largely driven India's military build-up, it is also those very problems that continue to limit its strategic reach.'[25]

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[22]   Cohen (2001), p. 197.
[23]   'It is more difficult to measure the relative quality of Indian forces, since much depends on leadership, both civilian and military. However, the Indian military, when adequately led and given a clear and reasonable objective, can obviously perform extremely well, albeit at a low to intermediate level of technological sophistication. The Indian armed forces certainly compare favorably with those of Pakistan and China, although they would have a hard time coping with naval or air units from a truly advanced military power.'
[24]   Cohen (2001), p. 26.
[25]   See Babbage and Gordon (2002), p. 171.

With regard to the Asian strategic landscape, thus, India's position remains unspecified. While quite clearly the leading military power on the subcontinent, India is not accepted as the paramount power. Indeed, the Indian analyst Raju Thomas argues that 'India does not yet have clear superiority in the event of a combined attack by Pakistan and China, a point borne out by the situation on the border with Pakistan, where because of demands on Indian forces elsewhere, Pakistan is still able to match India almost division for division.'[26] Currently, as the trusted ally of the US, with the ban on the supply of arms lifted, the General resoundingly voted in as President (although the October elections might still throw a spanner in the works), Pakistan is in a strong position militarily *vis-à-vis* India. India has been making efforts to counter this by attempting to revive closer relations with Russia and undertaking high level diplomatic exchanges with China. But then, from Pakistan's point of view, this is more than balanced by the growing weakness of the NDA government of Delhi, fraught with religious tension in India, and the beleaguered position of Prime Minister Vajpayee within his own party, facing a growing challenge from more robust proponents of *hindutva*.

What does this make out of India in so far as her rank is concerned? Cohen's cryptic description of India as 'a different great power', being as unspecific as her status as an 'emerging' power, is not of much help. But his detailed reasoning is certainly worth reproducing in full.

Although India's ability to extend its military power or play a balancing role elsewhere remains relatively modest, this power is increasing, as is the skill with which that power is now wielded. In the economic arena, Indian influence is mixed: while it does have significant capabilities in advanced and high technology, it was slow to develop an export capability of any consequence. This, also, is changing. On balance, India has long been regarded as a state that has failed to live up to expectations. Indians, of course, argue that there are reasons for this lack of performance, the primary being that New Delhi remains enmeshed in a needless conflict with Pakistan that prevents it from becoming a major power. But even the propensity to blame others for India's ills is changing, and a new sense of confidence has become apparent in the past several years.

Though India may be the weakest of the great states and still unable to do some important things, it is capable of surprises. It cannot be ignored, but neither will it act like a great power at all times. Like China, which periodically pleads that it is still a 'third world' state, India will have one foot in the 'developing' world and one in the world of advanced economic and military powers for the indefinite future.[27]

THE INDIAN STRATEGIC DOCTRINE

The strategic doctrine of a country is an indispensable instrument for the effective measurement of its ranking, for the strategic vision, the calculations and the propensities towards risk-taking that the doctrine contains provide important clues to the transformation of potential power into effective force. *Panchasheela*, the five principles of peaceful coexistence to which Jawaharlal Nehru gave an institutional expression in terms of the Non-aligned Movement provided a complete if not coherent statement of India's strategic doctrine at the

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[26]   ibid., p. 172.
[27]   Cohen, 2001, p 35

height of the Cold War.[28] However, though the Nehruvian consensus has lost its aura as much in India's domestic politics as in her international affairs, no single coherent doctrine has emerged to take its place. New generations of policy makers, voters, parties and major changes in the regional and international contexts have influenced the development of strategic thinking. Each of the major wars of South Asia, or war-like incidents mentioned by Jaswant Singh (Table 1) has sparked off both bouts of doctrine elaboration by the government and political controversies around them. Our search for a strategic doctrine would draw on the discourse that these incidents gave rise to in Indian politics.

A.	Inter-State Wars	
	1947–48	The First Indo-Pak Conflict
	1962	Sino-Indian Border War
	1965	The Second Indo-Pak War
	1971	The Third Indo-Pak War: Creation of Bangladesh
B.	Other Internal Military Operations	
	1947	Punjab Boundary Force
	1947	Junagarh deployment
	1948	Hyderabad police action
	1961	Liberation of Goa
	1984	Operation Bluestar
C. Counter-insurgency Operations		
	1954–74	Anti-insurgency operations in Nagaland
	1965–67	Anti-insurgency operations in Mizoram
	1971	Anti-insurgency operations in Tripura and Mizoram.
	1985–90	Anti-terrorist deployments in Punjab
	1989–	Anti-terrorist deployments in Jammu & Kashmir
1991		Anti-insurgency operation in Assam: Operation Rhino

Table 1: Major Military Operations of India (1947–97)[29]

As things stood at the outset, foreign policy and strategic planning were almost exclusively in the hands of Nehru and his close advisers during his tenure as PM until 1964. More recently this formerly relatively closed circle of policy experts has opened up to allow regional political forces (which have come to wield influence as coalition partners at the centre) to air their respective views on strategic planning. Essentially, for Cohen, defence and strategic planning has come from one voice (Nehru's) in the early years to many voices and coalitions in more recent times.

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[28] See Mansingh (1984), pp. 13-25 for a brief review of the core principles of non-alignment and the modifications made to them by Indira Gandhi.
[29] Singh, (1999), India's Military Operations, pp.142-143.

The Nehruvian Tradition of strategic thinking, which went through many metamorphoses under his successors, namely Lal Bahadur Shastri (1964–66), Indira Gandhi (1966–77, 80–84) and Rajiv Gandhi (1984–89), represents a mix of liberal internationalism and a 'strong state' approach. It was originally characterised by a sceptical view of the US and a reliance on the Soviet Union and support for other anticolonial movements. Nehru acknowledged the problems facing a weak state in the international system and consequently aimed at co-operation where possible and necessary. The 'Militant Nehruvians' entered the scene after India's defeat in the 1962 Indo-Chinese border war. They shared Nehru's suspicion of the unbalanced international power system but rather endorsed the use of force. They emphasised threats to India. Subcontinental dominance became the goal of foreign policy. Pakistan, China and the US were seen as essentially hostile towards India. This thinking persisted from 1972 to about 1992.

According to Cohen, the Nehruvian origins of strategic thinking in post-independence India have been enriched by two additional currents which he calls, respectively, realists and revitalists, to distinguish them from the overall idealism of Jawaharlal Nehru. The realists started as offshoots from the generally liberal, market oriented, pro-American Swatantra party in the mid-1960s. The realists (Cohen counts foreign minister Jaswant Singh and K.C. Pant, one-time Special Envoy to Kashmir (now the Deputy Chief of the Planning Commission), as examples), share with Nehruvians the belief in India's inherent greatness and with militant Nehruvians an inclination towards the use of force when perceived necessary. They hold a more pragmatic view of Sino-Indian and Indo-US relations. Realists support increased economic openness and integration with the international market forces. The Revitalists take a more regional perspective, stemming from their preoccupation with indianising South Asia, which they see as essentially the main theatre of action for Indian foreign policy. They, like the realists, deem nuclearisation necessary. For Cohen the modern synthesis of realist and revitalist perspectives is Prime Minister Atal Behari Vajpayee.[30]

Nehru saw himself first and foremost as a great moderniser and as such, social and economic development was the cornerstone of his political thinking. Defence as a political and strategic issue was mainly used to advance these objectives. Nehru was deeply distrustful of the military as such and the Indian military establishment. Not surprisingly, no coherent security doctrine developed during the period of Nehru's stewardship, with non-alignment seen as an overall guide to the ways and means of avoiding conflict rather than a strategy of the enhancement of national power and security. India established good neighbourly relations with her smaller neighbours on the basis of treaties with Bhutan in 1949, Sikkim in 1950, Nepal in 1950, Burma in 1951 and Ceylon in 1954/1964. Force during this phase was used primarily for domestic purposes; the invasion of Goa in 1961 was the exception.

The period during the Indo-China war of 1962 and the Indo-Pak war of 1971 caused a major re-thinking, for India had to conceptualise the possibility of a war on two fronts. The increase in defence allocation during this period, and increased military co-operation with the West saw the beginning of a greater security consciousness. After Indira Gandhi came to power in 1966 she displayed a greater willingness to link politics and military affairs. She also turned India firmly in the direction of the Soviet Union with the Indo-Soviet Treaty of Peace, Friendship and Co-operation, signed on 9 August 1971. After 1971, the balance of power in South Asia was altered significantly, with the defeat of Pakistan in 1971, the emergence of

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[30]   Cohen (2001), p. 47.

Bangladesh and the peaceful nuclear explosion of 1974 which gave yet another indication of an 'Indira Doctrine', which visualised India as the hegemonic power of South Asia.[31]

The defeat of Indira Gandhi in the Parliamentary elections of 1977 and the ushering in of the first Janata government in Delhi under the leadership of Morarji Desai, seen at that time as pro-American, tilted the balance away from the Soviet Union, but at the same time, introduced another dose of uncertainty to India's strategic vision. This changed again in 1980 with the return of Indira, but the period of 1980–84 saw India isolated, and funds for defence spending becoming scarce. Increased US support to Pakistan after the Soviet invasion in Afghanistan saw India's return to reliance on the Soviet Union and greater Soviet arms imports in India.

In retrospect, the period that intervened between the two assassinations, of Indira Gandhi in 1984 by her Sikh body guards and Rajiv Gandhi by Tamil terrorists in 1989, was one of continued Indira 'doctrine' which saw attempts to expand India's influence in South Asia and hostility towards China, Pakistan and the US grow stronger. Missile programs were initiated after 1983 and defence spending doubled from 1980 to 1989. Operations Siachen (1984) and Brasstacks (1986–87) occurred. Support was lent to the Tamil Tigers (1987–90) and an Indian intervention in Male took place in 1988.

Though the onset of liberalisation of the Indian economy in 1991 prepared the ground for a rapprochement with the US, the contradictory pulls within India's strategic thinking continued from 1990–99. The collapse of the Soviet Union necessitated a radical change in policy, while economic reforms in India necessitated budget cuts affecting the military adversely. This might have opened a window of opportunity for Pakistan, which, taking advantage of the onset of militancy in Kashmir started supporting cross border insurgency in Kashmir and covert military operations. While on the political front the unilateralist Gujaral doctrine and subsequently the BJP initiatives for a diplomatic deal with Pakistan (by the way first of the Lahore bus trip and subsequently the Agra summit) continued, the Pakistani military operated on more conservative lines and sought to take advantage of perceived weakness of the Indian military establishment. One consequence was the war in Kargil in 1999, but the forceful reaction of India's army once again underscored the need for a coherent Indian strategic doctrine.

The conceptual disarray and the lack of strategic vision that characterise Indian thinking on strategic and security issues to this point, in Singh's view, can be attributed partly to the lack of mapping skills and geographical knowledge of the North-east and North-west frontiers but to a great degree to the perceived lack of necessity with regard to the exact delineation of India's external borders in continuation with the practice during the British colonial period. It was seen as contrary to British interests to have exact borders. The British found the separation of their spheres of influence from those of their rivals through 'buffer zones' as a more effective strategy. The continuation of this policy, however, assumed the continuation of the power that the British were able to mobilise as an imperial power. The continuation of these soft frontiers, particularly with China, was to be a major contributory cause to the conflict of 1962.[32]

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[31]   See Mansingh (1984).
[32]   Singh, Jaswant (1999), Lack of Strategic Vision: p. 186.

All modern states, as Tilly has argued, seek to develop an integrated security doctrine that combines internal and external security, basically to safeguard the interests of the ruling elites.[33] That India did not go in that direction during the crucial two decades following independence is an issue of great theoretical interest. Could this be the consequence of the lack of a strategic culture in India?

The issue has been investigated at length by Jaswant Singh. Of particular significance is the fact that though India is a full-fledged state with all the rights and obligations due to a state under the conventions of the international system, yet one still has to discuss why India has not pursued national power like others. It arises in this form primarily because of the attribution of a non-strategic, spiritual culture to India by colonial anthropology. In its loose, idealistic formulation, panchasheela appears to give institutional form to this non-strategic attitude. Singh, taking issue against this reading of Indian history, shows how, buried under the layers of spiritual rhetoric and rituals there was a strategic culture and appropriate institutions in pre-modern India. As a key member of the current government and one of its main strategists, Singh argues that the present government has been able to build on this basis in order to bring in a new institutional arrangement, leading to a new organigram of security management.

Since the existence of a tradition of strategic culture in India is not often acknowledged by specialists in the field, it is important to take cognisance of it at this stage. The evidence that Singh builds his assertions on comes chiefly from Kautilya's *Arthasastra,* a text on governance that has been traced to four centuries before Christ. The text has an obsessive occupation with 'spies, secrets, and treachery. When listing the virtues of a king, Kautilya includes along with energy, controlling his sensual nature, cultivating his intellect, and associating with his elders, the need to keep 'a watchful eye by means of spies'.[34] Kautilya gave great importance to gathering intelligence.

This establishment of spies to be created to serve the king should include the apostate monk, the seeming householder, the seeming trader, the seeming ascetic, as well as the secret agent [the brave, the poison-giver, and the benign nun]. They should spy on the councillors, the chaplain, the commander-in-chief, the crown-prince, the chief palace usher, the chief of the palace guards, the director, the administrator, the director of stores, the commandant, the city judge, the director of factories, the council of ministers, the superintendents, the chief of the army staff, the commandant of the fort, the commandant of the frontier-fort, the forest chieftain too, and that also in his own territory.[35]

Exactly why India's strategic tradition failed to develop on the same lines as the modern state in the west is a larger debate on India's state tradition, which need not detain us here. The

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[33] As Skocpol and Charles Tilly, suggest 'If *protection rackets* represent crime at its smoothest, then war making and state making—quintessential protection rackets with the added advantage of legitimacy—qualify as our largest example of organized crime. Tilly then goes on to define the functions of states in terms of the following: *War making*: Eliminating or neutralizing their own rivals outside the territories in which they have clear and continuous priority as wielders of force; *State making*: Eliminating or neutralizing their rivals inside those territories; *Protection*: Eliminating or neutralizing the enemies of their *clients*; *Extraction*: Acquiring the means of carrying out the first three activities—war making, state making, and protection.' 'War Making and State Making as Organized Crime' See Peter B. Evans, Dietrich Rueschemeyer and Theda Skocpol, eds., *Bringing the State Back in* (Cambridge: Cambridge University Press; 1985) (p. 169, emphasis added).

[34] Singh, Jaswant (1999), p. 12.

[35] ibid., p. 13.

important point here is that the loss of autonomy in the wake of foreign invasion caused India's strategic culture to get internalised, and India became obsessed with curbing the enemy within rather than combating external foes. This, Singh contends, 'created a yawning chasm of mutual suspicion between the state and the citizen. This signal failure, the establishment of a confident, viable and efficient Indian state, nourished by effective institutional instruments, and sustained by a willing and co-operative citizenry has become a political and cultural trait; it both prescribes the form and constricts the functioning of the Indian state, even today. In the process, it has prevented India from developing a proper strategic doctrine.'

The 'rediscovery' of India's strategic culture has now become the basis of an avid discourse within India's security establishment. Singh's *Defending India* (1999) in a way has set the pace but there are several other texts (ed., Air Commodore Jasjit Singh's *Asian Security in the 21st Century*, 1999) that have come out with institutional arrangements that base themselves on this revival of India's security culture. Singh's evocation of how this security culture formed the basis of the continuation of Indian resistance to foreign aggression is of great interest.

 The remarkable aspect is not that this pacifist thought developed but that despite it so much else about warfare as an instrument of policy, about the craft of war, about valour and heroism remained. That despite the combined cultural influences of such pacifist faiths, Islamic conquest of just parts of India needed many centuries of strife; that even at the height of its glory and spread the Mughal Empire did not encompass the whole of India, and that it was in reality not so much a 'Mughal' empire as a political-military alliance, a coalition of the principal Rajput feudatories of the period and the Mughals. These were, by any standards, achievements which were not possible without a highly developed sense of military craft; but of a larger strategic culture, alas, they remained largely innocent. As Jadunath Sarkar, the foremost Indian historian of ancient and Mughal military affairs, has observed, 'these armies were largely levy, improvised for national defence under threat of invasion', and while 'the Indian defenders were brave… each man fought to the death in isolation ...'[36]

Quoting extensively from the writings of the main actors involved in some of India's recent security issues, particularly the disastrous experience of the Indian peace keeping force in Sri Lanka, Singh shows the negative consequences of the absence of a clear strategic doctrine. The result of the new thinking, and the rise to power and influence of a new defence elite are major changes in the institutional arrangement of Indian security. Partly under the impulse of this new thinking, the BJP-led government of India set up a group of ministers whose recommendations have now come up with the rudiments of a strategic doctrine. The report takes the first comprehensive look at all challenges to the national security of India, both internal and external. Members of the group of ministers were L.K. Advani (home), George Fernandes (Defense), Jaswant Singh (external) and Yashwant Sinha (finance). Its task was the identification of problems and possible solutions in the areas of intelligence, internal security, border management and defence.

The report employs a new (at least in India) concept of national security which defines four elements as being conditional for its existence: military might, economic strength, internal cohesion and technological prowess (p. 6). This marks a departure from the former equation of national security with military power. The report states the necessity for an overhaul of the

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[36]   Singh, Jaswant (1999), p. 15.

national security system since it is identified as being essentially 50 years old. A pragmatic view is taken on the lasting US status as the sole superpower (p. 7):

US pre-eminence in the global strategic architecture is unlikely to diminish in the foreseeable future. Meaningful broad-based engagement with the US spanning political, economic and technological interests and commonalties, will impact beneficially on our external security concerns with a resultant albeit less visible impact on our internal security environment.

Non-state terrorist actors are identified as one of the main targets of future activity in enhancing the national security profile of India. China and Pakistan are mentioned as the main concerns in the report. 'The rapid economic growth of China in the last few years coupled with its ambitious military modernisation program will enable it to attain near superpower status by 2020. [...] Special note must be taken of China's wide-ranging defence modernisation with a special focus on force-multipliers and high technology weapon systems.' 'Pakistan will continue to pose a threat to India's security in the future also. Its traditional hostility and single-minded aim of destabilising India, is not focused just on Kashmir but on a search for parity.' 'As a result of Pakistan's political and economic instability, its military regime may act irrationally, particularly in view of its propensity to function through terrorist outfits.' 'Pakistan believes that nuclear weapons can compensate for 'conventional military inferiority; its leaders have not concealed their desire to use nuclear weapons against India.'[37]

The discussion of the assumptions that go into Pakistani decision-making are indicative of the thinking at the highest level of the government of India with regard to the Indian strategic doctrine. There is every indication that there are similar deliberations in process with regard to China as well. But, unfortunately, the declassified report has withheld this information because the paragraphs on the Sino-Indian border have been completely deleted for 'Government Security' reasons. The report makes an oblique reference to the unsettled problems with regard to China through a general reference to the problems of India's borders which are undefined and undemarcated on the ground. The report acknowledges that disputed and unsettled borders are matters of contention. In addition, the porousness of borders due to their man-made artificial character (ie., not necessarily corresponding to natural boundaries), lack of clear accountability for border security, command and control problems arising out of divided responsibility among too many different forces deemed to be responsible for border management duties, and finally, the unsatisfactory equipment situation, lacking in night vision and surveillance capacity are mentioned as major problems facing India's security management.

The report makes explicit references to the lack of synchronisation among and between the three departments in the MoD, including the relevant elements of Defence Finance.

The functioning of the Chiefs of Staff Committee (COSC) has, to date, revealed serious weaknesses in its ability to provide single military advice to the government, and resolve substantive inter-Service doctrinal, planning, policy and operational issues adequately. The present system governing Defence acquisitions suffers from a lack of integrated planning. Ideally, the Government's national security objectives should lead to a formulation of defence objectives, which, in turn, define defence policy and the directives of the Defence Minister. This is not the case at present. The defence planning process is greatly handicapped by the

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[37] GoM Report (2001), p.10.

absence of a national security doctrine. Military capability cannot exist in isolation from broader societal trends and many of the factors that buttress the military ethos are at odds with trends in civilian society. As transparency increases and an active media highlights the business of military life, the ability to maintain a different but acceptable military ethos has come under strain. Finding, identifying, educating, motivating and retaining quality manpower has become difficult and steps need to be taken to optimise the attractiveness of a Service career. There is also no synergy between academic research and Government's requirements. Whereas academic research is carried out more or less in a policy vacuum, official agencies undertake their policy making tasks in the absence of the wealth of information available with the academic community.[38]

Extensive reforms are suggested, including the intensification of defence production and increased efficiency and profitability, involvement of the private sector, improvement of the Indian Army's image by enhancing media and public relations and professional dissemination of information on India and its military (power, interests, past campaigns). The Report also incorporates the recommendations which came out of the Kargil Review Committee's work in its appendices. They include inter alia the recommendation of an image overhaul for the Indian army and many suggestions which were taken up by the GoM in the present report.[39] The new structure can be represented in terms of the organigram in Figure 1.

The main objective of the new innovations in India's security management apparatus is to provide what the GoM refer to as 'single military advice', the failure of which has been pointed out by astute observers like Gohan Gunaratna as one of the contributing factors to the failure of the IPKF to subdue the Tamil Tigers and to some extent, the failure of India to make a headway in Kashmir. The new institutional arrangement of Indian security seeks to achieve a greater unity of purpose and focus in implementation through co-ordination among the three wings of the military forces, the paramilitary, the security services of the State governments and the various civilian agencies responsible for policy formulation, procurement and implementation. But, how effective are the innovations in the security management structure likely to be?

The institutional innovations for greater co-ordination have been greeted by India's top military brass as positive developments.[40] But in view of the lack of inter-party consensus about the core parameters of the security doctrine (witness the controversy over POTO, for example) and the contradictory attitudes that characterise Indian public opinion, the likelihood of effective implementation of the security doctrine in the coherent form in which it is conceptualised by the Group of Ministers Report (2001) and given institutional form in the organigram appears rather low.

India's active media and contentious democracy provide effective conditions for an influential role of Indian public opinion in the formulation and implementation of strategic decisions. The relatively low numbers—reported in Table 2—who claim not to have heard the names of countries of the region, considering the fact that the data were gleaned from a national random sample of the Indian electorate, show first of all that Indian security and foreign policy are both firmly in the realm of national political consciousness, a fact that no government in politically contentious India can afford to ignore. But, while the Indian public appear to
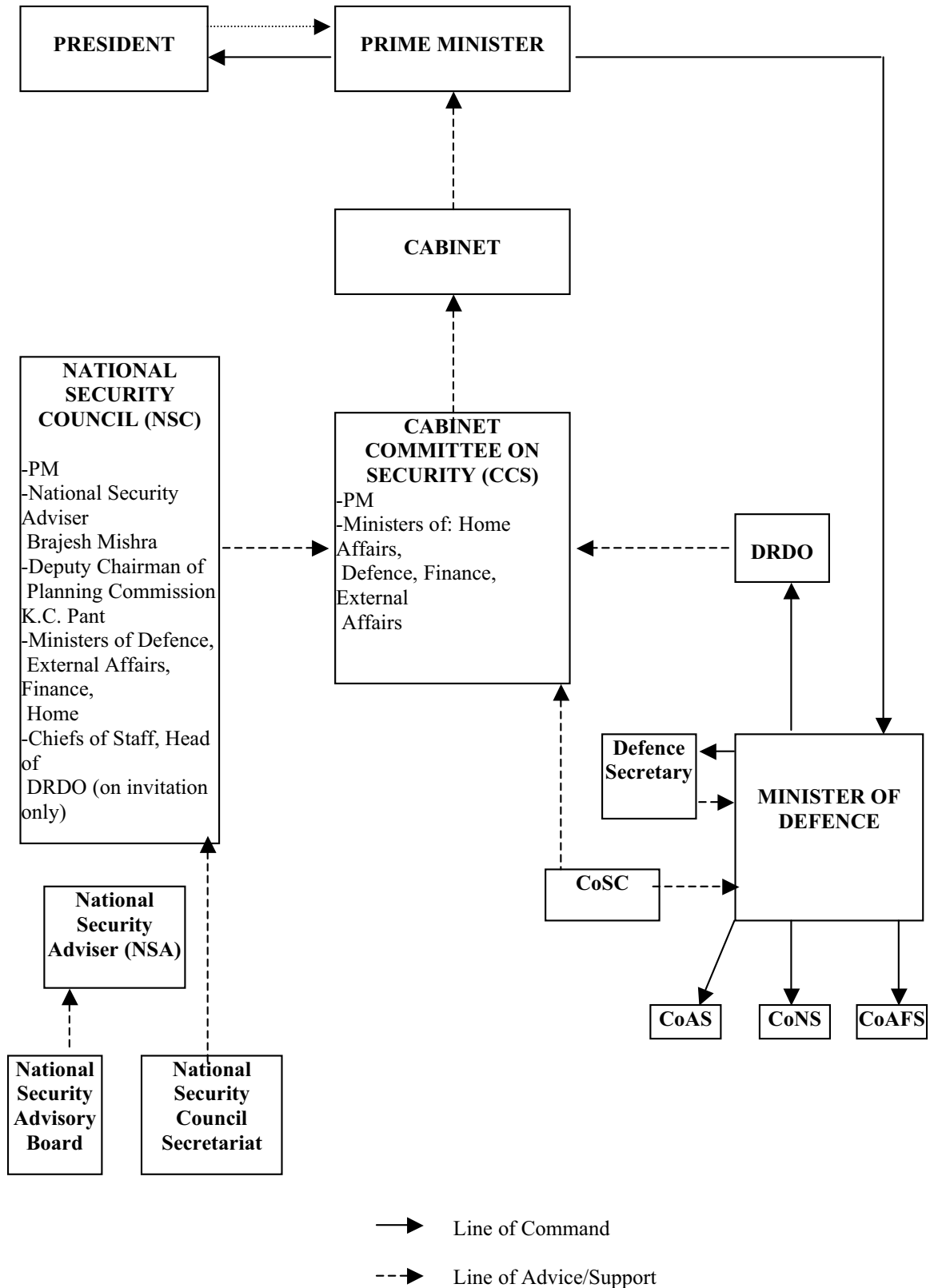
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[38] GoM Report (2001), p. 97.
[39] GoM Report (2001), pp. 121-3.
[40] Interview with former Chairman of the Indian Chiefs of Staff Committee, General V.P. Malik (Retd.), Bonn, 11 April 2002.

conscious of the problem of security, what do they really want from their government? The data, reported in Table 3, show a public that is agitated but indecisive. Whereas Table 2 shows the perception of Pakistan as India's 'public enemy number one', with regard to the right course of action to follow, the Indian public is surprisingly conciliatory. Significantly many more people agree that 'India should make efforts to develop friendly relations with Pakistan' compared to those who disagree.[41] On the general issue of 'war as the only solution to Indo-Pakistan problem', the number of those who disagree far exceeds those who agree (while a substantial number express no opinion), but these conciliatory and peace-like opinions are contradicted by the strong support for 'increased spending on the army even if it increases the burden on ordinary people', with over half of the total sample agreeing to the proposition and less than a fifth expressing their disagreement.

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[41] This finding is comparable in greater support for conciliation with Pakistan rather than war also reported in the findings of the National Election Survey of 1996. See Mitra and Singh (1999), p. 149.

PRESIDENT ┈┈┈> **PRIME MINISTER**

CABINET

NATIONAL SECURITY COUNCIL (NSC)

-PM
-National Security Adviser
 Brajesh Mishra
-Deputy Chairman of
 Planning Commission
K.C. Pant
-Ministers of Defence,
 External Affairs,
Finance,
 Home
-Chiefs of Staff, Head of
 DRDO (on invitation only)

CABINET COMMITTEE ON SECURITY (CCS)
-PM
-Ministers of: Home Affairs,
 Defence, Finance, External
 Affairs

DRDO

Defence Secretary

MINISTER OF DEFENCE

CoSC

National Security Adviser (NSA)

National Security Advisory Board

National Security Council Secretariat

CoAS　**CoNS**　**CoAFS**

───> Line of Command

┈┈> Line of Advice/Support

Now I will read the names of some countries. Have you heard the name of these countries?			(*If yes*) How is their relationship with India-Friend, neither friend nor enemy, or enemy?		
	Yes	**No**	**FRIEND**	**NEITHER**	**ENEMY**
Nepal	65.3	34.7	41.3	16.8	1.7
America	70.3	29.7	27.1	25.9	11.1
Pakistan	82.9	17.1	6.9	7.4	64.2
Bangladesh	65.5	34.5	32.5	21.4	5.7
China	64.3	35.7	21.7	23.4	13.0
Sri Lanka	66.5	33.5	36.1	21.0	3.3
Russia	61.9	38.1	42.1	12.7	1.4

Table 2: Public Opinion on State-to-State Relations

Now I will talk about some specific issues on which different people have different opinions. I will read out some statements to which you may agree or disagree.

Statements	Agree	No Opinion	Disagree
India should make efforts to develop friendly relations with Pakistan. Do you…	42.4	33.9	23.7
Country should increase spending on army even if it increases the burden on ordinary people. Do you…	50.1	32.6	17.3
War is the only solution to Indo-Pakistan problem. Do you…	25.2	35.6	39.1

Table 3: Public Opinion on Security Issues

PROGNOSIS

Sophisticated observers of the Indian scene, such as Stephen Cohen and Sandy Gordon, have reported on India's ambitions for great power status. At least in terms of rhetoric, quite discernibly, an attitude to that effect often lurks behind the moral postures and grandstanding by India's leaders, when they are asked to pronounce themselves on global problems. How much of this is empty rhetoric and should necessarily be discounted for Indian garrulity, and how much of it is for real, which India's counter players can ignore at their peril? This section attempts to answer this question with reference to a series of specific issues.

India and the international system

At the height of the Cold War, *Panchasheela,* the 'five principles of peaceful coexistence', spelt out the ideal state of an international system from the Indian point of view. The ideal scenario for India was to be a world of largely status quo powers where just national interests would be mediated through international law, arbitration and fair use of the natural resources of the world. Nehru assumed that in such a perfect world, India, committed to the third way between the east and the west, communism and capitalism, hallowed by the legacy of Asoka and Gandhi, would play an important role, one that the world would see as both natural and legitimate. Major powers would act responsibly to keep order and promote justice in their parts of the globe. International politics would be governed by mature and responsible states that would not meddle in the affairs of others.[42] In his terse description of Indian expectations during the early years after Independence when the foundations of her foreign policy were being laid, Cohen points out how little thought Indians gave to how the policies of such states could be co-ordinated or how deviance from the system by rogue states could be sanctioned. In the event, the fact that India got a hearing in international conflicts and played a mediating role with some distinction was attributed to the inherent virtue of the Indian position and not to contextual factors such as the bipolar world where India played a pivotal role. The Nehruvians, taken in by the hectoring tone and pedagogical intents of their leader, assumed that the Soviets were committed to peace and that the US would eventually retreat to its own hemisphere and cease its interference elsewhere around the world. Failing that, in the short term, the US and to a lesser extent its allies and dependencies (such as Japan) could possibly be 'educated' into the proper norms of international behaviour.[43]

During the Cold War India could afford to sit on the fence rather than entering a conflict or siding with one bloc or another, rationalising its nonengagement in moral terms. Similarly, Cohen explains, India, a large, important and democratic power, did not need to join an alliance. However, the emergence of Sino-Soviet rivalry, the decline of global bipolarity, and most crucially, the humiliating defeat of India in the 1962 Indo-China conflict forced India to rethink many of the assumptions that went into the panchasheela. The positioning of India in the international arena today requires nothing short of two paradigm-shifts, from non-alignment to a world based on alliances, and from a state-centric mode of thinking to an international arena where non-state actors are an increasingly important presence.

India does not have much of a choice with regard to holding aloof from the world. Her declared status as a nuclear power invites an engagement by the world, which her poverty and peacelike gestures of an earlier period did not. Her commitment to liberalisation of the economy, while opening up opportunities for her vigorous and vibrant middle classes, also puts an obligation on the part of the government to engage with the rich, capitalist world. The Hindu nationalist sentiments of her government require her to engage with states where overseas Indian communities, or Hindu minorities are under grave threat. Finally, being energy-deficient, India needs to maintain good ties with some of the major oil producers, whose sympathies are mainly with Pakistan.

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[42] See Cohen (2001), p. 55.

[43] Cohen's comments on this Indian *folie du grandeur* are characteristically harsh but accurate. 'The cold war ... allowed India to play (in its own eyes) an exaggerated role on the international stage for many years, where it could moralize about the inequities of bipolarity and the *cold war mentality* while still benefiting materially and politically from its ties to both the Soviet Union and the US and its skill at playing one against the other.' Cohen (2001), p. 55.

Global and Regional Security Regimes

Under the impact of the new contextual and indigenous developments, India is re-examining its approach to international and regional organisations. Nehru was a great supporter of international peacekeeping and mediation initiatives[44] and, a staunch advocate of Asian regional co-operation, it was Nehru who organised the Asian Relations Conference even before India achieved independence. In the new scheme of things, with much of the world clamouring for mediation in Kashmir, and India holding out obstinately, claiming that Kashmir is an internal problem of India, the Indian position needs to be looked at seriously afresh. This holds out both a challenge and an opportunity. The UN, as Cohen suggests, can be a dangerous place for India where, if Kashmir comes to a vote in the General Assembly, 'India runs the risk of having its Kashmir policies come under critical scrutiny, and perhaps fresh UN resolutions, and even sanctions.'[45] On the other hand, a proper deal can expedite India's case for a seat on the Security Council. The problem is similar in nature though different in scale with regard to India's security links with her South Asian neighbours. Although the remote sources of India's insecurity often lie within the territories of her neighbours, India has so far refused to have the issues discussed as a common problem of South Asia, preferring, instead, to take things up at the bilateral level. There is a structural problem here that India needs to solve. As Cohen points out, regional co-operation will only work when one of two conditions exists. The first is the presence of a benevolent, dominant regional power that can regulate regional behaviour, or the existence of a set of regional players with roughly similar resource endowments, or similar threat perceptions from outside the region. The leading role of the US in the western hemisphere, and the successful regional organisations in Europe and South East Asia are pointed out as examples of these conditions. However, neither condition obtains in South Asia.[46] A successful solution to the issue of joint management of security threats at the regional level will reduce India's security burden and increase her support from regional powers at the international arena, but, for reasons to be discussed below, India might not find it easy to move in that direction.

India, Pakistan and Kashmir

For all purposes, India is at war in Kashmir. It is a war of attrition, which India cannot manage to win and Pakistan cannot afford to lose. South Asian discourse on this issue is particularly rich in analogies and allusions. Cohen cites an observation by G. Parthasarathy, a former adviser to Indira Gandhi, that an India-Pakistan reconciliation is like trying to treat two patients whose only disease is an allergy to each other.[47] An all-party resolution of the Indian Parliament voted unanimously by the Lok Sabha in 1995 affirms Kashmir as an integral part of Indian territory and Kashmir as India's internal problem. Any move away from that, liable to be perceived in India as 'giving in to the demand for plebiscite in Kashmir' can thus be blocked both by opportunist political parties or determined special interests. A 'land for peace deal' in Kashmir, under these circumstances, is difficult to conceptualise, nor is the Israeli experience in this regard particularly encouraging. In addition, beleaguered with similar problems with secessionist movements in the Northeast, the Indian fear of 'setting the wrong

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[44] In fact, the Constitution of India mandates co-operation with international bodies, including the United Nations. See Constitution of India, Article 51.
[45] Cohen (2001), p. 55.
[46] Cohen (2001), p. 58.
[47] Cohen (2001), p. 62.

example' has to be seen as realistic.[48] The following statement, made by Mr Brajesh Mishra, one-time Principal Secretary to Prime Minister Vajpayee (now National Security Adviser), to the G-8 Ambassadors and High Commissioners captures the essence of the Indian position on this contentious issue:

> *The Government of India has repeatedly expressed its view that all differences between India and Pakistan, including the issue of Jammu and Kashmir, must be settled peacefully through direct negotiations between the two countries in accordance with the letter and spirit of the Simla Agreement and the Lahore Declaration. However, for the dialogue to begin again the Government of Pakistan must take credible, firm, substantive and visible action against terrorist groups operating in Jammu and Kashmir and other parts of India from its soil and the territories it controls today. Until that happens the Government of India will maintain the heightened vigilance on the Line of Control and the International Border as also keep in place the other measures, which have been taken in the last few days.[49]*

India's future procurement problems

In view of the above, it is difficult to imagine how India can afford to reduce the heavy outlay of resources in regional security in the short term, which only adds to the overall burden of security. Other, contextual factors make it even harder for India to meet these needs financially. Cohen summarises these arguments in terms of the following, namely, the cessation of defence credits from the erstwhile Soviet Union forcing the Indian military procurements to be done on a 'cash and carry' basis, the economic restructuring in Russia and CIS leading to persistent demands for steep price hikes for defence exports to India, and, the steep fall in the exchange value of the rupee resulting in an equally steep increase in the debt repayment obligations for past purchases from both Western and Russian supply sources.[50]

The consequences are the erosion and depletion of the already lean defence resources, which is likely to continue into the foreseeable future. Hence, India's defence financial planning will continue to be out of sync with the Services' force planning and also because Russian and CIS pressures will persist owing to the 70-85 per cent dependency on ex-Soviet military equipment. This situation cannot be reversed quickly because the effects of, at best, a slower devaluation of the Indian currency relative to hard currency will mean restrictions on what and how much a shrinking defence rupee can buy from alternative Western sources. India's defence demands are caught in a pincer of rising rouble and dollar value conjoined to, dearer internationally available military hardware, spares and services. Therefore, almost any reasonable level of funding of defence programs will be found to be inadequate to sustain the existing and planned force structure.

A thaw in India-China relations?

The easing of tension in India-China relations can help India free up some of the resources tied up in the Northeast. From all indications, such efforts are afoot. But the legacy of 1962 is hard to live down. In addition, the relative freedom of political expression and association in

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[48] For a critique of the Indian position opposing 'mediation' on Kashmir, see P.R. Chari, 'Advantages of Third Party Mediation Are Cited', *India Abroad,* 30 July 1999.

[49] GOI, Official Statements (2002), p. 198. Also see "Epilogue: A Restive Relationship Enters a New Century," in Ganguly (2002), pp. 134-143.

[50] Cohen (2001), p. 230.

India which results in periodic movements in favour of human riots in Tibet, particularly on the occasion of high level visits from China set limits to India's room for manoeuvre. Beijing has supported separatist and autonomist groups within India in the past. Cohen is sceptical of any chances of early breakthroughs. 'As its own requirements for middle Eastern oil draw it into the Indian Ocean, China could also emerge as a naval rival to India. The realists in Delhi see China continuing its strategy of encircling and counterbalancing India, preventing it from achieving its rightful dominance of the Subcontinent. This next decade is seen as a transition period, when India must cope with expanding Chinese power, achieve a working relationship with the Americans, and cautiously use each to balance the other's military, economic, and strategic influence. India's new balancing act combines appeasement of China on the issues of Tibet and Taiwan with the pursuit of improved ties with China's other potential balancers, especially Vietnam and Russia.'[51] There are shared interests such as the threat of terrorism combined with increasingly restive Muslim minorities. Both sides clearly need to search for a political formula that will allow for minor adjustments in their respective claims so that political honour is served on both sides.

India and the 'small' South Asian neighbours

The so-called 'small' neighbours, namely Nepal, Bangladesh and Sri Lanka, are comparable in terms of population to major European states. The epithet 'small' is indicative of an approach that is part of India's problem in the region. In addition, there are historic and demographic reasons that contribute to the complexity of the problem. Soft borders, illegal immigration, terrorism, smuggling, drugs, water resources and the treatment of minorities are among the factors that create pressures on India to intervene in what these countries perceive strictly as their domestic affairs. Cohen reports two positive developments in this regard. First, the revolution in economic policy that has swept over India makes it a far more attractive country for all of its neighbours and the more developed states of Southeast Asia. Indian management expertise, technology, and organisational skills are now widely exported to the rest of Asia, giving substance to the Indian claim that it is a major power. Second, India's democracy is having a great impact on many of its Asian neighbours. For the smaller states of the region, India is something of a model of how to peacefully manage a multiethnic, multireligious state.

India's nuclear policy

All available indicators point towards an Indian nuclear program, but 'one without clear purpose or direction.'[52] Indian public opinion supports the bomb, but not for warlike purposes. India is engaged in the production of weapons and missiles but, unlike other countries similarly engaged, there are no plans for or policies about sale or diffusion of such technology. A.P.J. Kalam, one of India's leading military scientists and the father of the Indian bomb, has urged India to get into the business of missile sales in order to break up the 'monopolies' of the dominant powers and their unfair regulating mechanisms, such as the Missile Technology Control Regime (MTCR). Kalam's rejection of the MTCR reflects the ambiguous, often contradictory Indian stance on international regimes to restrict proliferation of nuclear and missile technology. Accordingly, in the course of negotiations on the Comprehensive Test Ban Treaty in the mid-1990s, India, which initially had been a committed advocate, turned to its most outspoken (and finally its only) opponent when a

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[51]   Cohen (2001), p. 56.
[52]   Cohen, chapter 6.

broad consensus on the treaty unexpectedly became in reach. Finally, in a move to save both parties face, India accepted the provisions of the CTBT and declared a moratorium on nuclear tests in 1999 without formally signing the treaty. India continues to reject the Non-Proliferation Treaty (NPT) as well as any binding commitment to full-scope safeguards of the International Atomic Energy Agency. As IAEA regulations prohibit exports of nuclear technology into states which do not accept safeguards, India's nuclear energy sector has been cut off from urgently needed know-how and hardware. Since India's nuclear test of 1974, technology imports from the West almost ceased, which led to a steady decline in the efficiency of the civilian nuclear energy sector. Nuclear energy has never been produced cost-effectively and until the mid-1990s, India produced no more than 1500 megawatts of nuclear power, as compared to the target of 10,000 megawatts planned in 1985, and less than 2 per cent of India's overall power supply.[53]

India and the Indian Ocean

'India is a maritime nation strategically straddling the Indian Ocean, with a substantive sea borne trade. The country's economic well-being is thus very closely linked to our ability to keep our sea-lanes free and open at all times.'[54]

Rahul Roy-Chaudhury goes into more detail to drive this point home:

> *Virtually all of India's foreign trade, some 97 per cent in volume, is transported over the sea; in 1994-95 this accounted for an estimated 20 per cent of GNP. In addition, as much as 80 per cent of India's demand for oil is met from the sea, either carried aboard ships (46 per cent) or extracted from offshore areas (34 per cent).[55]*

Unfortunately, it seems that up to now, India has not actually developed an Indian Ocean policy, not even an Indian Ocean economic policy. Despite some efforts of some institutions like the Institute for Defence and Strategic Analyses (IDSA) or the Society of Indian Ocean Studies (SIOS), both in Delhi, there is no maritime strategic doctrine as such in India. According to, for example, Commodore C. Uday Bhaskar[56], there is neither an understanding of India's maritime history nor an Indian Ocean awareness. India is part of the Indian Ocean region, but that is not very important for its foreign policy, especially so since all conflicts with neighbouring states are situated at India's land borders. In the perception of most Indian specialists on maritime affairs, an Indian Ocean awareness began to develop because of the importance of SLOCs (Sea Lines of Communication) and the EEZ (Exclusive Economic Zones) only very recently.

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[53] Abdul Kalam, then director of the Defense Research Development Organisation, quoted in 'Boom for Boom', *India Today*, 26 April 1999. For a fuller study of regional proliferation, regional attitudes, and suggestions for averting a nuclear arms race, see Stephen P. Cohen, ed., *Nuclear Proliferation in South Asia: The Prospects for Arms Control* (Boulder, Colo.: Westview Press, 1990).

[54] Mishra, H. B. *Defence Programmes of India*. New Delhi: Authors Press (2000), p. 59.

[55] Roy-Chaudhury, Rahul: 'India', in: Bateman, Sam/Bates, Stephen (Hrsg.): *Regional Maritime Management and Security* (Canberra Papers on Strategy and Defence No. 124). Canberra: Australian National University/Strategic and Defence Studies Centre 1998, pp. 19-27 (19).

[56] Interviewed by Mr. Peter Lehr M.A. and Ms. Maike Tuchner on August 27, 2000 for the research project 'Panchayati Raj in the Indian Ocean—Towards a Maritime Security Regime?', funded by the Fritz Thyssen-Foundation, Cologne.

Perhaps the most important factor for this neglect is that the current security environment in the Indian Ocean is being perceived as a stable and overall positive low threat environment. Compared with the superpower conflict in the seventies and eighties, the security situation has improved considerably since the beginning of the nineties. Also, there is a consensus among naval officers interviewed that those major sea powers which are capable of disrupting the SLOCs are agreed that the Indian Ocean should remain peaceful. So, in the opinion of all Indian experts, today, there is no power competition visible in this area. Somewhat surprisingly, both the US Navy and the Chinese Navy (People's Liberation Army Navy, PLAN)) are not seen as threatening by Indian naval officers, too. In the wake of the events of 11 September, the USN and the Indian Navy even embarked on a bilateral policing of SLOCs in the Arabian Sea.

In the Indian perception of today, the only possible sources of threat to stability in the Indian Ocean are non-state actors like pirates (mainly in the Bay of Bengal, the Straits of Malacca and the South China Sea), drug traffickers, gun runners or fish poachers. However, India is well aware of the fact that the Indian Navy does create some unease, especially among Bay of Bengal rim states like Sri Lanka, Bangladesh and Myanmar. The reason for this is, in the opinion of the experts, a capability mismatch between the Indian Navy and other regional navies. For this reason, a process of confidence building has been encouraged by the Indian Navy, like invitations for port visits or invitation of delegates from countries with only a small navy or no navy at all. Milan in the Bay of Bengal (now Milan East) can be mentioned as a successful example of such confidence building measures. In 1999, Milan was introduced to the Arabian Sea as Milan West, where naval cooperation already exists between the Indian Navy and the navies of Iraq, Iran, Oman and the United Arab Emirates. Whether the new Milan West will be as successful as Milan East remains to be seen—in the eyes of some Indian naval officers, the success of Milan East was due to the happy fact that 'the trouble maker [Pakistan] is not present there'.[57] In the Arabian Sea he is present, and both states' navies are trapped in something akin to a naval Cold War.[58]

Ambivalent attitudes towards the United States

A lot of Indian dilemmas are summed up in terms of the Indian ambivalence towards the US. The Indian public and policy makers alike have problems understanding why the US, itself a secular state and a democracy, is not able to support both when it comes to India, as against Pakistan, and to a limited extent, against China. The fact that the US decries atrocities against minorities in India but accepts the institutional discrimination against minorities in Pakistan raises questions about the real American intentions in Asia. But, as part of the war against terrorism, American presence has been considerably reinforced in the region, and is likely to remain so for the foreseeable future.

India has remained ambivalent with regard to the US in the recent past. Thus, during Operation *Desert Storm* against Iraq, the world was first treated to pictures of a smiling Indian

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[57] Confidential interview with a high ranking Indian flag officer, August 2000, in Delhi.

[58] Sakhuja, Vijay: 'Cold War in the Arabian Sea', Strategic Analysis, Vol. XXV, No. 3 (June 2001), pp. 371-84. Talking about troublemakers: There is still much distrust between the Indian Navy and the Royal Australian Navy (RAN). Although Australian naval officers usually claim that they are only fulfilling their duties in regard of the Five Power Defence Arrangements (FPDA), Indian naval officers often complain about their ships being buzzed and Indian military aircraft being formatted by Australian Maritime Patrol Aircraft (MPA). This may or may not be a misperception, but it shows that there is still a lot of work ahead of all to improve this sad situation.

foreign minister in Baghdad, then the grant of refuelling facilities to American aircraft, which was promptly withdrawn when the Indian anti-American lobby got wind of it. Americans, who had their fall back arrangements anyway and needed an Indian show of support for propaganda purposes, were not amused. On the other hand, the supportive rhetoric of the US in the 1962 India-China war did not translate into actual support on the ground and the sending of the USS Enterprise to the Bay of Bengal at the height of the India-Pakistan war of 1971 remains as a reminder of American incomprehension of South Asian realities and insensitivity towards Indian sentiments. The increasingly visible and politically active Indian-American lobby in the US and accommodation of American interests in the Indian Ocean are two factors that the current government appears to have taken on board with regard to the conceptualisation and implementation of Indian policy.

CONCLUSION

Five decades after Independence, the state in India has come to its own. The stirring words of Nehru's 'Freedom at Midnight' speech, '… the soul of a nation, long suppressed, finds utterance' have found a home in the institutional infrastructure of the Indian state. Surreptitiously present, like all strong states, the Republic became explicit at moments of crisis, be it Ayodhya, Kargil or Gujarat. The strategic doctrine, whose outer contours have been analysed in this article, is symbolic of the extension of high stateness to the area of national security. Long a reserve of the elite, national security, signifying the power of India's contentious democracy, has now become an integral part of her national political discourse. The result is a strategic doctrine that remains fuzzy but promises to be stable.

With regard to India's role in regional and international politics, there are three major lobbies in the Indian strategic policy community today. The most visible are the advocates of 'firm India' who hold that the idea that India should project itself as a firm, powerful state and be able to use force freely should be the dominant strategic theme in Indian policy. This line of thinking, powerfully introduced into Indian politics by Indira Gandhi, continues to be actively represented by those who advocate the bomb as a symbol of national power.[59] This lobby criticises the Simla agreement, signed after the 1971 Indo-Pak war, for having been too generous with Pakistan. Some strategists, such as the influential K. Subrahmanyam, have taken Indian governments to task over the years for yielding to American trade pressures and pressures on India's nuclear program. Subrahmanyam has argued that India needed to build up its own defence industry, which would enable it to respond to pressures from the US or China by engaging in its own sale of missiles and advanced military technology. This lobby is likely to view the 1988–90 'peacekeeping' operation in Sri Lanka, which turned into a military catastrophe, as a success, because it demonstrated that 'India has evolved a 'will to act' to preserve its vital national interests.'[60]

The second major voice in India's strategic community is the peace-mongering 'conciliatory India' lobby. These leaders and specialists 'question the strategies of defence-led economic

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[59]   Cohen cites the former Indian diplomat US Bajpai concluded: "When our image weakened as a result of the 1962 military setback it emboldened Ayub Khan to test whether one Pakistani was not equal to ten Indians. Our weak image was responsible for the Chinese decision to arm the [rebellious northeast tribal groups such as the] Nagas and Mizos and to extend support to a Maoist revolutionary group in West Bengal, the Naxalites. Finally, our weak image tempted Yahya Khan to force ten million refugees into our territory. U.S. Bajpai, *India's Security: The Politico-Strategic Environment* (New Delhi: Lancers, 1983), pp. 65-66.

[60]   Manoi Joshi, 'Commitment in Sri Lanka', *The Hindu* (International Edition), 19 May 1990.

development, a boastful military profile, and too-quick intervention in the affairs of neighbours. They would prefer to deal with Pakistan and China by territorial compromise and negotiation, displaying military power only to supplement diplomacy. Those who hold this position suggest that the nuclear program be deferred or limited and have been marginally more inclined to accept a limited outside role in regional affairs.'[61] While this lobby would not advocate plebiscite outright, it still pitches its hope in a successful solution to the Kashmir imbroglio through effective extension of Indian democracy to Kashmir, the holding of free and fair elections and the eventual accommodation of Kashmiri nationalism within the framework of the Indian state.[62] While, not surprisingly, the Indian military privately favours the firm India line, there are strong advocates of the conciliatory India even among the top brass. A number of eminent retired senior officers have spoken and written publicly in favour of 'peace and disarmament' in South Asia.[63] Others have written scathingly about incompetent management of India's various wars and conflicts.[64]

Finally, there is a third trend whose adherents are the advocates of 'Didactic India'—of India as a civilisational state. They see India's culture as a resource, a part of her inherent greatness, and a valuable diplomatic asset, and argue that others must become cognisant of the moral quality of Indian foreign and strategic policy. There is much public endorsement of this line: the promotion of Indian culture abroad, and the extolling of her democracy for the benefit of the international community.[65] The efforts to tie in the Indian diaspora for the promotion of Indian culture abroad are part of this strategy.[66] The opening paragraph of Prime Minister Vajpayee's New Year message to the nation, for example, pulls together these sentiments:

> *To our brave jawans, security forces, and policemen guarding our borders and vital installations; to our hard-working kisans who have ensured our food security; to our workers and managers who, with their sweat and toil, are making India an economic power; to our talented software professionals who have burnished India's image abroad; to our children and youth, who are the future of our nation; indeed, to every Indian who in his or her own way is contributing to nation-building, I wish happiness and prosperity in the New Year.*
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> *I also send my felicitations to all Non-Resident Indians and persons of Indian origin, who, despite the distance in space and time that separates them from us;*

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[61] Cohen, 2001, p. 61.

[62] See Ganguly (2002).

[63] Major General E. D'Souza (retired), "Generals for Peace and Disarmament," *Indian Defense Review,* July 1989, pp.116-121.

[64] See L. Chibber, "India-Pakistan Reconciliation: The Impact on International Security," in Kanti P. Bajpai and Stephen P. Cohen, eds., *South Asia after the Cold War: International Perspectives* (Boulder, Colo.: Westview Press, 1993).

[65] India's civilisational mission lurks just below the surface of Prime Minister Vajpayee's New Year message to the nation:
"I am reminded here of the inspiring vision of Marashi Aurobindo, which he set out in his historic radio broadcast for August 15, 1947. 'I have always held and said that India was arising, not to serve her own material interests only, to achieve expansion, greatness, power, and prosperity certainly not like others to acquire domination of other peoples, but to live also for God and the world as a helper and leader of the whole human race.'" GOI, Official Statements, 2002, p. 202.

[66] There is considerable evidence of a large-scale governmental effort to use the American-resident Indian community to advance Indian interests. The process was begun in 1970, when lobbying efforts of both Indians and sympathetic Americans were coordinated from the Embassy in Washington. More recently the Indian government has created a ministry for "persons of Indian origin" (PIOs) and "non-resident Indians" (NRIs).

> *have maintained unbreakable social, cultural, spiritual and emotional ties with India.*[67]

The Prime Minister's address represents a superbly crafted blend of all three trends depicted above. At a superficial level, one could attribute the three currents described above to the three major formations of Indian politics, but that would not be right for there are advocates of all three in each major party. It is important here to note that the militant Hindu nationalists took the initiatives to send Vajpayee on the bus diplomacy to Lahore, and invited Musharraf, for many, the main architect of the failure of Lahore and the betrayal of Kargil. The Congress, long identified with the firm India policy of Indira Gandhi and Rajiv Gandhi might have turned of late to a conciliatory tone out of political opportunism, but in power, it might come back to where the NDA government currently locates itself. As such, even though the current situation with regard to the Indian profile is not as cohesive as one might wish it to be, one can safely predict its stability despite the current instability of India's domestic politics.

As we have already seen in the analysis of the public opinion, the Indian electorate itself speaks in many voices. It is therefore quite likely that India will continue to look in all three directions at the same time, at least for some time to come, and that the Indian doctrine will be anomalous but stable. In anticipation of this short term stability, India's symbol producers are busy giving an institutional shape to the new symbols of cultural nationalism, seen in the tone and content of cultural diplomacy including festivals of India, attempts by overseas Indian populations (especially in America) to influence foreign policy, and attempts to directly manipulate foreign public opinion in Western democracies.[68] According to K. Subrahmanyam, India needs to expand contacts with the American defence community and encourage the Indian business community and other resident Indians to help make its case. The same approach can be used with India's neighbours, the people of South Asia, who are predisposed to India in any case because of their common culture. This also comes across in the names given to military equipment, such as the Agni missile and the Arjun tank; names drawn from Sanskrit or Indian traditions that show the world that Indian science and industry can make 'sophisticated' systems. Such weapons are projected, both for domestic consumption and international propaganda, as symbols of India's 'civilisational accomplishments.'

On the basis of his analysis of India as an emerging power, Stephen Cohen (2001) came up with four conclusions. These are: India is essentially a status quo power (e.g. territorially); the army's capabilities have greatly increased in the last decades; domestic and foreign policy are inseparably linked; and, India holds no clear strategic vision for a future among major powers. Though harsh in tone, these statements, particularly the fourth of his assertions, are substantially accurate. They need careful consideration, for an insecure India can only contribute to the greater insecurity of an already fragile region.

Cohen tempers his overall evaluation of India with an allusion to the path dependency of the current Indian predicament. 'A generation ago India placed its chips on the Soviet Union, economic autarky, and military might. It lost all three bets. The past decade has seen a wrenching reappraisal of Indian grand strategy in a changing international environment.'[69] A coherent Indian security doctrine will need to achieve nothing less than two paradigm-shifts

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[67] GOI, Official Statements, 2002, p. 200.
[68] See Tanham's core essay, 'Indian Strategic Thought: An Interpretive Essay', originally a RAND study, reprinted in Kanti P. Bajpai and Amitabh Mattoo, eds., *Securing India: Strategic Thought and Practice, Essays by George K. Tanham with Commentaries* (New Delhi: Manohar, 1996), pp. 28-111.
[69] Cohen (2001), p. 54.

simultaneously. The first, as argued in the previous section, will be to eschew the verbiage and institutional relics of the cold war such as the 'non-aligned movement' and 'Afro-Asian solidarity'. The second will be to take stock of the burdens of globalisation which entails both the vision and will power to accept a necessary shrinking of sovereignty, and the vision to engage with situations that do not have any apparent links to national interest. *In addition*, India will need to provide for the imponderables of national, regional and international politics such as another vicious communal riot in the same scale as in Gujarat with the BJP in the opposition, a revival of Pakistan-Bangladesh-Saudi Arabia ties on an anti-India Islamic front, or the impact of the next energy crisis on India's liquidity. How realistic then are India's prospects of achieving at least the uncontested status of a regional power, (comparable to China in East Asia whose pre-eminent role is grudgingly accepted by both Taiwan and Japan) and as such, a credible bulwark of an international security regime?

For an answer to the above question, one needs to consider Cohen's assertion that India can be 'still a strong state, when necessary',[70] a phenomenon seen in its true light in the mass mobilisation in the wake of the Kargil conflict of 1999. India's domestic political stability, governance and rates of net growth of inflation, despite short-term fluctuations, continues to be healthy, Cohen (2002), Sachs et. al. (1999). Observers of the Indian scene explain the resilience of India's security apparatus despite the impression of chaos and uncertainty in terms of the continued control of the national government on increasingly powerful regions, and ability to mobilise the full resources of the state for the governance or defence of any particular region. The residual legacy of the steel frame of the raj, enhanced through the addition of modern technology and accountability, continues to be effectively present. Despite occasional outbreaks of police rebellion and corruption, the management of security and accommodation of dissidence through democratic accommodation and new institutional arrangements continue to be effective antidotes to violent or separatist movement.[71] This is most evident in the northeast, 'where yesterday's student radicals have become today's members of government and have their hands full trying to cope with their revolutionary successors.'[72] In terms of commitments to the promotion of national power and security while remaining committed to the spatial parameters of the geographic status quo, one can be cautiously optimistic about India's prospects.

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DISCUSSION

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[70] Cohen (2001), p. 113.

[71] For the strategies available for dealing with separatist or insurrectionary movements or state-level violence in India, see Ved Marwah, *Uncivil Wars: Pathologies of Terrorism in India* (New Delhi: Indus, 1995). Cohen expresses this method in the words of an actor. 'In its crudest form, the strategy at both the state and national levels is, in the words of a senior IPS officer, to "hit them over the head with a hammer, then teach them to play the piano," which means apply massive (and sometimes brutal) force to contain any group that proclaims that it wants to leave the Union, but after that deal with the leadership politically in whatever way is necessary.' Cohen (2001), p. 113.

[72] The Nagas (many of whom were Christians and had strong foreign links to both China and Christian missionaries) were eventually beaten down after a ten-year insurrection. More recently, separatist Mizos and Bodos, Assamese, Manipuris, and tribal guerrillas in Tripura have taken up arms and bombed trains in protest against New Delhi. Since these movements were in a distant corner of India, public and international access could be tightly controlled, and since the numbers involved were relatively small, they never received much publicity in the human rights community.

Flight Lieutenant Reece Lumsdon, RAAF: Professor, I was wondering if you could comment on India's current stance on the comprehensive nuclear test ban treaty. In the past India has stated that it will never sign the treaty, yet in order for the treaty to come into effect India is a key signatory. The US has two polarised views on the treaty, one saying that, 'Well, we shouldn't sign it because we can't keep up the integrity of our nuclear deterrence because we can't do active nuclear tests'. The other side says, 'Well, we have sufficient computer power now in order to do that by a non-destructive means'. So I was just wanting to hear your views on that.

Professor Doctor Subrata Kumar Mitra: Thank you. That is one of the many anomalies which characterises the Indian position. It is little known that the Indian nuclear program actually started in 1944. That India, under the auspices of NATO, was one of the major leaders of the disarmament denuclearisation movement. With all that in the background why is India not signing? Secondly, if India did explode a nuclear device in 1974 why did India insist on calling it a peaceful nuclear device and why did they not go the whole hog? These are the anomalies. The Indian position is the world doesn't understand us. The world doesn't understand us because the world doesn't understand that we are under nuclear blackmail, that all our major cities are targeted from Tibet and there is no guarantee that someone will come to our rescue. Of course, India is herself to blame because India does not believe in alliances. If India did believe in alliances then, of course, India could have bought herself nuclear protection and neutralised the nuclear blackmail. So India sees herself as under nuclear blackmail from China. India would like to be China's equal. Well, that's not going to happen tomorrow. Until that happens India, of course, very well can't give away that clause. That is the Indian position.

Squadron Leader Brett Willow, RAAF: Professor, I found intriguing your paper because it stands in contrast to this morning's presentation on where different thoughts on security and where we're going with that. You provided, or your paper suggested, a very State-centric perspective on security in a non-Western country…(tape changed over)…where we stand with other non-Western countries in Asia and the Middle East and if that is perhaps a truism or if there is evidence of that, a State-centric existing in those areas, what implications does this have for Western rule if it is pursuing a very different perspective of security in the future. What are the implications for conflict resolution and international politics?

Professor Doctor Subrata Kumar Mitra: I'm afraid that I can't cover all of the aspects of this very complex and very important question. I will concentrate on only one part. India did believe in the solidarity of non-Western states. That was one of the major planks of the *Panchasheela.* It was based on a misnomer and an illusion that the non-Western states are homogeneous and they will have solidarity. Nehru was punctilious enough to argue that non-alliance states should be non-aligned with one another. They should not have treaties, they should work through the United Nations. And then the plebiscite that the United Nations wanted out of India and India would not go through it, will finish the legitimacy of the United Nations arguments as far as India was concerned. So going back to that aspect of your question, there isn't one current Indian policy with regard to non-Western states as such. With regard to peacekeeping it is very piecemeal, India does engage in peacekeeping when India is asked. India has contributed heavily in the past. That is much less now, because of the necessary peacekeeping within India's own borders. The final part of the question would be India wants to be seen as a major emerging power. Now major emerging powers should not be freeriders on international peacekeeping provided for by other international powers. Is India aware of Indian responsibility with regard to international peacekeeping, with regard to

an international order? My position here would be no because the thinking would involve two major paradigm shifts on the part of India. First India would have to think no longer in terms of the non-alignment of the 1950s but in terms of the world based on treaties and alliances. That would take a major mental shake-up. The second problem that India has is that India doesn't know how to construe non-state actors as legitimate actors in the international arena. The fact that on Indian soil some Indians would like to secede from India is something that Indian politics, even though it is democratic, can not quite accommodate. How is India to construe the Kashmiri militant. Should he be called a terrorist, should he be called an activist, should he be called a militant? Now even in terms of the concept of it there is no evidence as you can see, such difficulty translates itself to the international arena as well. India is very much a country in search of a policy in that particular area.

Squadron Leader Dave Pratt, RNZAF: You didn't really talk very much about the caste system. Can you just give us a read out on that and what is happening with the caste system and how it's hindering India emerging as a great power?

Professor Doctor Subrata Kumar Mitra: It's interesting you should ask the question because normally in conferences like this people gloss over the contents of domestic politics thinking that countries are countries are countries and they're just insignificant analysis. But in my analysis I have looked at the domestic politics as a source of positions in the international arena because of the constructivism that is involved in terms of the method. So we are back to the caste system which is a stratified way of looking at society. There was actually a caste whose job it was to fight, the Kshatriyas, and there was a caste whose job it was to serve and a caste whose job it was to remove excreta and therefore to be treated as untouchables and a caste of Brahmins who were lauding over it all in terms of their monopoly over the holy texts. Modern India, I've already talked about NATO's rhetoric, was presiding over a situation where a modern state based on the same values that your society has—I presume you come from the West—was married to a traditional society. So the state believes in equality, egalitarianism, one man, one hood and so one and the society believes in organic identity, solidarity, hierarchy and so on.

Now, this arrangement has had to work. It has not always worked, which is why the majority of post-colonial states have simply collapsed. India did survive because of a number of reasons too complicated to go into. Only one I would mention, which is the marketplace of politics where votes could be bought and sold. The moment you give the right to vote to an individual he starts asking, 'What is in it for me?' Now, that language changes the nature of the discourse and, lo and behold, quickly you have situations like right now in Gujarat, Hindus and Moslems are killing one another. In Uttar Pradesh, another big Indian state, a coalition has taken power, a coalition of former untouchables, Brahmins and Moslems. This coalition is cleaning up the other coalition based on a combination of Kshatriyas and trading casts and some Moslems. So this is how complex the Indian mosaic has become. This ambiguity, a kind of siphonic action, finds its way to India's international position and Indian ambiguity with regard to what to do about international values. There's always that Indian temptation to appear holier than thou. Did you not know that we have an untouchable as our president? Did you not know that we have had a Moslem as our chief justice? Do you not know that we have a Christian who is our defence minister at the moment? Now, this tendency to be teacher-like gets on the nerves of Americans and other people and does India no good at all. But that is the legacy of Nehru and the Indian moral upmanship.

AIR POWER STRATEGIC SHAPING AND DETERRENCE

AIR COMMODORE JOHN BLACKBURN

INTRODUCTION
(AIR COMMODORE JOHN BLACKBURN)

Chief of Air Force, distinguished guests, ladies and gentlemen, I would like to begin by introducing the team presenting today.

Squadron Leaders Rosemary Johnson, Damian Gilchrist, and Wilma Tennant.
Wing Commanders Tony Hindmarsh, Dave Thiele and Tony Forestier.
Air Commodore John Harvey.

Conferences such as this allow all of us to learn from the experience of others and hopefully avoid the cost of some of the lessons that they have learnt. But what happens after the conference when we return to our duties? What are we going to do about the issues raised at the Conference?

When we were offered the opportunity to present we asked ourselves the question of 'what value can we help build after the conference?'

Building such value depends on engaging you, the audience, today and into the future. So, we are going to experiment with our presentation and tell a story. It's fiction—if it works it will give you something to talk about at the cocktail party tonight; if it doesn't work, then it will still give you something to talk about at the cocktail party tonight!

I will seek your indulgence for a moment and ask all Defence members in the audience 35 or under to raise their hands for a moment. Yours is the generation that will inherit the joint Aerospace Force of 2022. You will operate and succeed or fail with it. It is in your interest to participate in building it, in the debate and decisions regarding the future shape of that Force and most importantly, in helping identify what we need to do next year and the year after that to build that future Force.

What we want to do this afternoon is challenge you with an idea, ask you to think about it, discuss it and then offer you the opportunity to influence the debate over the coming year. Now, to our presentation.

I will kick off with a short summary of our starting point today, and address why we must change.

2002 Status

The Air Force is at a challenging juncture in its history. We are stretched by an increased operational tempo, and are facing significant challenges in maintaining and delivering current capability whilst introducing the new capabilities outlined in the White Paper. We also must

seek further efficiencies and cost savings in order to offset rising costs. The bottom line is that we can't do everything we need to do with the way we do business now.

The expected obsolescence of many of the Air Force's operational platforms during the period 2008-2022 will also pose a significant funding problem if we can not find an alternative to large-scale block obsolescence.

People are our most significant concern. The number of people in Air Force has been in steady decline since the late 1980s as a result of multiple reviews and restructures and intentional downsizing. We have declined from a permanent force of some 23,000 personnel to just 13,200 in 2002.

We are experiencing imbalances across employment groups and ranks, high individual workloads in many areas and workforce force sustainability problems.

Whilst our retention rates are improving, a recent DPE study suggested Air Force numbers could decline to 9500 by 2010 and 6700 by 2020. The same study predicted similar scale reductions for the other Services. Doing business as usual could lead to disaster in terms of capability we can deliver to the Government of 2022.

We have in many areas been reactive to environmental and societal change. We can no longer afford to be reactive—we must anticipate and lead change.

So what can we do to address these challenges?

The Air Force has made some attempts to build a forward-looking strategy that will address the challenges outlined. However we had difficulty in visualising the changes we needed to make and therefore the debate faded behind the noise of the day to day pressures of life in the Service.

Given that problem we think we need to define change by looking back on ourselves, detached from the pressures and emotions of today. We need to explore what change would look like for us in the near term, what we would need to do differently and we must test our ideas in a consistent and coherent fashion—we need to experiment with them.

We will therefore ask you to participate in this experiment and to use your imagination.

Why imagination? Well, we will ask you to believe that we have the team here from the Aerospace 2022 Conference who will describe the future capability of the Aerospace force.

Now, before you conclude that the team has been consuming some illegal form of drug, I must emphasise that we in no way think that we can predict the future. We can't fully comprehend much of what 2022 will be like.

Whether or not we are accurate about future systems is irrelevant—what is important is identifying what the nature of change could be.

After the team has described the future capabilities and force characteristics they will present a historical view from 2022: of what happened in the period 2003 to 2008. What changes did

we have to make to allow our people to build this purported future? We want to try and visualise what the changes could look like: how challenging and disruptive they might be.

At the end of our presentation we would like to have a two way discussion—we want to know what you think we need to address to transform where necessary.

So what difference could all this make?

Air Force has been building a strategic planning system over the past few years in an attempt to define the way ahead for our Force. The strategic plan needs much more work—the Air Force needs your participation and ownership of the required changes. This conference is one means to build that ownership. At the end of our presentation we will describe how you can participate.

So we now move on to the future Aerospace force. I will hand over to the team from 2022 led by Air Commodore John Harvey.

THE FUTURE—GENERAL OVERVIEW OF 2020
(AIR COMMODORE JOHN HARVEY)

What would the participants of 2002 have thought about today's aerospace force?

Because they tended to be focussed on platforms, the first thing they would have commented on is that the aircraft and systems of 2022 aren't very different from what was planned back in 2002.

While we have the leaders of 2002 to thank for their foresight in providing most of the systems we have today, we are at the same time just recovering from this long term 'lock in'. It took courageous decisions by all three service chiefs over ten years ago, giving up on some planned and legacy systems to create funding capacity to create a more flexible and responsive force.

The exponential increase in our force projection capability, however, would be the real surprise to our predecessors. This has been the result of three key developments, the hints of which were identifiable twenty years ago.

Firstly, a fundamental change in our military posture.

Secondly, an integration of capabilities as part of a whole-of-government approach to security.

Thirdly and most importantly, recognition of, and investment in, our people as the real determinants of capability.

These three were, and still are, inextricably linked. The Air Force has only been able to play an effective role in security because it has been able to attract, train and retain the right people.

In 2022 the focus is on continuous crisis management. The emergent security threats that became apparent in 2001 led to a fundamental rethink of military posture. This was a significant departure from the 2002 posture that was modelled on extended periods of peace interrupted by major conflict.

Turning to the second element—integration—we have moved from stand-alone weapons that could not be integrated towards modular systems that form part of a capability matrix, and which can be readily reconfigured into unique mixes when necessary to deliver the effect the government wants. In 2022 the government needs available mission ready and sustainable options: not ready is not acceptable.

In 2022, we are still called the Australian Air Force, but we link with others to form a virtual aerospace force. The aerospace force is an amalgam of all air and space elements of the Australian Defence Force, connected by national and military command and control.

One of the critical developments that allowed these changes to take place has been the clear delineation between military and enabling functions, which stem from a clear and mature understanding of the aerospace capability. The full-time, uniformed Air Force now comprises only those people with operationally essential skills; this has allowed enabling skills to be harnessed from the national support base on an as required basis.

The third element in achieving exponential improvements in effectiveness—our investment in people—has enabled the integration of all key elements of capability.

The Air Force of 2022 is still based on smart technology but it is smart and innovative people that bring it all together. Although back in 2003 there was a significant increase in investment in the intellectual capacity of our people, it took almost ten years to achieve the desired outcome.

To illustrate what I have been talking about, unmanned vehicles coupled with advanced C4I systems now allow us to tap in to the full range of national resources. Our Global Hawk squadron, fully staffed by part-time reservists working from home, connected by broadband links provided as part of the national 'Connected Australia' project, would have been almost unthinkable back in 2002. The processed data, available in near real time to all Government agencies, has led to massive improvements in both national capability and cost effectiveness compared with old, single service or single department systems. The ability to sell spare capacity to commercial interests has seen the squadron become a leader in maximising returns from national investment.

In 2002 there were glimmers of the potential for these three developments. The oft used but rarely remembered expression 'Revolution in Military Affairs' had already been overtaken by concepts such as 'network-centric warfare', 'network-enabled warfare', 'system of systems' and 'transformation'. This was not buzz-word bingo—we actually absorbed what these things meant and so identified the need for a truly integrated approach to national security.

The present integration of all national security mechanisms came about because of four threads coming together in about 2007:

First, we improved the integration of legacy and emerging capability and formed our current Joint Force Integration office.

Second, we developed a capacity to experiment as part of the routine force development process and to inform strategy and capability. An Air Force experimental framework was developed back in 2003 but real progress was only made two years later when a joint experimental framework was fully adopted.

Third, we recognised the need and the value of organisational learning. Because force capabilities were increasingly dependent on integrated systems, effective training outcomes also depended on integrating education and training systems to sustain organisational learning. The commonality between experimental, training and operational systems allowed massive cost savings, fostered innovation and enabled the command and control of our integrated capability system.

Fourth, we acknowledged the need to integrate military capability with other elements of national capability to form a national security system. The whole of government approach to experimentation, training and operations was created bottom up through the military Joint Force Integration office of 2007 demonstrating the potential of a nationally integrated approach to security and conflict management.

For those unfamiliar with how this fully integrated approach to crisis management works in practice I'll hand over to two of the current exponents.

A VIEW FROM THE FUTURE
(SQUADRON LEADER DAMIAN GILCHRIST)

Events like these are great opportunities to generate ideas and meet both old and new friends. It has been a pleasure meeting some of the older gents here today but I must first apologise for my attitude to their reminiscing. If I've heard it once I've heard it a hundred times: 'It wasn't like that in my day'. Of course I was still in high school in 2010. Can I be blamed for trying to change the subject when Air Marshal (retired) Smith told me that 'Close Air Support' isn't what it used to be? I was relieved when Group Captain (retired) Jones was interrupted from finishing his war story about the worth of good old-fashioned combat air patrol for beating troublesome hijackers. But listening this afternoon had caused me to reflect that these old gents are exactly right: things just aren't what they used to be.

It is hard to situate things in the short span of my nine years in ADF uniform. Some of you were asking how I, with only 9 years in the service, could be wearing 5 campaign medals. Not a silly question but easily answered once you realised how soon I was combat ready.

I think we see professional mastery differently these days. It took some of you in excess of 6 years to be designated combat ready. I was limited combat ready in 6 months. True I didn't go downtown Baghdad on day one of the Kurdish War of Independence in 2016 but I was one of 48 virtual wingmen. We monitored CENTCOM's Iraqi Integrated Air Defence behavioural models as they received data from uninhabited platforms in theatre. My Korean counterpart hit the jackpot first with some stunning insights. Immediately we all pitched in to support that line of experimentation. The results enabled us to introduce manned platforms into the reconnaissance, targeting and effect assessment loops by 2 a.m. on that first night. By sunrise the coalition had launched, engaged and recovered unscathed one full wave of good old-fashioned manned, bomb and missile equipped aircraft.

And to be part of this after less than 3 years in the mob? You see me and those like me were being exploited especially for our motor and cognitive skills, although having flown the F-111J Echidna did help to place things in context. What was more useful were those talents we began developing back in primary school: our knowledge of human behaviour, enhanced by our general ADF training. We are regularly up against systems designed by humans—humans who, like all of us, make assumptions. Yeah sure, those 14 hour sim missions help but probably not nearly so much as the axioms we sub-consciously learnt years ago in our school playgrounds.

I guess you could say we are not as closely bonded to our machines as in the past. Disconnecting our views of the megabytes and the metal allowed us to really get a grip on our software, independent of our platforms. This was one key to realising that intelligent operations are based in simple modular capabilities, stitched together in cunning combinations.

This is not to ignore some of the technological events that enable these lines of progress. Since super conductors and fibre optics moved out of the luxury market we have been able to do stuff you might find hard to believe. We tend to keep these things under wraps. This is probably why some of you are saying 'where are our upgraded aircraft' and 'where are the airshows?'

You don't see us around, much. We don't fly, much. I have about one tenth the flying hours for my time compared to some of my predecessors. But I've been to Red Flag, Green Flag, Maple Flag and Orange Flag four times each in the past 12 months. I haven't yet filled the same role twice. Sure I've piloted my virtual F-111J in one exercise, but that is my sub-specialty. I have just as often been placed into Near Real Time Damage Analysis, Enemy Perception Control and even Strategic Command's Configuration Laboratory. I am yet to decide whether convincing Budget Control to release funds to National Support with less than three hours notice is harder than picking a route through enemy ground fire. I still go downtown in the course of a normal day, but that might just as soon be across the lake as across the world.

Yes, you're right things have changed. I am not your typical run of the mill strike pilot, not at least like Hollywood shows it. But then the subtleties of exerting power these days don't make for good movies. This is not your father's Air Force. We have gone past fire and steel, free delivery. We're modular. We're mobile, were disintegrated, but instantly connectable. We are simple, small, compact, unit by unit, almost invisible, and we are ready. The edge we have is latent synergy, that is, the potential to combine at speed in ways we haven't even yet imagined.

Today we shape the environment more than it shapes us. Today our people are more the constant. Our adversaries are people; people our defences. We are the ADF of today and our toys are just that: toys, unless and until we combine them into weapons, largely sweet and subtle but devastating in their effect.

No, you're right. We are living in a different world and after 20 years of trying you would want to hope so.

A VIEW FROM THE FUTURE
(SQUADRON LEADER ROSEMARY JOHNSON)

The easiest way for me to describe to you what my Air Force of 2022 is like is to describe my day for you. Here is what I got up to:

Last night was a retirement party in the mess for the last of the old breed 'loggies' who had been in the Air Force for their entire working life. He was a senior officer and had never quite got used to the idea of leaving and rejoining the Air Force every few years to take up positions in private industry. I think he could see the benefit of it but had that nagging feeling that many of the older Air Force people used to have: that it was disloyal to leave. Anyway, these days, nobody ever really retires; they just come back wearing different clothes.

Nowadays, anybody who aspires to promotion has to have time in other workplaces. Most of my colleagues have experienced two or three workplaces by the time they are thirty and we really like it that way. Learning new things, playing with different technologies and adapting to new organisations every few years is a great way of staying passionate about working for the Air Force. I'm currently working part time in the Air Force and part time for a mining company. Some of my colleagues gain their outside work experience in blocks of two or three years and they reckon things are never the same when they get back. So many people leaving and returning to the uniformed force always causes ripple effects throughout the force, and its amazing the rigour which those new perspectives are thrown around, integrated or thrown out!

It's also nice getting the extra money from working in private industry, but there is nothing yet to equal the challenge of integrating my new perspective into the Air Force each time I come to work. In many ways, it's not unlike the old posting system where one used to be posted to a range of jobs to broaden one's skill base. The main difference now is that I get my skills and experiences from outside employers as well as the Air Force.

My colleagues in private industry love it for many of the same reasons as we do. The difference between them and us is that they have decided later in life than we did to be part of the Air Force. They join us at a level that matches their experience, they are matched with units that need their skills and we can offer them experiences that they could not ever achieve with any other employer.

As a matter of fact, I am about to catch up with a number of my colleagues from private industry this afternoon. I am going to an experiment that is the culmination of some development work of a consortium of which Defence is a part.

A few years ago, one thing that hasn't changed much since your time is that there were still many different logistics information systems. Finally, a young Air Force 'loggie' got fed up with having to use different cargo tracking systems depending upon what transport mode or freight company he was using at the time.

He and his workmates spent a bit of time working out the key points of the problem and then they threw it into the Transport Industry ideas web. It seemed that many other customers of transport logistics had exactly the same problem. Before we knew it, Defence had kick started a consortium that aimed to set industry wide standards for dovetailing all the different systems and for the development of new systems. Make no mistake, this was not done out of altruism.

It was a coalition of the willing where each party was involved because they had something to gain. Defence contributed its two biggest strengths: personnel talent and a structured problem solving and experimentation framework. Today was the first public experiment of one of the proposed structures.

Its amazing how quickly the whole process happened. Mind you we shouldn't have been surprised. It's pretty obvious that moving a large group of people through a range of organisations would create far larger networks than had ever been seen before. The big result for Defence of these consortia is that we deal with industry sectors that are all playing off the same sheet of music. Logistics support costs, while always high, have remained steady, rather than increasing. A spin off from the consortia is that Defence shares with other big users of logistics the cost of solving some big logistical infrastructure and information sharing problems.

In the meantime, I have to get on with my day-to-day job. First thing when I get into the office is to check that my staff are happy with the way our automated supply chain systems are running. Nowadays, we let the systems deal with the routine and instead concentrate on the myriad of other issues that always arise. Instead of having our heads buried in paperwork, we use our heads for face-to-face resolution of issues.

The business of the day was working with the logisticians who were out at sea with the Navy. The operation to which their ship had been force assigned had very quickly changed character and I was to meet them via face-to-face link to develop a new resupply plan. I'd already touched base with a civilian aviation company operating in the same area and had put in place standby arrangements for them to sell and deliver many of their spares to the ship. Maintenance tracking would be fine because this company was another one of our industry partners who had signed up to the same spare parts repair, overhaul and tracking standards as the Aerospace arms of the ADF did.

After the experiment on the transport systems standards this afternoon, I was due for some experience training. To celebrate the one hundredth birthday of the Air Force last year, we interviewed thousands of the ADF 'loggies' who were still alive and put their experiences into the data bank that drove the Logistics Simulator. I wanted to practice my quick decision-making and to see what chaos would be created if I got it wrong. The good thing about the sim is that it soon tells you about **all** the unintended consequences of your decision-making. Last time I had tried something new with the distribution system, I had unintentionally caused the Deployed Air Base to run out of food. Oh well, lucky they don't shoot us for making mistakes any more!

TRANSFORMATION HISTORY

Introductory Comments
(Wing Commander Tony Hindmarsh)

Looking back over the past 20 years allows us to highlight the significant steps the Air Force took to start the transformation to the Aerospace Force of 2022. We will look at three broad areas: how the future direction for the Air Force was determined, what happened with our people and how they worked, and what happened with our capabilities.

We will identify some significant steps that took place between 2003 and 2006, in a period already stressed by limited resources and high operational tempo.

The changes didn't come about simply through the evolution of the force we had in 2002. In creating the Force of 2022, many hard decisions had to be made, and change itself made a high priority for our Air Force—in fact for the Defence Force as a whole. That change began as a result of a conference much like this in which the Services decided that it was time to change—not just change, but to transform together.

Air Commodore Harvey has already spoken about some of the change triggers—the terrorist attacks in 2001, the introduction of new capabilities, the realisation of the extent of our personnel problems and the seemingly intractable problems of unresponsive and long lead time procurement systems.

Wing Commander Dave Thiele will now discuss what happened with respect to setting the direction for the Air Force.

Strategy
(Wing Commander David Thiele)

The force of 2022 did not just evolve. We made it happen. So, where did it all start?

The Beginning

It soon became apparent in the Aerospace Conference of 2003 that the services were all seeking the same thing—just approaching it from different directions.

The Changing Environment.

The late twentieth century had focussed our forces on being structured for war, yet war formed just a small portion of the greater range of conflict that we were now being called upon to face. The threat had broadened beyond the historical state-on-state, force-on-force construct.

The twenty-first century brought with it a whole new security paradigm, highlighted by the events of 2001 in which asymmetry was shown to be the strategy of the future: a strategy that we had to learn to counter as well as employ. The world had come to realise the devastating power of small, non-state aligned groups using unconventional means.

Our forces had to transform to remain relevant to the future.

The Vision

Leading up to 2003, the Services had pretty much gone their own way under the auspices of forming a joint force for action. Functions were being duplicated and effort was being wasted in trying to attack the same problems from different cultural views. Critically, we weren't aligned in our overall vision.

By 2003 it was time to unify that vision. It was important to recognise that the three forces were not in competition with each other. Rather, they each offered specialised areas of professional mastery that were fundamental in creating a truly integrated response to the security challenges we now faced.

Visions were not new, but this vision was more than a simple statement, for with it, the Service Chiefs also outlined how we were to implement the vision. In 2005, the CDF and the Service Chiefs released what we now know as Joint Vision 2025. This vision brought with it the realisation that ADF capability would have to be better shared, and synergies of the force gained by reassigning responsibilities to the Services. Sure, some capabilities would be given up by each of the Services, but the resulting force was far more capable and integrated, with elements levering off each other and making the most of what we had.

In response to JV2025, the Air Force, in partnership with Navy and Army, also developed the Aerospace 2025 vision that was linked to the Government's National 2025 Vision. This vision enunciated the construct of the Aerospace Force, that is the amalgam of Navy, Army and Air Force air and space capabilities. This did not mean shedding our individual Service identities for a 'purple' identity, for individual Service cultures remained vital to our professional mastery. Rather, it proposed a seamless force that could deliver Aerospace capability to the Government when, and where, it was needed, across the spectrum of conflict. As you can imagine, this idea took time to implement and sometimes seemed almost impossible, yet it formed the model under which later integrated maritime and land capabilities were structured.

But it wasn't enough to simply espouse a new vision and concepts. We had to test them, play with them and make sure they did work. Enter the age of experimentation.

Experimentation

For years prior to 2003, the Services had recognised the commitment to and value of the Army's HEADLINE experiments. Using Army's experience as the basis, the ADF created a joint experimentation branch. The commitment of people and resources allowed this branch to mature quickly and by 2005, the first truly joint experiment was successful completed.

Concepts and ideas were tested. Many ideas proved fruitless, but a few survived the test and were incorporated into elements of the Conflict Resolution Concept that now formed the nucleus of our force structure, readiness and sustainability.

By 2007, this Conflict Resolution Concept had matured to the point where coherent guidance could be derived for future capability proposals. These were not single service proposals; rather, proposals that had been created and validated against a joint environment. Projects AIR, LAND, and SEA were now a minority; almost all were now joint projects.

It almost seems incredible to us now to think of developing Service capability without the use of experimentation, but back before 2002 only Army had an experimentation framework under development.

Transformation

'Everyone wants to transform but no-one wants to change ...'

How often did we hear that joke made in the beginning? But it really wasn't too far off the mark. Maybe the biggest problem was in understanding what it was we wanted to transform. No, we didn't envisage being given a clean sheet of paper from which to procure the 'ideal' force mix. We knew and understood that we had to maintain our force using legacy equipment. But, what we did have to transform was our thinking and our way of doing business. We had the power to transform the way we saw our people our organisation and ourselves. We had the power to transform the force—to work together and create this truly integrated force we envisioned. Above all, we had the power to transform the way we procured new capability.

I would now like to introduce WGCDR Tony Forestier who will further develop the capability issues.

Future Capability
(Wing Commander Tony Forestier)

Along the way to building the aerospace force of 2022 we figured out what the term 'capability' really meant. Instead of loosely bandying it about in conversation, as we did in 2002, we tied it down. We worked to collectively understand and agree both its breadth and depth, and we prioritised for deterrence, peace operations, and war-fighting. And once we had defined what we meant by the term 'capability', delivering it for government became a whole lot easier. The inter-service rivalry for investment dollars also became more pragmatic and better focussed, and so more manageable. It would be fair to say that by about 2008 defence had developed a capacity for strategic and capability analysis that matched our reputation for building sound tactical forces.

By about 2004 we grew past the idea that capability was defined by platform, for example transport or fighter, and realised that capability was best defined by effect. These capability definitions included things such as 'control of the air', 'control of the sea', 'offensive combat', 'mobility', and 'sustainment'. The air force positioned itself to deliver its fair share of capability in harmony, rather than tension, with its partners. Everybody's equipment holdings were rationalised against the shared capability model.

That point made, for this part of the presentation I will talk most about the equipment and systems side of capability; the people and organisational levers will come with our next speakers.

One big lesson for capability development was to never, never, let effectiveness be sacrificed on the altar of efficiency; effectiveness was the starting point for capability development. Better to be good at what really mattered rather than more broadly mediocre, or, worst of all, both strategically thin and operationally hollow.

By moving away from a focus on platforms and towards a focus on the effect, we broke the emotional nexus that people felt for their machines that was so apparent in the twentieth century. That freed us to concentrate on devising innovative ways of using our equipment and systems rather than obsessing about this or that airframe. We built effective capability systems by ruthlessly exploiting advanced simulation. We used simulation and stimulation for assessing alternate strategies, organisational models, command and control, tactics, and weapons and platform mixes. Simulation was also used as a networking, education, training

and assessment tool for our people. We used it at all levels, from the national down, and with allies. It was optimised to work as an integral part of Australia's security system. By 2007, simulation was an investment priority that over the years delivered us enormous strategic advantage.

Through our simulation programs we realised we could garner strategic advantage by turning over systems quickly, and that we did not need 'Rolls-Royce' platform-based solutions. We grew past the 'sunk cost' argument.

Instead, we adopted a capability philosophy based on the need to be more adaptive and effective than the next guy; in both the strategy and capability sense. We became early adopters, but not across the board; we learned to lever from niche systems. Adaptability was our catch-cry, flexible organisation and exploitation of capability systems our signature, and education our foundation.

The modular and progressive nature of our procurement programs delivered us from the 'block obsolescence' problem of 2008-2020 that was apparent late in the twentieth century. It proved far easier to build and sustain the effectiveness of the force through modular developments rather than by making wholesale but irregular changes only after our relative capability edge was lost.

But enough talk of equipment and systems. Let's look at the people dimension of capability, and how we created an environment when our people could work their magic to deliver strategic advantage for us.

People/Culture
(Squadron Leader Wilma Tennant)

By 2010 the Personnel Management Framework supported the essential fact that people were the real determinants of capability.

Twenty years ago in 2002, Air Force was experiencing a crisis in its relationship with its people. Air Force did not have a psychological contract, which is basically an organisational 'look and feel', that was relevant to the majority of people it wanted to recruit, and many it wished to retain. But what was it to do?

Whilst the framework of vision to concepts to capability to effects through experimentation was difficult to develop, our predecessors faced an even greater challenge in enacting the changes for our people and their work environment. As mentioned before, the Air Force had a visionary Director General of Personnel who recognised the pre-eminence of mental/intellectual competencies—not just the physical—to deliver effective Aerospace capabilities. Once that was understood and accepted, the rest was relatively easy.

We knew that if we continued to persist with our restrictive human resource practices, then not only would we be potentially missing out on the 'best and brightest people for the job', we might also fail to meet our mission requirements altogether.

We changed our recruiting standards. They were excessively narrow. Given the technological advancement in the delivery of aerospace effects, why couldn't we have a one-legged Air Defence Officer or an aerospace strategist in a wheel-chair as opposed to a one-eyed recruiter!

We implemented a partnering arrangement with our people to enable them to fully contribute to our Air Force imperatives while meeting their family responsibilities and lifestyle preferences.

By 2010 women had assumed a far greater role in Air Force. This was not some politically correct 'lumpy-jumper' syndrome, but an acknowledgment that emotionally intelligent operators bring a whole new dimension to conflict management that realises a real strategic advantage.

We fostered lateral movement in and out of the Service, and even between Services, which enabled joint service and industry partnerships vital to concept development and experimentation.

By 2015 we had an almost 50/50 split between the Permanent Air Force and our Reserve component, and of those many would spend only ten percent of their time in the traditional workplace. This was enabled by Air Force harnessing advanced communications technologies that allowed remote work to have real value.

In 2004 we fundamentally changed our promotion system to reward on the basis of an individual's contribution to a team outcome, rather than on individual task achievement. And today, the quality of each individual's contribution to our knowledge management network forms part of their annual report. In effect our Air Force has learned to value and capture learning—not just on an individual basis, but in a shared environment that underpins our framework of innovation and experimentation.

In 2005, we began to dismantle the pay-rank-category nexus and started to financially reward people on the basis of their organisational contribution, regardless of rank. Most of our junior levels were recompensed against a skills/market value methodology, and our senior levels against their responsibility level and value to the organisation. Some individuals who possessed vital niche expertise attracted specific compensation rewards.
And, with an eye to our future, we engendered the broadening of 'aerospace combatant' categories to include Battlespace Managers as they would play the key role in the future delivery of aerospace effects.

Of course the hierarchy still exists, but today that hierarchy is not about power and control. Today our hierarchy actively works to give people the time, space and latitude to change systems and processes. By empowering our people and aligning the organisation to their needs and aspirations, we have ensured their commitment to meeting our capability demands. In 2022, our people know that capability flows from and through them; we devised the organisation that way.

I now introduce WGCDR Tony Hindmarsh who will further develop the organisational issues.

**Work Environment
(Wing Commander Tony Hindmarsh)**

In 2002 the work environment was seldom considered when thinking about the future; after all, it was far less exciting than weapons platforms and far less urgent than resource pressures. However, transforming the work environment was just as important as any other organisational aspect for the Air Force in transforming itself. Adopting an organisational learning model—similar to that previously restricted to the flying environment—was the first step in shaping the work environment. An open discussion of mistakes and lessons learned, just as used in the old-style flying mission debriefs, shifted the Aerospace Force from a culture of failure to one that valued mistakes as an integral part of the learning process.

This approach enabled a shift to innovation programs, encouraging risk taking and fostering an experimentation framework that accepted a degree of failure, early and often. The goal was always progress while accepting stumbles along the way. No doubt you would all remember the quaint concept of casual Fridays—well, the Aerospace Force created headspace for innovation and experimentation by instigating the concept of an experimentation Friday each month.

The organisational structure, systems and processes were also redefined—not to follow the latest management fad—but to support and exploit collaborative systems and processes such as networked, geographically separated teams sharing knowledge to solve anticipated problems. Meeting the needs of our people was recognised through initiatives such as fly-in/fly-out models for conducting operations. The expeditionary model of operations meant postings to remote locations such as Tindal were replaced by deployments—the indirect savings were beyond expectation and, most importantly, the initiative better met our people's expectations.

The mantra of people as our greatest asset was transformed as we set about exploiting the core reasons for people wanting to join and serve with the Aerospace Force, in a variety of forms, over time. The Aerospace Force became an organisation that symbolised the nation's power and created a passion in its members that subsumed the need for our historic attempts at recruiting, marketing and retention initiatives. The Aerospace Force transformed into an organisation that created such passion in all Australians that it was seen as one with society—not an historical irrelevance. Key to this change was the organisational recognition that delivery of aerospace power was dependent on our people's talent and initiative. The means to this end was a relentless and trusting leadership—a leadership acknowledging that people aspire to do much more than merely please their superiors or do work to occupy their time; people need to be given latitude to perform. A fairly dated but farsighted Rand Report put this key change characteristic succinctly:

> *'mobilise many at the expense of control by the few—leadership needs to liberate the genius of the rank and file, and to inspire that genius with a vision'.*

CONCLUSIONS

This afternoon we have presented some ideas to you regarding the type of change we may need to embrace if we want to build an effective future Aerospace Force.

We have postulated only one of a number of possible futures. The Air Force needs to hear your ideas, not only this afternoon but in an ongoing dialogue as a part of the development of an Air Force Strategic Plan.

We think there are three key elements to shaping our future:

- vision / strategy / concepts / experimentation,
- creating the right environment for our people, and
- leadership at all levels.

The changes will be emergent and not the result of a linear plan.

We need to shape the questions we must pose to ourselves in considering the future. The Air Force 2015 concept paper started this process. The next critical step is to experiment to explore our ideas and concepts. We do not have the capability to do this today. In our view, this must become one of our higher priorities.

To do this we will need to develop our vision for the future, linked to the joint vision; provide our input to the joint warfighting or conflict resolution concepts; and provide our ideas as to how the future Defence organisation will work to support our future capabilities. The results of these experiments should give us the confidence to make the decisions required to change our Force in the near term to create the future Force.

We must embark upon the conceptual and organisational development in partnership with our sister services in order to meet the challenges inherent in the current and near-future security environment. Given our current circumstances, achieving this may require some reorganising and rebalancing of priorities, and the enhancement or perhaps removal of some present capability. From there, we can formulate the strategies we need to ensure that Air Force emerges from block obsolescence transformed; that is, better fit-for-purpose and more effective than today.

You, our people, are the key element in sustaining Air Force on this journey. Cooperation, commitment and, most important of all, your ideas, will be required to balance our resources so that we can meet our obligations, create head room for change, and sustain the core of our capability, our people.

So, to your future participation:

Defence members can access the Air Force 2015 draft discussion paper on the Air Force People Capability Website at http://defweb.cbr.defence.gov.au/raafweb/Sites/_FPC/. We have also placed some links on the site to references we found useful as we developed our ideas.

We welcome your ideas and input over the next three months through the Air Force People Capability Website. You will also be able to view the feedback from across Defence at this site.

Your input will be collated and passed to Air Force HQ planning staff to assist with the development of Air Force's plans.

Thank you for your attention this afternoon. We look forward to our discussions today and into the future. I would now like to open the floor to any questions and invite you to offer your views regarding how we should address the challenges ahead.

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DISCUSSION

Unknown: Sir, I'll try without the voice amplification. I may be a Luddite in attacking you in this way but I'll just try and keep to it. The fact of loyalty with personnel and the sideways move in your vision, I had a fundamental problem in the sense that if I go and join McDonalds, for example, the first thing they would try to do is inculcate me with their culture and take ownership of my belief structure and my loyalty. The fundamental problem with this espousal of transferring compulsory (inaudible) into industry, I realise it's not policy but even as a concept, that every time you move there is an ownership of your belief structures that has to transfer. I have a fundamental problem in how you then go back in and who am I loyal to? If I'm loyal to the air force and it is such a good organisation why would I want to leave it in the first place?

Air Commodore John Blackburn: In today's model, you're right, I think cross-service transfer, I've been involved in quite a number of service transfers between the services talking to people and I don't see any loyalty problem there because we are all part of a larger team. We have some interesting cultural differences but that's actually culminating quite easily. It depends what your view of the team is. I think what we're talking about is the porous organisation on the side. You can have a combat corps, I would think, my personal opinion, that is largely retained in the organisation. But who is the team supporting us in the future? We have a strange view of defence industry in some ways. I mean, we'll talk to them when we've got a project or a capability we want to define but we don't actually go out there and partner with defence industry and define the concepts of how we're going to work in the future. We've got this unrealistic realisation that whatever we decide we're going to do, industry will be there to support us.

I think if we get past that and start to look at the team we're going to have to build nationally, then the culture of those areas that you may come in and out of the organisation to partner with, with the defence industry, particularly on the support side of the organisation, is going to have a shared vision, a shared focus and I think a shared culture. If I look at some of the things I've seen in the US, you forward deploy and you see the contractors in the forward deployed areas or aboard the USS *Blue Ridge*—which I had the opportunity to have a month on, which was an experience—you actually see a very different relationship there, people actually integrating. That shared culture is what we're going to have to achieve nationally. So I can agree with what you're saying today and if you hop out the door and go to McDonalds, but I don't necessarily see that that would be the primary community we'd be interacting with. But, I tell you what, we've got to have a lot closer relationship. On the airworthiness boards that I was a member of for quite a few years I was amazed that when we transferred some of our maintenance activities out to industry the cultural gulf that we actually had to build. Over time I saw that changing, that cultural relationship between defence industries and the air force in this case. Ideas and approach actually got much closer over a couple of years. So we're talking long term. I think it's potential. But it's certainly something that we can't ignore.

Air Vice-Marshal Bob Richardson (Ret'd): My answer to the previous question would be we already faced that with reservists now and I don't really see any major difficulty. I agree it's a problem but I don't think it's a fundamental problem. I endorse what you said about defence industry. I think it's quite possible to have allegiances to two organisations as long as those organisations share some basic value.

Air Commodore John Blackburn: Thanks. I think the other issue with our reservists, I'd really noticed a difference in attitude towards reservists between the services and actually taking that on is going to be a problem.

Unknown: I'd just like to answer Doc as well, sir, just by saying having been there and done that I think you'll find that the opportunities you gain is that you will actually be able to choose those people back again. You seem to have this idea that they're just going to come flooding back in. No. Defence force will actually choose, they'll make the choice. So depending on the experiences they've gained, that will determine the type of person you get back again. One thing I'd like to add in regards to the experimentation, I totally approve and totally take on board the experimentation, but we have to be careful that we don't then add extra time to our acquisition. We're getting to the stage now where acquisition takes too long and capability, introducing a capability—I think Tony Forrestier addressed some of that in regards to his discussion. We've got to also make sure that our experimentation is also leading and then allowing us to understand that capability but not taking more time to introduce our capability.

Squadron Leader John Shapcott, RAAF: In our organisation we deal a lot with change. We have Corporals acting as Sergeants working with Air Commodores and with anyone in between. Some of the feedback I get from my guys we encourage open and honest communications in the organisation and sometimes you hear some things which are pretty tough to deal with but we encourage that anyway. For example, we'll have a team of three people. We'll go to a base to do a job. The Sergeant will go off to the Sergeants' Mess at the end of the day, the officer will stay in the Junior Officers' Mess and we might have an APS 6 person, they're actually told to go and stay in a hotel or a serviced apartment somewhere. The effect that has on teamwork is incredible. Another good one is that people will sit around the section and work out the different pay scales for housing and all that sort of thing. It's those sort of fundamental systems that are in place—have been in place for a long time—that are very outdated. If we're going to actually make the changes that are required for 2022 it's those sort of things which I'm sure are being addressed and I hear that they are, but they can't happen fast enough for some people in the organisation.

Dr Steve Stephenson, Ret'd: A faint word of warning. When you're a reservist you're generally on a limited working period. How much time do you spend answering your voice mail? How much time do you spend answering your email? Does it detract from your total time? This is a cultural thing and I think it can become very, very demanding.

Lieutenant Colonel Brett Greenland, RAA: Firstly a comment up there about the APS 6 going to the apartment and the sergeant going to the Sergeants' Mess and the officer going to the Officers' Mess. I would throw a question more than an answer to that. That it would be far more difficult to build a team if you're all sitting in your own houses in Perth, Brisbane and Darwin, as perhaps the force of 2020 will do. A comment from the presentation, you also mentioned that you were going to align the force of 2020 with the direction that the

government will provide you out to that sort of time frame. Given that elections are held every three years and we run on a annual financial budget, how would you envisage that being put in effect?

Wing Commander David Thiele, RAAF: I agree with your problem. What I personally see, and this is my own personal opinion to it, is that the White Paper we have at the moment is the short term document you were talking to. What I believe we need to do between now and 2025 is to try and generate a system where we have a national security strategy at a governmental level that's accepted by both sides of the house and is an enduring 20-year document. In that particular way what we're looking at, the White Paper today, gives the current government's guidance but we have that long-term vision, that long-term guidance, that I don't believe we currently have in the best way that we could get it. So I believe we do have a way to go forward to encourage not just the government but all the other agencies as well to be looking forward to that 2025 vision and put forward something that's enduring.

Major General Jim Molan, Commander of the First Division and Deployable Joint Force Headquarters. I think that's tremendous. It's a tremendous way to look at it and it's a tremendous way to get our attention in a whole range of things. I'm sure that for all the problems that each and every one of us can bring up, that they can be solved over the period of time that you're talking about. I really go back to a joint taskforce commanders meeting that some of us here were at a week or so ago and the desire that we all expressed then for joint experimentation was overwhelming. We talk about single service views on what we do. It helps us so much if we can merely redefine the words that we use. For example, an amphibious capability fits into an entry operation in some way that leads us forward into the future. I'm sure that we can move the way you're talking about. I suspect that our inability to produce a concept of operations for ourselves over the last 33 or so years that I've been serving causes me a little bit of worry. But I suspect that the only way we'll overcome that, is by the ideas coming from the bottom but an absolute Nazi at the top to make them occur. I suspect that if in 2005 all the chiefs at the time sat around and gave up what they were they doing, that's fantastic.

But we can progress that way. We've got to progress that way. I think if we can show … and there's fellows—like John Cantwell in Army who have done a lot of work on this kind of stuff. We can progress that way as long as everyone is made to realise that, firstly, we can't sustain what we're doing now. If that is the case, and a lot of the views we have at the moment are not necessarily the case. But that as war fighters we will win overall, all of us will win something out of a process like this. For all the great ways of going through and bringing people with you, I still suspect we'll need a Nazi at some stage along the way. So joint experimentation, a great way to go and if we just took that step, if we just took that one step we would be quids ahead of where we are now.

Someone mentioned that they had six campaign ribbons, and I congratulate you, that's a fantastic achievement. It will also be another problem you'll need to overcome, but I'm sure you can. Because the kind of problems we face today in the conflict between what we have to do today and what we have to balance ourselves to doing 5 or 10 or 15 or 20 years time is overwhelming. As someone who spends all their life concentrating on what may happen tomorrow as distinct from 10 years out, anyone who thinks that we are sophisticated in our ability to conduct joint operations at the moment is in a different Australian Defence Force. So perhaps the basis of our move into 2022 is to get good at what we're supposed to be doing

at the moment. I think if the intellectual effort that I see on the stage there that impresses me so much, if we could apply that to what we do now we would set a fantastic base for 2022.

THE UNIPOLAR MOMENT — A VIEW FROM THE TOP OF THE ZIGGURAT

LIEUTENANT COLONEL JOHN BLUMENTRITT

Editor's note: A copy of Lieutenant Colonel Blumentritt's PowerPoint presentation may be found on the Aerospace Centre website.

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DISCUSSION

Wing Commander Mike Bennett, RAAF: Sure. I guess from the Western point of view we like to be able to get out and reach zero impact on our own forces and do lots of damage out in the field. But by doing so we actually create more problems by creating more Bin Ladens or that sort of character. How do the Americans think they're going to deal with that sort of threat and address that sort of issue, as I think one leads to the other?

Lieutenant Colonel John Blumentritt: Thank you. That's a great question and I did hear you fine that time. Can you hear me? Okay. I'm going to go back to Joseph Nye. I'm going to say that there's a wonderful piece that he wrote, it's called *America - Soft Power* and he says, 'America irks you, it annoys you, it gets its way, but that's only one piece of the climb to the ziggurat'. I understand that there is the irking side of it but on the other side is the soft power. That's the philosophies and the foundation and the economic stability and a little bit of arrogance, the wonderful things that contribute to America. So, yes, we will create a few malcontents and we will upset a few people along the way, but that's just part of our culture, that's what we do. We hope, like everyone in this room I hope, that people won't do things that invoke that irk and that ire and that call for what I talked about. We hope that they'll embrace the good things about what the West brings and what the US embraces. So we hope that that outweighs the negative of enforcement.

I would like to draw an analogy if I can go to kind of a low level. The police force. We don't like to be punished. We don't like the laws to be enforced but we know that there has to be laws and we know that laws are necessary to strengthen our communities and we know that laws are necessary to build our economic base and our communities and to make us feel safe. If somebody's breaking into our house we pick up the phone and we're really happy when the police show up. However, they do carry that stigma of going out into the field and enforcing and that makes us a little mad sometimes. I know that's a simplified analogy but that's kind of the way we look at it. Excellent question, thank you.

Mr Maurice Horsborough: Thank you for an excellent address. You've served in Scotland so I think you'll maybe understand my accent. I hope they didn't offer you tea. It's maybe a rather unfair question because you're a serving officer but we usually do have an American civilian in addition to officers here, but the question's basically in two parts so maybe you will be able to get around that part of it. 9/11: would it be fair to say that prior to that if

American Middle East policy was not dead it was pretty ill? Just about a week or two weeks before 9/11 I was so concerned about the volatility of the situation in Palestine–Israel I wrote to the major newspapers in Australia here and the heading of the letter was 'Has Israel met it's Vietnam?' In it I said, 'If the three parties concerned—US, Israel and Palestine—did not get together that a certain Mr Osama Bin Laden was waiting in the wings'. Now, this was before 9/11 and without having access to the FBI files. Unfortunately, one week later I, like millions around the world, watched as the twin towers collapsed. After the initial horror I thought, 'Is America going to treat the symptoms or are they going to treat the actual malady itself?' So please do your best, sir. I'm sorry, it's rather political for a serving officer but maybe you can answer part of it, thank you.

Lieutenant Colonel John Blumentritt: No, I can address that. But I will address it with a military tone and I will tell you, as you well know from our Clinton Administration, we attacked targets in Afghanistan. I will tell you and I'll take it to the unclassified point, long, long before 9/11, again, you remember we addressed or serviced targets in Sudan and we serviced targets in Afghanistan. We weren't fools. We knew a lot of rotten things were going on in the world. Were they tied directly to Israel, were they tied directly to Palestine, were they tied directly to, I don't know. You know, I don't know. I do know that there were a lot of rotten things going on and I'll also tell you that in our strategy planning cell we would talk about, 'Well, we would love to do this and we would love to do that and here's some pictures of this and here's some pictures of that'. But if we attempt to send that up the air staff to the Chief on up to the Chairman and on up to the NCA they're going to send it back down because we don't have the political legitimacy to do something. Look what the press did to us when we took out a pharmaceutical factory. They destroyed us. They said, 'You morons. You know, that was a civilian pharmacy. You know, you took it out.' So a politically astute military officer understands that you have to have some political catalyst to allow them, to allow us, to service targets and to execute violence. My counterparts feel—and being burned a couple of times with, you know, again the pharmaceutical factory and launching a few cruise missiles at some terrorist camps in Afghanistan prior—we knew that we didn't have the political legitimacy to do something. So after 9/11 I won't say that we were happy, we were not happy at all but we felt like, 'Well, maybe the bridle has been pulled off and the President can now authorise force in this war on terrorism'. I hope that answers your question.

Flying Officer Fiona Peacock, RAAF Reserve: September 11 is being described in the media as a failure of the intelligence agencies. The FBI and the CIA are being portrayed primarily. Yet what we've seen this morning is a package of military responses to the threat of Islamic extremism. My question is how can we try and best leverage the intelligence that's available to the domestic law enforcement and the intelligence agencies and combine that with the military power? How do we actually draw those together to respond to the threat when previously we've been operating in stovepipes?

Lieutenant Colonel John Blumentritt: Right, I understand your question. I will have to disagree with the first part. We aren't focused on just Islamic extremism. Anyone who's going to threaten the US, our partners, our friends, anyone that's going to upset the balance of power, anyone who's going to upset the national security, anyone who's going to upset the national interests of ourselves or our partners and anything, as I talked about earlier, even natural disasters, that upsets the security, that upsets the homeostasis. It goes back to normal. So, no, we don't have a laser beam on Islamic fundamentalists. We have a wide beam out on anyone who wants to do rotten things and do what I talked about. So I wanted to clear that up first.

Now, as for the intelligence community, I'm not an intel officer but I've worked with them a lot and I will tell you that—and it's identified, it's in the literature—our intel tends to be stovepiped. One organisation will be doing some intel duplicated in other areas. There's arguments for that, people like the duplication. There's arguments against that, that we need a horizontal intel community that shares everything. Well, you and I know that that's probably not possible even within the Department of Defence and it certainly gets muddy when you start talking to, you know, the county sheriff. Do you share imagery and, good Lord, human intelligence with—again, the other extreme—the county sheriff? So there's got to be a balance there and I don't know what the solution is. I know that the chief ask us to integrate. As you remember that one slide, it said, 'A horizontal integration of our intel'. I don't know how we're going to do that. I'll leave that to the smart intel officers.

Air Marshal Ray Funnell (Ret'd): Thanks for the view from the top of the ziggurat. I've never been there. Most of us have never been there. We're way down the bottom there looking up at you guys and in a way that gets to the heart of my question. You pointed out, I believe quite correctly, that your future operations are going to depend on building a coalition of allies to go against the bad guys. But the forces that you described up there point out once again there is only one super power. When it comes to military power there's the US and then there's the rest of us and we're not even close. So when you build that coalition and when you go in and exploit the battle space you're going to have friends and allies with you and maybe they're not interoperable with you. You faced that in *Desert Storm*. You faced it again in Kosovo. It hasn't been as large a problem in Afghanistan because there has been a minimal employment of aerospace forces in that conflict. My point then is if the rest of us are going to be able to operate and exploit that area effectively with you, what can you do to help us remain interoperable with you? There's no point in just going off by yourself into the ether and leaving the rest of us behind if you want us to be effectively operating with you in times of trouble.

Lieutenant Colonel John Blumentritt: That's an excellent question, the interoperability question. We've spent a lot of time on that at the London air power conference, for those of you that were there, last January/February, and that is a concern. I'd like to talk about that a little bit. There's a spectrum of interoperability and we need everything that we can. I showed you the silly pictures today and the music and what the public says. Well, that's interoperability. That's building a coalition. That's public support. That's part of the team. So the 25-year-old computer guy who found a picture of F-117s and made that picture and sent it around the world that said, you know, 'Can Osama come out and play?', silly, but that's part of the total package. Again, we can visit Clausewitz and the trinity. So I encourage us not just to look at interoperability as technology, although that's an important part and we'll go there in a second. But what does the coalition bring to the fight? The coalition brings the non-kinetic, which would be the IO and the public support, the political legitimacy, if you will, as we talked about just a second ago. It also brings basing rights. Sure, we can fly from Kansas and our guys are really tired after a 36 hour flight. But we'd much rather you let us borrow your runway and put some tents up and fly two hour flights. So that's part of a coalition. We would rather not bring a huge footprint, so if a coalition can provide us a place to stay, if you can provide us something to eat, if you can provide us air traffic control, if you can provide us medical facilities, that's part of a coalition and that's incredibly important.

But I think you're not asking that. I think you're asking more of interoperability on a technical level. We need to work on that. We're probably the only air force right now that can go

against the double digit SAM. I don't think your air force would want to do that. We don't want to do that actually but we have ways of doing that. But once we clear that out and we clear out the high threats then we do have limited assets, sir, and we would like to attack more double digit SAMs and if we've opened the door and we've opened the pathway for lower end weapons to roll in, that's part of the coalition. Then on the technical side obviously communications is the biggest one and we need to do a better job of getting our partners able to talk to us. The British officer that briefed us in London was pretty funny. He said, 'Yeah, you don't really know there's an interoperability problem until they say, "Okay, everybody go red one, and no-one knows what red one is"'. So I think we need to lead turn those issues. So I think that's where you wanted to go, sir, but I just wanted to expand it a little bit further. That the coalition from political legitimacy and non-kinetic all the way up to being able to go blue one or red one is very important to us.

ARE AIR FORCES RELEVANT TO NATIONAL SECURITY FOR THE FUTURE?

GROUP CAPTAIN PETER GRAY

The instant—and immediately simplistic—answer to this question must be a resounding YES. I certainly would not travel all this way just to attempt to tell you that air forces are no longer relevant. More seriously, we must reflect that air power has been an ever increasingly essential component in war fighting for at least the last century. In many cases a sizeable proportion of the air element has been in the hands of either air forces or organisations that were soon to become independent air arms. The example of the US Army Air Force in World War II is a case in point. It could well be argued that where air power has been subservient to ground or maritime forces, its efficiency, or potential has been limited—such a charge has often been levelled at the Luftwaffe.

A more considered look at the examination question reveals an altogether more complex series of issues. Let me start by examining the 'national security' aspect of the question. Is our national defence policy (whoever 'national' means because it is clearly not for me to presume to tell other nations what their interests should or should not be) merely going to be predicated on homeland defence? Or are there wider issues at stake? From a parochial NATO or UK viewpoint, national security is hardly under threat. Those credible threats that do exist may come from asymmetric attack, from economic refugee crises or from cyber war. These threats must not be underestimated, but one could argue that the wider question of **national interests** is altogether more relevant. The definition thereof has long been a subject of debate and conjecture in Governments, in Treasuries, in Defence Ministries, in academe and in Staff Colleges. A working definition is offered as follows:

British interests (for example) may be broadly defined as the security of the UK and its citizens; our prosperity and social cohesion; the protection of our dependent territories and citizens overseas; and maintenance and promotion of conditions in which we can pursue our national objectives (trade, diplomacy, place in the world order and so forth).

It can immediately be seen that national security is but one part of a much wider canvas and in this presentation, I will continue to look at the future role of air forces in this broader context. We could follow this through with a detailed analysis of the core capabilities of air power proving that each has a vital and dynamic role to play in the protection of national interests. But I would suggest to you that this would degenerate into little more than a regurgitation of an air power doctrine lecture—not that there would be anything intrinsically wrong with this, but what I would prefer to do is look at the potential for air power not just to contribute, but to play a decisive part in conflict resolution.

My central thesis is that air power, with control of the air as a decisive point, can provide actors on the international stage—whether they be states, terrorist organisations or coalitions—with an asymmetric edge in conflict resolution. Using historic precedent, I will outline the case for air power providing this edge. I will then go on to look at the scope for air power to be used for strategic effect in its own right—the ultimate asymmetric edge. I will

then conclude with a few contentious thoughts on the unique role of air forces in the projection of air power.

The tragic events of 11 September 2001 brought renewed emphasis on the dangers of asymmetric warfare. The fear of such an attack, for the cognoscenti, had long been a very real contingency.[1] The apparent immunity of the US, and her allies, was such that few actors— whether they are nation states or lesser groupings—could sensibly consider a force-on-force option.

The dictionary definition is simple and straightforward—asymmetric merely betokens a lack of symmetry. The quest for advantage is therefore an integral part of warfare and has been for as long as mankind has resorted to force for the settlement of disputes; indeed according to Professor Sir Michael Howard, it is peace that is the modern invention.[2] By extension, diplomacy and statecraft are also relative latecomers. Beyond the heavyweight boxers content to slug out their differences, mankind has progressively resorted to numerical superiority to gain advantage over otherwise peer competitors. The alternative approach has been to develop more capable weaponry either to avoid pawn for pawn attrition or to gain both qualitative and quantitative advantage. Some of these quests for the edge have failed; others have resulted in an arms race of which the Cold War was an ideal example. Some developments have been so successful that the ensuing improvements have been categorised as being revolutions in military affairs.[3] Of all of the step changes, revolutions or transformations that have occurred, the use of the third dimension has invariably had considerable appeal. This paper will review the asymmetric edge that air power has provided to the battlefield and will then analyse future potential.

The first military use of air power occurred during the revolutionary wars where Mauberge was under siege by Dutch and Austrian forces whose disposition was reported in detail by the aeronaut.[4] This success was repeated on 26 June 1794 when the French used a balloon to observe Austrian troop movements at the Battle of Fleurus.[5] The need to know your enemy extends beyond the psychological imperative of understanding his mindset; one must also attempt to ascertain his dispositions, strength and where possible his intentions. Although the early balloonists were constrained to reporting strength and obvious movement, the efforts expended on gaining the aerial perspective provide eloquent testimony to the benefits that could have accrued. It may, however, be overstating the case to say that the balloons actually gave their side an asymmetric edge; but the potential was clearly there.

The advent of powered flight in 1903 gave an irreversible impetus to the exploitation of the third dimension. World War I saw powered flight and balloons being used extensively for

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[1]   See Professor Philip Sabin, 'Air Strategy and the Underdog', in Peter W Gray (ed), *Air Power 21, Challenges for the New Century*, The Stationary Office, London, 2000, Chapter 4.

[2]   Professor Sir Michael Howard, *The Invention of Peace: Reflections on War and International Order,* Yale University Press, New Haven, 2001.

[3]   See, inter alia, Lawrence Freedman, *The Revolution in Strategic Affairs*, Adelphi Paper 318, International Institute of Strategic Studies, London, 1998 and Wing Commander David Caddick, 'Air Power and the Revolution in Military Affairs', in P W Gray (ed), *Air Power 21; Challenges for the New Century*, The Stationary Office, London, 2000, Chapter 3. For a discussion on the history of revolutions in military affairs, see Richard O Hundley, *Past Revolutions, Future Transformations*, National Defense Research Institute, RAND, Santa Monica, CA.

[4]   H Montgomery Hyde, *British Air Policy Between The Wars, 1918–1939*, Heinemann, London, 1976, p. 5.

[5]   See Alan Riches, 'Balloons: What have they ever done for us?', *RAF Air Power Review*, Vol 3, No 4, Winter 2000, p. 109.

reconnaissance purposes. As early as August 1914, British and French aircraft spotted the German dispositions that led to the Battle of the Marne.[6] The next month saw the first use of aerial photography providing direct evidence of the emerging German trenches in the Aisne Hills. Wireless reduced the time lag in the decision-making cycle—or what was eventually to become known as the OODA-loop (Observe, Orientate, Decide and the Act). But it rapidly became evident that the Germans were playing the same game with no absolute asymmetric edge for either side. As the trench lines became more established, and the concentration of fire between opponents more deadly, so the need for some form of advantage became more crucial. Attempts to use artillery were frequently thwarted by lack of information as to what was on the 'other side of the hill'; this led rapidly to the regular use of the Royal Flying Corps in conjunction with the Gunners. The ability of air power to provide a disproportionate advantage through information superiority inevitably stimulated the need for a counter. Surface to air gunnery was only part of the solution and air-to-air combat (the sport of kings) became an integral part of the quest for control of the air. The symbiotic relationship between control of the air and the asymmetric edge became firmly established as early as October 1914 with the first conclusive aerial combat.[7] With the increasing scope to attack the homeland, by Zeppelin and with Gotha heavy bombers, all of the core capabilities of air power were in place by 1916.[8]

The popular perception is that RAF inter-war doctrine was dominated by the strategic bomber. This generalisation, like all of its kind, is fraught with danger. There has long been a tendency, especially in America, to link Trenchard with Douhet and Mitchell as prophets of air power. The reality is that Trenchard actually wrote little in the way of air power theory. What he, or more prosaically his staff, did put together had more to do with the survival of the fledgling RAF in the face of hostility from our sister Services and the Treasury. Nevertheless, central to their theme was that air power was essentially offensive. All thoughts were coloured by the trinity of offensive action, cost effectiveness and avoidance of the carnage of trench warfare. It must also be remembered that British **national interests** still centred on the Empire.

Thoughts in Whitehall in 1919 would have been largely shared between domestic matters and concern over the Empire—Europe was by no means as central as it was to become in later years. A combination of wishful thinking, economic necessity and opportunism gave rise to a defence policy based on there not being a war in Europe for the foreseeable future—ten years or more. All planning was therefore based on this premise. The primary function of the Army would be maintenance of law and order at home with Imperial policing as the overseas commitment for at least the next decade.[9] Britain was absolutely determined that its routes to India would not be jeopardised by instability, misrule or foreign intervention (Turkey or Russia). Furthermore, increasing dependence on oil reserves with the wane of the age of steam meant that the middle-east region was, even then, taking on its own strategic importance. **National interests** were of greater importance than distant threats to national security. Stability could not be guaranteed by diplomatic means alone and garrison forces were required in many critical locations. Churchill's attempts to find novel, and cheap,

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6   See Air Vice-Marshal Tony Mason, *Air Power, A Centennial Appraisal*, Brassey's, London, 1994, p. 18. See also Peter Hart, *Somme Success, The Royal Flying Corps and the Battle of the Somme, 1916*, Pen and Sword Books, Barnsley, 2001, Chapter 1.

7   Hart, *Somme Success*, p. 12. A French aviator shot down a German Aviatik on 5 October.

8   AP 3000, *British Air Power Doctrine*, HMSO, London, 1999.

9   See for example John Charmley, *Churchill: The End of the Glory*, BCA, London, 1993, p. 163.

solutions fell on ground as stony as the desert. Even after the first round of cuts, the garrison in Mesopotamia was still costing over £18 million per year.

A small-scale bombing attack on Turkish positions achieved striking success that was quickly capitalised on by Iraqi levies.[10] The air control method was very much a joint operation involving considerable co-operation between air and land assets, often with the RAF ferrying troops, dropping supplies and evacuating the wounded—as well as bombing. By May 1923, Salmond had achieved what Maurice Dean has described as a 'tremendous victory'.[11]

Air power had avoided the not inconsiderable casualties that had resulted—on both sides— from force-on-force police actions; it was financially cost effective; and was sufficiently offensive in nature to satisfy honour on both sides. In short, air power provided the Empire with the asymmetric edge. Control of the air was not contested and had no need therefore to be considered a campaign decisive point.

The Luftwaffe gained similar experience in Spain during the Civil War. Early in the conflict, Germany deployed 20 Junkers-52 transports to Morocco (refuelling in Italy en route).[12] These aircraft provided the airlift necessary to transport Nationalist forces loyal to Franco back to Seville. Between the end of July and mid-October 1936, over 20,000 troops and their equipment were moved representing what James Corum has described as 'the decisive military operations of the Spanish Civil War'.[13] Air power thus played, not only a decisive role in the Civil War, but arguably in European history, albeit not in the manner envisaged by the air power prophets. From the initial airlift through to the final push on Madrid, air power provided the cutting edge both by providing control of the air per se and by disrupting the symmetry of matched forces supported by peer benefactors. Both sides took lessons forward.

German aggression against Czechoslovakia and then Poland amply demonstrated the warfighting potential of the army with the Luftwaffe providing control of the air. France suffered a similar fate under the cosh of Blitzkreig. The ability to contest control of the air, however, had a significant impact on the beaches and moles of Dunkirk as the British desperately attempted to withdraw their shattered army. Air Vice-Marshal Keith Park's fighters from 11 Group provided 'Big Wings' (notwithstanding the later controversy) at dawn and dusk to provide some degree of air parity for the crucial periods of embarkation. Thousands of lives were saved and the kernel of the Army was retained because the lack of control of the air prevented the Luftwaffe from acquiring the asymmetric edge. The Battle of Britain consolidated the overall position preventing full-scale invasion.

Much ink has been spilled on the efficacy, or otherwise, of the strategic bombing campaign— or more correctly the bombing offensive against a wide range of targets in Germany, not all of which had real strategic value. To some extent, the early bomber raids amounted to something akin to force-on-force attacks—albeit, and somewhat prophetically, by proxy. The reality, however, was that the increasingly effective bomber offensive left the Hitler and the German High Command with no option but to defend the homeland. As anti-aircraft artillery units were reinforced, frontlines in Russia, and subsequently in France, were depleted.[14] Likewise,

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[10]   Omissi, *Air Power and Colonial Control*, p. 32.
[11]   Sir Maurice Dean, *The Royal Air Force and Two World Wars*, Cassell, London 1979, p. 37.
[12]   James S Corum, *The Luftwaffe, Creating the Operational Air War, 1918–1940*, Kansas University Press, 1997, Chapter 6.
[13]   Corum, *The Luftwaffe, Creating the Operational Air War, 1918–1940*, p. 184.
[14]   Richard J Overy, *The Air War 1939–1945*, Stein and Day, New York, p. 156.

fighter units were concentrated in Germany and were increasingly required to specialise in night air defence. As the combined weight of the USAAF Eighth Air Force and Bomber Command were brought to bear, the gruelling contest for control of the air was won—not over the beaches of Normandy as Leigh-Mallory had expected, but over the heartland of the Reich. The asymmetric edge could then be applied in support of Overlord and the ensuing breakout.

Notwithstanding the often vitriolic debates over bombing priorities, some unity of purpose was imposed on the scene in the lead-up to the Normandy landings with the attacks on the German transportation system. Once the land offensive was established, however, differences of opinion again surfaced over priorities. Tedder (as Deputy to Eisenhower) advocated that priority continue to be given to transportation and communications targets. Spaatz (Commander of the USAAF Eighth Air Force) favoured attacks on oil, while 'Bomber' Harris continued to insist on the maintenance of area bombing. Throughout this debate, Harris fervently believed that the carnage that he had witnessed in the Great War could be avoided through the application of undiluted air power—with no diversions to panacea targets. The practitioners of air power had little doubt as to the potency of its potential—the debate was over where the most asymmetric leverage could be applied.

Asymmetry is at its most potent when the means can be applied with little risk of concomitant retribution. The near total air supremacy exercised by the allies over Northern France allowed air power to roam and attack at will with severe consequences for the German ground forces that were forced to skulk in ditches by day. The devastation wrought in the fire raids on Hamburg and the destruction of Dresden provided examples in Germany of what air power could achieve. In retaliation, Hitler never finally relinquished the concept of war-winning super weapons that would provide the ultimate asymmetric edge.[15] The V-weapons achieved some measure of terror, and once launched, the V2 was invulnerable. But these weapons could be neither produced nor launched in sufficient quantity to have a real strategic effect. At the end of the day, the conventional explosives and incendiaries were dropped in sufficient quantity by the allies for them to have a quality all of their own.

Japan's surprise attack on Pearl Harbour provided another example of asymmetric application of force. The fact that the two sides were not at war provided the necessary edge. The ruthlessness of the attack inevitably provoked both angst and a desire for retribution. The early Doolittle raids on Tokyo warned of more to come. Japanese control of the air was insufficient to deter the USAAF. Attacks on urban areas using fire bombs were therefore authorised in March 1945 (after the furore over Dresden had died down). By May 1945, incendiaries comprised 75 per cent of the bomb load.[16] LeMay considered his strategic bombing force capable of coercing the Japanese into surrender without physical invasion. Some 58 cities were destroyed by firebombing between May and August 1945. In the face of such destruction—against which there was little scope for retaliation and virtually no defence—Japanese economic strength and morale crumbled. The nuclear attacks on Hiroshima and Nagasaki helped to accelerate the decision to surrender. In essence, air power had come of age and its proselytisers, and especially those arguing for an independent force, had seen the realisation of the ultimate asymmetric edge.

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[15]   Overy, pp. 154–5.
[16]   Overy, p. 128.

Notwithstanding the domestic, and international impact of the advent of the nuclear age, the reality was that the weapons themselves were small and available only in very limited quantities. The devastation at the two ground zeroes was no greater than had been achieved in many other Japanese cities. But the potential was huge, and the young superpowers stepped up the pace for the ultimate edge.

The transformational nature of nuclear weapons has, of course, been reflected in the extreme reluctance to employ them—even in the early days of development when their attributes were still aligned to conventional means of warfare. International conflict broke out in Korea in 1950; conventional strategic bombardment was impractical because of paucity of targets and nuclear usage was politically unacceptable. Nevertheless air power was used in quantity and with considerable effect. Allied air forces flew over a million missions dropping nearly half a million tons of ordnance.[17] Opportunities for asymmetry were relatively few—not least because of the political constraints on attacking airfields in China. Control of the air was therefore an ongoing process and air power was only decisive on a small number of occasions.

Advocates, and so-called apologists, of air power have had considerable scope to discuss the utility of air power over Vietnam. The generally accepted consensus is that American air power—equipment and doctrine—(deliberately phrased to avoid the tribalism prevalent at the time between the Services) was more attuned to nuclear weapons delivery than to conventional attacks against a very unconventional army. The political constraints were evident throughout the process from selection of individual targets to the overriding need to avoid escalation. This latter factor precluded strategic targeting or overt action outside home borders. Air power effectiveness was limited in the early part of the conflict due to lack of suitable target arrays. The Vietcong operated on the basis of insurgency tactics with limited scope for interdiction of materiel. After the evident failure of Rolling Thunder, Linebacker (I&II) was more successful. North Vietnamese tactics had evolved to a more conventional military approach thereby providing more lucrative targets; similarly political restrictions were increasingly relaxed.[18] Some air power advocates still claim that bombing could have provided the war-winning edge to the Vietnam conflict. The reality is that the whole mess was so lacking in symmetry that only a combination of factors could ever produce a solution.[19]

The years between Vietnam and the Gulf War did little to assuage the bitterness felt by many over the conflict in Southeast Asia. The Cold War ensured that defence budgets, doctrine and concepts would remain at best conservative. Some moves were made to foster the manoeuvrist approach with highlights emanating from the British Army in Germany and the US Marine Corps.[20] Matters were inevitably exacerbated when the Berlin Wall had collapsed and the ensuing euphoria gave way to strident demands for peace dividends. Competition for ever-scarcer funding left Ministries of Defence with the prospects of internecine warfare that had, for example, dominated relations between Trenchard and Beattie in the aftermath of the Great War. Or, alternatively, they were forced to take on a joint or purple view. This was

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[17] Mason, p. 63.

[18] M Clodfelter, *The Limits of Air Power, The American Bombing of North Vietnam*, Free Press, New York, 1989.

[19] Clodfelter, Epilogue.

[20] Field Marshal Lord Bagnall was responsible, through a series of Commands in (and latterly of) the British Army of the Rhine for step change in thinking. Ironically the USMC were making parallel developments largely thanks to the work of USAF Colonel John Boyd whose writings and views were something of anathema in his own Service; see Grant T Hammond, *The Mind of War, John Boyd and American Security*, Smithsonian, Washington, 2000.

cynically portrayed by one commentator as the colour that most people go when nooses are tightened; he added that when the pressure is relieved a more normal complexion is quickly restored. Saddam Hussein relieved the pressure, at least temporarily, with his invasion and occupation of Kuwait. Rapid coalition response was effected by the almost instant deployment of air power to a seriously worried Saudi Arabia. This provided an asymmetric response to a potentially disastrous situation.

The ensuing conflict through Desert Shield into *Desert Storm* was manna from heaven for air power advocates. For one expert commentator, 'The Gulf War marked the apotheosis of twentieth century air power'. This elevation of a form of warfare to divine status has been subsequently cited and approved by others.[21] But these advocates were not alone in their praise: President George Bush stated that 'Gulf Lesson One is the value of air power'; and Secretary of Defense Dick Cheney confirmed that 'the air campaign was decisive'.[22] The synergy in names and appointments is obvious to students of air power a decade later.

Air power cannot be said to have won the war on its own as the Iraqi regime, its allies and, arguably most importantly, the fellow members of the coalition must have been impressed by the deployment of ground forces on a serious war fighting scale. The willingness to be prepared to take casualties on an equally serious scale was obvious. The subsequent hundred-hour offensive was a vindication for the totality—not just air power. Manoeuvre warfare, on a large scale, swept the board. But the impact of weeks of air power changed the level of the victory, taking us beyond manoeuvre warfare to genuine manoeuvrist conflict—cohesion and will, in the chosen theatre of operations, were shattered.[23] Furthermore, air (and aerospace) power had reached into the heart of Iraq itself where no target was immune from scrutiny, surveillance and attack. Control of the air was not ceded, as some detractors imply with a casual, myopic sweep of a very large hand over a small map of Iraq—and of history. It was fought for, won and then had to be maintained. Those who recall the early losses in the Tornado force recall that these were tense times. Once this contest, or to stretch a point the potential for the fight, had been decisively won, air power certainly produced the asymmetric edge: ground force-on-force was avoided until cohesion and will were shattered.

No sooner was the euphoria in the process of evaporation before Yugoslavia started to unravel in a serious manner. In this conflict force-on-force was deliberately eschewed—by all sides; and there were no heroes, only bad guys and victims. The low level of the fighting did not mask the viciousness and the brutality with arson, rape and murder the norm. This was Hobbes rather than Clausewitz.

The nature, and scale, of the violence within Bosnia-Herzegovina, coupled with the immediate access to media, raised the stakes with increasing demands for peace enforcement. Continued political intransigence, and a worsening situation on the ground, increased the demand for resolute action. *Deliberate Force* was unleashed on 30 August and continued through to 14 September 1995. NATO air units flew 3535 sorties and dropped over 1100 bombs with the loss of one aircraft.[24] For presentational purposes, the NATO attacks were

[21]   Air Vice-Marshal Tony Mason in 'The air war in the Gulf', *Survival*, May/June 1991, p. 225. Reiterated in *Air Power, A Centennial Appraisal*, p. 138. Also cited by Richard P Hallion, *Storm over Iraq*, Smithsonian, Washington, p. 1.

[22]   Hallion, p. 241.

[23]   See Andrew P Lambert, *The Psychology of Air Power*, RUSI Whitehall Papers, 1994.

[24]   Lt Col Mark J Conversino, 'Executing *Deliberate Force*, 30 August–14 September 1995', in Colonel Robert C Owen (ed), *Deliberate Force, A Case Study in Effective Air Campaigning*, p. 131 et seq.

carried out as part of the campaign to protect the safe areas—directly and indirectly. It is obvious from Holbrooke, however, that any coercion of the Bosnian Serbs towards a peace settlement would be beneficial.[25] Furthermore, the air campaign was materially assisting an ongoing Croatian Army/Muslim ground offensive[26]—much to the discomfort of the Bosnian Serb Army which found that the concentrations of tanks and artillery necessary to counter this assault made excellent targets for air power. Holbrooke suggested to Milosevic that the air campaign was not coordinated with the ground offensive, but later in his account admits to having advised President Tudjman of Croatia as to which towns his troops should occupy to facilitate later negotiations[27]—the maps were already being redrawn. The marked escalation in external military involvement resulted in a new momentum for the talks' process.

Subsequent reaction has varied from restrained suggestions that air power achieved far more than could have been expected,[28] through confirmation that it was **a** decisive element in shaping the outcome (emphasis in the original),[29] to suggestions that the air campaign had delivered the Dayton peace accord. This was unequivocally challenged by General Sir Michael Rose who commented that:

> *Tragically, NATO came to believe its own rhetoric that it was the air campaign that had delivered the Dayton Peace Accord.*[30]

Similar bold statements followed success in *Allied Force* with exaggerated claims over what air power had achieved.[31]

Regrettably, some of these statements were taken to heart, and with an unhealthy dose of optimism, politicians and planners had again to turn to air power in the hope of pressurising Milosevic into backing down over the situation in Kosovo. What had effectively degenerated into a 10-year cycle of 'call my bluff' failed to produce a result that was satisfactory to any of the sides. Military action seemed to be the only way forward. *Allied Force* commenced at 1900 GMT on 24 March 1999 and continued for 78 days. Some 38,004 sorties were flown of which 10,484 were strike missions. The UK flew 1618 sorties of which 1008 were strike.[32] The air campaign began with a series of strikes on air defences across Serbia and Montenegro and against a limited number of military targets in Kosovo and elsewhere in Southern Serbia. Targeting policy was under political control in NATO and nationally. Fond hopes that Milosevic would collapse immediately were quickly shown to be wrong as his special forces and para-military units set about an ethnic cleansing operation of unprecedented brutality.[33]

As the campaign continued, the range of targets was gradually expanded and, with no sign of NATO disintegration, the Serbian economy was gradually worn down to the point where it was almost certain that Milosevic and his cronies were running out of influence and black

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[25] Holbrooke, *To End a War,* pp. 145–50.

[26] Thomas Quiggin, Do airstrikes amount to an effective policy?, *RUSI Journal*, April/May 1999 p. 17 is quite specific over the involvement of regular Croatian Army troops.

[27] Holbrooke, *To End a War*, pp. 147 and 160.

[28] Conversino, p. 168.

[29] Lieutenant General Jay W Kelley USAF, Preface to, Colonel Robert C Owen (ed), *Deliberate Force, A Case Study in Effective Air Campaigning*, p. xii.

[30] General Sir Michael Rose in, 'Lessons from Kosovo', *RUSI World Defence Systems 2000*, p. 1:8.

[31] See, for a catchy title at least, Rebecca Grant, *The Kosovo Campaign: Aerospace Power Made it Work*, An Air Force Association Special Report, Arlington, 1999.

[32] Details taken from www.mod.uk/news/kosovo/account/nato.htm accessed on 11 Oct 99.

[33] See for example, Sue Cameron, 'Top Brass Brassed Off', *The Spectator* 17 April 1999, p. 14.

market profits. Settlement was reached, albeit on looser terms than had been tabled prior to the start of hostilities.[34] Whatever the sceptics may say about both *Deliberate* and *Allied Force*, the reality is that air power did make a major and significant contribution. Furthermore, for many governments, air power was the only game in town. There was an unmistakeable reluctance, or inability, on the part of most governments to deploy serious numbers of troops on the ground with a genuine war-fighting mandate. Control of the air, certainly in the later campaign, had again to be fought for, won and then maintained. Thereafter, it could easily be argued that air power was not only the asymmetric edge—it was the only feasible option.

The events of 11 September 2001 rocked much of the Western world and left many wondering how quickly the President of the US would resort to air reprisals. Surrounded by senior and seasoned colleagues, the response was largely measured and reasoned (some rhetoric such as references to a 'crusade' were less than wise). The subsequent operations were inevitably based around air and space power using the widest spectrum of capabilities. Air power was used extensively for the projection of special forces, with carrier air in support. Long-range attack aircraft were again deployed direct from the continental US. Close cooperation with indigenous forces enabled rapid progress to be made in restoring Afghanistan to some semblance of civilised governance. An interesting element of the contest for control of the air came with Warden's prediction coming true that this need not be done air-to-air, or even air-to ground, but could be achieved by ground troops clearing out surface-to-air missile cells. In terms of providing the asymmetric edge the range of sensors deployed, either air/space borne or air delivered, coupled with witheringly accurate fire have again proved the value beyond reasonable doubt.

The foregoing account cannot take every skirmish, conflict and war into consideration. It is nevertheless a comprehensive overview of warfare from the earliest use of air power. Control of the air has been a key factor in its effectiveness—a true decisive point—from the point where Austrian commanders considered observation from balloons an affront to the laws of war and attempted to shoot them down. Even the opposition achieving air parity can blunt a commander's intent—as was shown at Dunkirk. Air superiority or supremacy must therefore be the aim. This does not happen by accident; and it certainly will not be ceded. As Professor Tony Mason has pointed out, land and naval commanders should look to their plans in the event that command of the air is not achieved.[35]

It is now worth looking at the most extreme end of the use of air power in the quest for the asymmetric edge—indeed for some, what has been a Holy Grail—true strategic effect.

It is worth stressing at this stage that strategic does not refer to the distance a platform has travelled. Nor to the size, shape or its stealth characteristics. Strategic refers to the level of warfare, or decision making, in the target regime. Some may argue that levels of warfare are no longer relevant to modern warfare and that they are merely used to justify layers of headquarters. The reality, however, is that policy formulation—in any structure—will take place on a number of levels. Those responsible for orchestrating the air campaign will need to take into account the levels on which the enemy regime is functioning and target accordingly. In short, strategic effect is unlikely to be achieved by attacking simple tactical targets.

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[34] For a fuller discussion, see the Chapter by the author in Cox and Gray (Eds), *Air Power History, Turning Points from Kittyhawk to Kosovo*, Frank Cass, London, forthcoming.
[35] Mason, *Air Power, A Centennial Appraisal*, p. 166.

British Air Power Doctrine recognises a single centre of gravity at the strategic and operational levels, but not in the tactical arena (unlike other forces that accept a number of centres at each of the higher levels). Strategic effect could theoretically be created by independent and distinct use of air power alone, or, more likely, it will be part of joint or multi-national activity. Air operations for strategic effect are aimed to destroy or disrupt the defined strategic centre of gravity of an opponent.[36] It is worth emphasising at this point that the **effect** sought by the use of air power may not necessarily be the physical destruction of the chosen target set. Indeed, the centre of gravity may not be the enemy's army (which Clausewitz saw as being the natural choice); it may be as ephemeral as a despot's ability to further his family's fortunes and influence. Warden has suggested that attacking the leadership of a foe could lead to strategic paralysis, thereby possibly obviating the need for attacks on fielded forces.[37] Air assets other than attack aircraft may, however, be involved in strategic air operations. Activities such as supervision of a no-fly zone or the provision of relief supplies may have strategic effect, depending on the circumstances prevailing at the time.

The objective of strategic air operations, consistent with the tenets of manoeuvre warfare, is to shatter the enemy's cohesion and will—not just to destroy men and materiel. Target sets will have been selected, as part of the estimate process, for their strategic relevance and may include the machinery of government, military forces, infrastructure and so forth. Given the flexibility of air power, other targets at the operational and tactical levels may be attacked in parallel with, or subsequent to, strategic operations. But we must not allow ourselves to think that destruction at the lower levels will constitute real strategic effect. The target sets at this high level of operations, and the weapons proposed, will inevitably excite considerable political, legal and humanitarian interest in the highest spheres of governmental machinery. Whilst the military preference is for the espousal of a clear political aim followed by centralised planning and then decentralised execution, it is entirely proper in a democratically accountable structure that political oversight is maintained. This is bound to be most appropriate, and most contentious, at the strategic level. The possible necessity of maintaining coalition solidarity may make this aspect of an operation or campaign particularly fraught.

A study of the historical uses of air power at the strategic level suggests a number of possible lessons that may influence coalition planning. The actual shock of aerial bombardment may be sufficient on its own to influence the target government—particularly if the intended victim has been sceptical as to the will of his foe. The psychology of this type of operations is at best hugely difficult and, more probably, such that each case is *sui generis*. The actual effect of the attack, rather than just the damage assessment, is extremely difficult to assess, particularly if it has been accompanied by information operations. The US operation against the Gaddafi regime in 1986 is held by some to have been successful in its shock effect; but it is by no means certain that ELDORADO CANYON did little more than force Libya to be more covert in its support for terrorism.[38]

A concerted bombing offensive can have a profound effect on a target population. In a democratic state with open media, this may result in increased pressure on the ruling elite. In

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[36] ibid., p. 2.6.1.

[37] John A Warden III, *The Air Campaign*, (New York: toExcel), 1998; the original version was first published in 1989 and was highly influential in the Gulf War air campaign.

[38] See, for example, Joseph Lepgold, 'Hypotheses on Vulnerability: Are Terrorists and Drug Traffickers Coerceable?' in *Strategic Coercion, Concepts and Cases*, ed by Lawrence Freedman (Oxford: OUP), 1998, pp. 144-7.

any event it may well force the target government to reallocate scarce assets to defence of the homeland.[39] The less accountable the leadership of the target state, however, or the more 'total' the war, the less likely they are to bow to public opinion. Furthermore, measuring 'public morale' is hardly a scientific art in any country let alone one that is subject to police control, censorship and propaganda.

It is axiomatic from what I have just covered that those seeking strategic effect must be able to analyse the values of potential centres of gravity from the perspective of the their foe—not through their own eyes. This may involve considerably more than technical intelligence of the aerospace variety. Analytical efforts in this field cannot be generated overnight and this factor may tend to pressurise planners into reverting to default target sets such as bridges and power stations—even though their destruction may have little impact on the grand strategic decision makers. The challenges in achieving this in the coalition environment are considerable. As we move further into the era of air power as the weapon of first political choice, the desirability of achieving these goals—or Holy Grail—can only become all the more important.

CONCLUSION

As air power and technology have matured hand-in-hand, so the capability has increased many-fold. Even after *Allied Force*, however, only the very bold among air power advocates would suggest that air power—let alone air forces—could 'do it alone'. Furthermore, there remains considerable scope for air power to act in close, and in indirect, support of other components—often providing **them** with the asymmetric edge. Nevertheless, it is the ability to react rapidly, offensively and to operate over long distances that gives air power the scope for independent action.

This scope for air power to be employed remote from land and naval forces was part of the original rationale for its employment to be in the hands of a separate service with its own staff. Amidst considerable controversy, the RAF was formed on this premise. It is submitted that the case for professional airmen to be at the forefront of the planning and execution of this capability is more overwhelming now than it was in 1918, or in the aftermath of World War II when the USAF came into being. The lower the scale of conflict, or the more intransigent the foe, the broader based the strategic planning will need to be. This will necessitate more conceptually based and more visionary approaches to conflict resolution. Doctrine, in both the joint and environmental arenas will need to evolve to meet these challenges, lest it descend into dogma. This will need pro-active intellectual effort beyond Professor Richard Overy's admonition that the process should be subject to 'constant and critical interrogation'.[40] No aviator, of whatever colour cloth, would claim a monopoly on wisdom on air matters. Nor would any air power advocate, academic or apologist stake a claim to be the only voice. Nevertheless, operational experience carries its own weight in air power debate as it does in any field of military endeavour. In most fields of study, the opening perspective of the student will colour her or his analysis of the subject area. A real understanding of air power history, of doctrine and, most importantly, of conceptual thinking is therefore best done by air-minded folk.

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[39]   Overy, *The Air War 1939–1945*, p. 121.
[40]   Richard Overy, 'Doctrine Not Dogma: Lessons from the Past', *RAF Air Power Review*, Vol 3, No 1, p. 33.

One of the prime sources of air power conceptual thinking will therefore be from air forces, and clearly from those most closely associated with them. Likewise air campaign planning is best done by those intimately aware of the nuances of aircraft systems, weapons and doctrine; this will invariably mean aviators and, with due respect to those in other colour suits, the truly independent capabilities of air power are best exercised by those from the air force. In these days of financial stringency, the ideal may be sacrificed for the economical. But woe-betide the 'purple commander', the civil servant or the contractor who risks not having control of the air. Similarly the crisis manager needs to guard against the descent from conceptual thought into quantitative management-speak in which counting the number of tanks 'plinked' is regarded as a more meaningful exercise that analysing the real **effect** achieved on the enemy.

Air power has increasingly become the weapon of first political choice. Indeed over the last decade it has often been **the only weapon** acceptable to some nations, their politicians and their people. Some may argue, and this author does, that casualty aversion has been overstated in the aftermath of the American experience in Somalia. It may well be that history will regard that regrettable episode as a blip rather than a watershed. Nations, and their media, will always be ready to criticise governments for hasty intervention where **national interests** (however defined) are not evidently at stake. But support for military action, with the ensuing consequences, can be very robust when the stakes are high. That said, unnecessary waste of life should be eschewed whenever possible. Air power will therefore frequently offer the safest way forward—especially in conjunction with precision weaponry. As has been shown, the wise will always elect to avoid symmetric conflict. The asymmetric edge should therefore always be sought.

One could therefore argue that Trenchard's trinity of offensive action, cost-effectiveness and avoidance of symmetric force-on-force carnage have either come full-circle—or have been an enduring theme of air power utilisation. There can be little doubt for politicians in search of either 'something to be done', or in the quest for 'the force for good', air power will provide immediate scope for offensive action. For detractors of an earlier age, its impermanence has become a virtue. Whilst not, at first sight, a cheap option, modern air power can be cost effective—especially when set against the alternative of fielding large and highly manoeuvrable armies equipped for network centric warfare. For the casualty averse, however, it is the asymmetric edge—the avoidance of mass casualties—that gives air power the greatest appeal. When action is taken in defence of national security—'in clear and present danger'— public support will be immediate. Where action is taken in pursuit of more nebulous **national interests,** rather than national security, there will be greater need for precise, and often long range, offensive action which can only be provided by air power.

In sum, air power—in its widest form—is likely to remain the weapon of first political choice. With control of the air, it will be the most likely form of military force to achieve the asymmetric edge and hence the most efficient victory. If air power is to be used to best **effect**, it is best exercised by airmen, and most of them come from air forces. Air power—and air forces—are therefore destined to remain—to borrow the esteemed John Terraine's title—'to the right of the line'.[41]

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[41] John Terraine, *To the Right of the Line, The Royal Air Force in the European War 1939 –1945*, Hodder and Stoughton, London.

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DISCUSSION

Squadron Leader Dave Pratt, RNZAF: Sir, thank you for your very meaty presentation and also thank you for reassuring us on air power's value and the need for a separate air force. But would you just give me a little bit of guidance as to how you think of the future of offensive air power for small and poor countries, such as my own?

Group Captain Peter Gray: I'm very reluctant to do so. The last time I attempted to do that was actually in New Zealand and as I left to go to a cocktail party the television was ringing in my ears with, 'Overseas defence expert slams New Zealand policy'. That was hardly what I went there to do. Well, it was actually what I went there to do, but not to worry. There are no easy answers. The debate for small air forces can be various. You can look at role or burden sharing, you can look at air power or air forces as a permanent supporting component commander, which I think is the way that New Zealand has gone, or you can try and do a little bit of everything. The little bit of everything is always going to be unsatisfactory, but then the counter argument of giving up whole capabilities is rarely an attractive option either. There are no easy solutions.

In some ways it comes back to the interoperability question that was discussed in the last presentation. Interoperability works two ways. The big guys selling downward from the top of the ziggurat have to be prepared to release the kit in whatever quantities and the technology to go with it. By the same token, the small countries looking up have to be reasonably sensible—and I don't necessarily mean New Zealand, it could equally be the United Kingdom—in what we choose to buy. All of the pork barrel politics in terms of 'Do we buy from this company?', 'What are the licensing arrangements for building?', 'What are the implications for industry?' all have to be met. Is there a way around it in terms of role or burden sharing? There probably can be. It's something that's looked at in the UK with reference to a European defence identity with no easy answers to that either. There is always the risk that if your national interests are at stake this way and somebody else's national interests are at stake that way, which way do you go if you've only got part of the pie each? There are no easy answers to it.

Air Vice-Marshal Bob Richardson, RAAF Reserve: I'd like to address the issue of jointery and take a point you made very near the end of your presentation about the need for separate air forces. I make no argument about the need for separate air forces but I spent a year at the Royal College of Defence Studies in 1991 and I came to realise how little real jointery was being practised then. I'm sure it's much more now. But it does seem that the larger defence forces around the world perhaps have the greatest difficulty in operating in a truly joint fashion and, to some extent, our country perhaps has the opportunity to demonstrate the real practice of jointery. I'm thinking not so much of the high end of air operations but the need, I believe, for more jointery and more joint personnel operations across the services. It seems to me that it would be a great advantage to our army to have a number of air force people operating within the army, and I think there are some signs that we're moving in that direction. I think our maritime patrol air force would be very well suited to being staffed by navy people or by a proportion of navy people. I think there would be great advantages in their later life for those people having operated air power. Otherwise I think what we've heard in the last couple of days and in your presentation is that the individual services are going to

see it as axiomatic that they've got to get their own air force and I think that is something that we should avoid.

Group Captain Peter Gray: I would agree that it is something that should be avoided. I leave my current appointment in two weeks time to become the Assistant Director for Joint Warfare in the Ministry of Defence, so if I haven't got a joint cap somewhere the closet I'd better find one and start wearing it. We're making major strides in the UK towards jointness. There is no question whatsoever of merging services. But the ability to work together, to understand each other's language and wherever possible to exercise and operate together is more important now arguably than it ever has been.

Ian Wing, The Distillery: I'd just like to make a comment about your use of the term 'asymmetry' or 'asymmetric warfare' which is the normal way that asymmetry or symmetry is used. I note your definition is that the asymmetric edge would involve a conflict where there is no symmetry. Of course, all military men and women seek asymmetry. We'd always rather outnumber the enemy or have more weapons than the enemy or have a better air force than the enemy. I think that unfortunately is rather a misleading way to use the term, the way it's normally used in the international relations debate. Asymmetric warfare usually refers to an unusual form of attack or an unusual form of defence, examples being releasing poison gas in Tokyo, throwing rocks at British soldiers, using children to throw rocks at British soldiers in Northern Ireland, that's an asymmetric attack. Flying an aeroplane into a building full of civilians, that's asymmetric attack because it is unusual, it's a different modus operandi and it dislocates the other force because they're completely unprepared for it. I think to use the term 'asymmetry' and apply it to the strategic bombing offensive over Germany, for instance, or to moving aircraft to Saudi Arabia in 1990 is probably blurring the term and it might make it a little hard for us all to use. I would recommend that we continue to use the term 'asymmetry' to refer to these unusual forms of warfare because they are special, and if we try and blur it out too far it will lose its meaning.

Group Captain Peter Gray: Thank you for that. I deliberately set out to blur it. I deliberately set out to change or to use asymmetric, asymmetric warfare, in its broadest context in that it is just a lack of symmetry. The trouble, I believe, and certainly the conceptual that I've been involved with both in my current job and in the force development world, asymmetric warfare was given almost a haloed status all of its own. Whereas what we're really referring to are the sorts of one-off oddball totally unpredictable hugely difficult for the intelligence services to predict type threats. What I wanted to try and do was show that asymmetry is actually far broader and I was deliberately trying to blur it.

Captain Menhinick, Sea Power Centre: Just a bit of a maritime perspective for a second. In our Australian maritime doctrine we talk about sea control as being what we're about. The sea control is three dimensional and we always talk about control of the air, control of the surface and the under-sea. The issue with our environment is how we get control of the air where and when we need it in our forms of expeditionary warfare we might be doing. That's just an issue that we are playing with at the moment but certainly as far as the navy's concerned we're very much into joint in Australia and, as I said, maritime strategy is joint. We don't believe it's a naval function by itself. Obviously we need control of the air. It's just how do we achieve it in our environment that counts.

Group Captain Peter Gray: There's little particularly to answer in that. One of the greatest challenges is how to achieve control of the air in a littoral environment, in a brown water as

opposed to a blue water environment. There is no doubt whatsoever that the only answer to that solution is inherently joint. There can be no turf fights over that particular battle.

WE WON THE WAR — NOW BUILD THE PEACE

PROFESSOR CHRIS BELLAMY

'The legitimate object of war is a more perfect peace.'
Gen William T. Sherman[1]

Before I address the subject of 'winning the peace', it is worth stepping back, just for a moment, to look at events before the war has actually ended. In most cases these days, for most of us, it will be somebody else's war. A few years ago, the UK Royal Air Force produced a television recruiting advertisement. To the sound of urgent music and earnest media commentary, Rapier missiles swung to engage potential targets, Harrier reconnaissance and strike aircraft screamed low overhead. On the ground below civilians, especially women and children, looked terrified and vulnerable, dodging mortar fire and Kalashnikov bullets. And now, an air strike seemed imminent. Then came the punch line. 'Payload away' was the radio message from the cockpit of a Hercules transport. A net full of food and medical supplies crashed to the ground to be eagerly seized by the waiting civilians. 'There is hope. Their country needs you' was the message. The famous 'Your country needs you' World War I recruiting poster featuring the strange, piercing and omnipresent eyes of Lord Kitchener, adapted and updated for the new world disorder.[2]

The point was well made. As Professor Tony Mason said earlier in the conference, 'the sense of obligation remains, but to a wider society'—to humanity as a whole, not just one's own state. The tools of war are finding a better use. The Payload advertisement showed many of the classic roles of aerospace power, but put to use in a context quite different from that for which they had been primarily developed. Fixed-wing transport aircraft. Helicopters. Reconnaissance. Air combat. Air defence. Only uninhabited aerial vehicles (UAVs), maritime patrol aircraft and the role of satellites for navigation, reconnaissance and targeting and communications were omitted. Satellites are now crucial, not just for the military component of Peace Support Operations (PSO), but for many other actors. Non-Governmental Organisations (NGOs) and the media alike cannot operate without satellite communications, while satellite and aircraft surveillance may help uncover mass graves, or concentrations of refugees and Internally Displaced Persons (IDPs), or predict and identify natural phenomena which may compound a 'complex emergency'.[3]

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[1] Epigram of 23 February 1882, inscribed on Sherman's statue in Washington DC.

[2] *Payload*. Video kindly supplied by Director of Public Relations, RAF, MoD, London, and RAF Cranwell. The scenario depicted drew heavily on the Bosnia experience, as did British Peace Support Operations Doctrine of the mid-1990s. See note, below.

[3] See, for example, David Orr, 'Blue and white patches dotted the forest. Below us were Zaire's hidden refugees', *Independent*, 15 November 1996, p. 1. Complex emergencies are defined by NATO, for example, as 'a complex, multi-party, intra-state conflict resulting in humanitarian disaster which might promote multi-dimensional risks or threats to regional and international security. NATO, Allied Joint Publication AJP 3.4.1 *Peace Support Operations*, July 2001, p. G1.

The UK term Peace Support Operations, which equates roughly with the US Peace Operations, covers the full spectrum of military activity apart from war against a designated 'enemy'. In about 1997–98 the UK Army think-tank at Upavon devised a model that the present author adapted, as shown in Figure 1.[4]
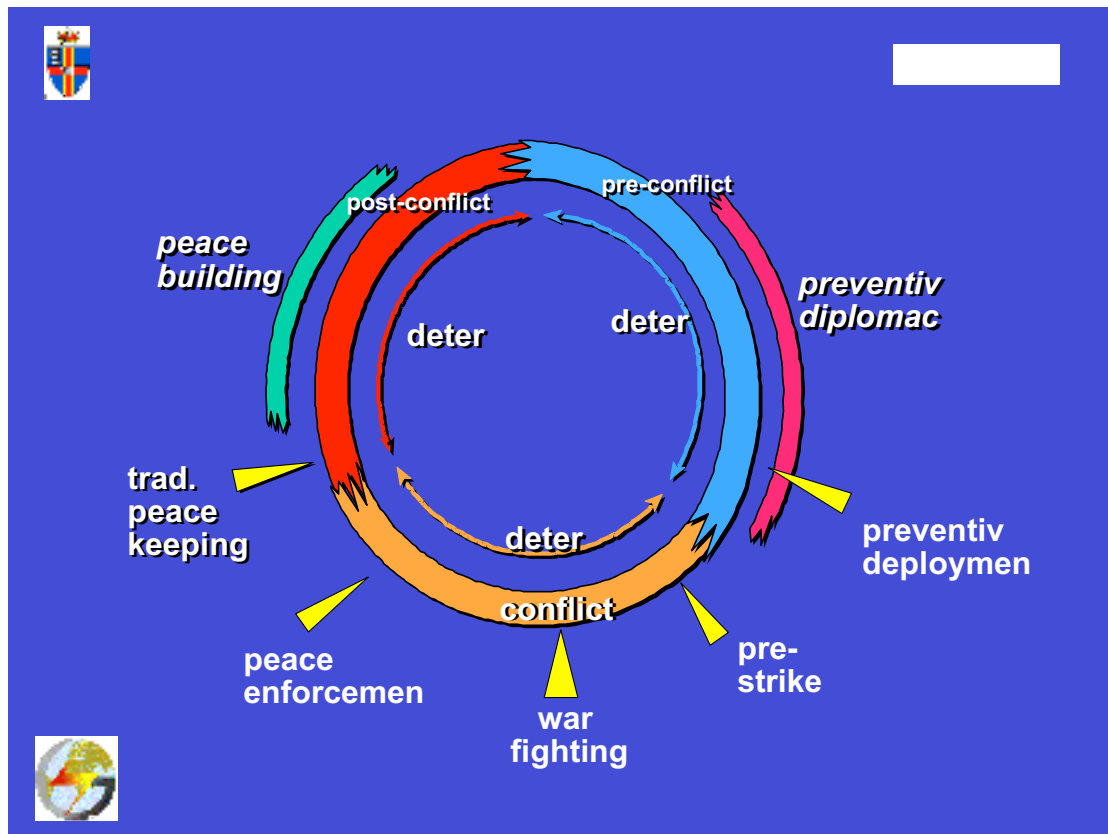

Figure 1. The spectrum of conflict and defence, diplomatic and development tasks.

Traditionally, armed forces have been configured for war fighting and that remains their primary mission in many countries, including the UK. However, as soon as the spectrum of possible activities is represented as in this torus or 'doughnut' model, the range of other activities in which they may be involved, alongside other agencies, becomes clear.

One observation is that while war appears at the centre of the conflict segment, the word 'peace' appears nowhere. The reason for this, at first sight, depressing state of affairs is that pure 'peace' cannot exist. The moment we escape from conflict, we have to be alert to ward off the next one. For the Romans, 'peace'—pax—meant 'absence of war', and would therefore have spanned the 'pre-conflict' and 'post-conflict' segments of the doughnut. Pure peace, perhaps represented by the Hebrew word 'shalom', would exist somewhere between

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[4]   This form of the model, christened the 'doughnut' by the author's students, is the author's adaptation of the model produced by the Army's Director General of Doctrine and Training (DGDT) at Upavon after it was described to him in a telephone conversation in October 1997. It was first published in this form in the author's *Spiral through Time: Beyond 'Conflict Intensity'*, (SCSI Occasional paper No. 35, HMSO/British Army Review, August 1998), p. 33. Some of DGDT's functions have now been passed to the Joint Doctrine and Concepts Centre (JDCC) at Shrivenham, which at the time of writing (August 2002) is revising Peace Support Operations (PSO) Doctrine.

post-conflict and pre-conflict. But if there were no risk of conflict and war, then we would all be out of a job. There would be no need for any nuclear deterrent, or standing armed forces. The question of where 'peace' fitted into this model was addressed by the author's students, with some profitable results.[5]

An exhaustive and theological examination of terminology and definitions would be tedious. However, the diagram highlights a number of issues and changing perceptions.

One heading omitted from the diagram is what the UN currently calls 'peace sustainment'. This is when the situation has returned to near-normality, local institutions are increasingly playing their proper role, and foreign military involvement is nearly at an end. This phrase would appear at the top of the 'peace building' segment.

Preventive deployment, a pre-conflict area which has until now been rather neglected, is highlighted, as is post-conflict peacekeeping. In 1994 the British adopted the term 'wider peacekeeping' for operations which, while undertaken with the broad consent of the former warring parties—in other words, there was a peace, of sorts, to keep—nevertheless took place in an environment which was highly volatile and could revert to war at a moment's notice.[6] The term, which was coined in a climate dominated by Bosnia, is now passé and the British no longer use it.

Peace enforcement originally meant 'termination of a conflict (someone else's) by force'. There is tendency to use it, however, to refer to more robust peacekeeping operations, of the type formally covered by 'wider peacekeeping', and this trend is growing.

The term peace making should, in the author's view, be confined to diplomatic activity, including shuttle diplomacy, simultaneous with all three phases. However it has been widely used in the media for 'peace enforcement', and at the time of writing is increasingly being identified with peace enforcement. However, in the author's view the distinction should be maintained. While peace making must take place simultaneously with peace enforcement, the former is emphatically jaw-jaw while the latter has many similarities to war-war.

The difference between peace enforcement and limited war is problematic. In 1996 it was suggested that the difference rested on whether or not one's posture was impartial—treating all the warring factions much the same (peace enforcement), or whether there was a declared 'enemy' (war). This demarcation proved unsatisfactory. When NATO began 'peace enforcement' in Bosnia in 1995, the UN troops had been withdrawn from within Serb areas and the Serbs became, de facto, the 'enemy'. Conversely, in the Gulf in 1991, the coalition did not bomb, shell and strafe the Iraqis merely because they were 'the enemy', but to make them get out of Kuwait. Once they did, the coalition stopped.[7] The key difference between peace enforcement and limited war is not so much the crossing of the tenuous 'impartiality' line, but sensitivity in how you conduct operations. In war, as Clausewitz said, you compel

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[5] Lieutenant Commander Chris Tweed, 'From Doughnuts to Toffee Apples: a New Model of War and Peace', *RUSI Journal*, Vol 145 No 1, February 2000, pp. 76-83. Tweed develops the two-dimensional 'doughnut', which represents only one cycle of pre-conflict, conflict and post-conflict, into a three-dimensional sphere representing many such cycles at any one time. Peace lies at the top, 'thickest and most resilient over the pole away from the realisation of the threat, and thinning to a brittle indeterminate edge as the level of threat rises' (p. 82)—like a toffee apple. The essay won the 1999 Trench Gascoigne essay prize competition.

[6] See the British manual *Wider Peacekeeping*, (HMSO, 1994), p. 1.2.

[7] See the author's *Knights in White Armour: the New Art of War and Peace*, (2nd ed., Pimlico, London, 1997), Postscript to the Pimlico edition, pp. 239-54, esp. pp. 250-53.

your opponent to do your will, paralysing him and breaking bones if necessary.[8] In peace enforcement you must not lose sight of the requirements for a long-term, sustainable peace. You may act decisively, but you must not cripple and permanently alienate the other side.

The phrase 'humanitarian assistance' may be used to describe activities in concert with any of the components of Peace Support Operations. 'Humanitarian operations, on the other hand, involve direct support for civilian agencies outside the Peace Support Operations context—in other words, where there is no military or security problem. An example of the latter might be the humanitarian effort in the wake of the floods in Mozambique.

This brings us to a crucial juncture. All the discussion above has related to post conflict situations. Indeed, there is a view in the British doctrine community that conflict prevention should not be considered part of Peace Support Operations. In the author's view, preventive deployment is a military-type operation and should be included as a component of Peace Support Operations. More crucially, prevention is better than cure. The ideal time to intervene is surely before latent conflict turns to overt conflict. Yet it is very difficult for governments, strapped for cash and with cynical populations, to justify intervening before something has happened. And how many histories have been written of the wars and tragedies that have been prevented? It is relatively easy for politicians to act quickly when it is obvious that something has gone horribly wrong. It is far more difficult to act, let alone quickly, ahead of time. The ideal time for intervention would therefore be on the right side of the first quadrant in Adam Curle's 'Progression of Conflict' model, shown in Figure 2.[9]

The idea of 'joined-up Government' getting together to engage in conflict prevention has made some headway in the UK recently. An example is the 'cross-cutting initiative on conflict prevention' which draws on two funds—one for Africa, one for the rest of the world—to which the Ministry of Defence, the Foreign and Commonwealth Office and the Department for International Development all contribute. That, surely, is the way ahead. To exclude Peace Support Operations from this lucrative but largely unexploited field of pre-conflict action would seem self-defeating.

If conflict does happen and is then terminated, peace building can be divided into three phases working backwards from war—implementation, stabilisation and peace consolidation. These phrases have been reflected to some extent in the names of successive peace-building forces in Bosnia.

The extant British doctrine for Peace Support Operations is Joint Warfare Publication (JWP) 3-50, published in 1998.[10] The Australian doctrinal view does not differ profoundly from that of the UK. Since then, the UK has been involved in Peace Support Operations in Kosovo, in the Australian-led operation in East Timor, in Sierra Leone, in a humanitarian operation in Mozambique, in continuing operations in Bosnia and in another operation in the Former Yugoslav Republic of Macedonia. Most recently, the UK and Australia have deployed on operations in Afghanistan. Experience gained in all these operations suggested that JWP 3-50 should be revised and that is going on at the time of writing.

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[8] Karl von Clausewitz, *Vom Kriege (On War)*, (1832) trans. and ed. Michael Howard and Peter Paret, (Princeton University Press, 1976), Bk. 1, Ch. 1, 2, p. 73.

[9] Adam Curle, *Making Peace*, (Tavistock, London, 1971), reproduced in John Paul Lederach, *Building Peace: Sustainable Reconciliation in Divided Societies,* (US Institute of Peace, Washington, 1997), p. 65.

[10] JWP 3-50, *Peace Support Operations*, superseded the Army Field Manual *Wider Peacekeeping*. Promulgated by the Permanent Joint Headquarters (PJHQ), 1998.
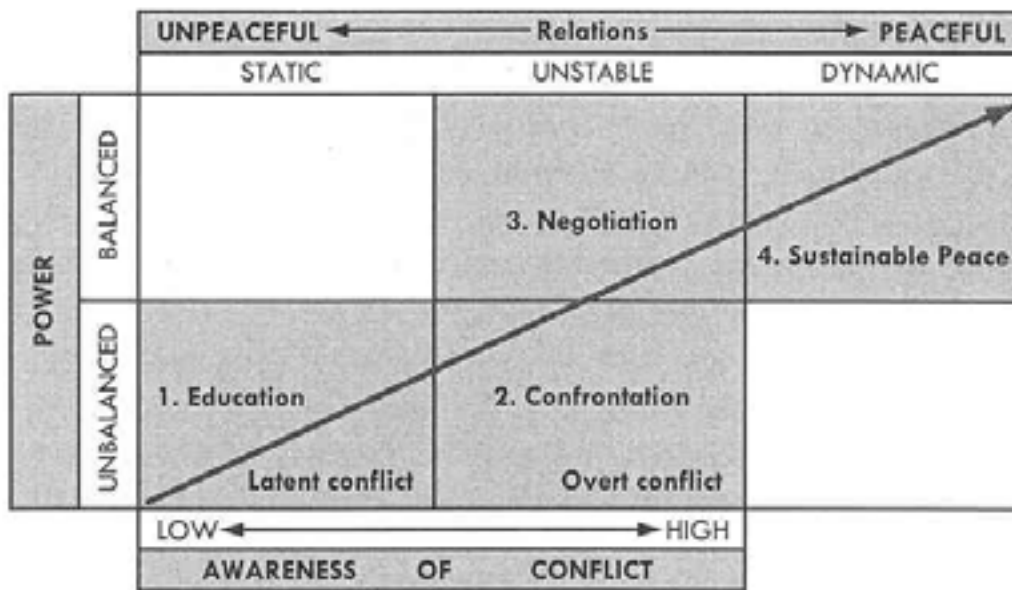
Figure 2. The Progression of Conflict

The Afghanistan situation is the most complex of all. At the time of writing, three concurrent operations are underway. There is a Peace Support operation involving the International Security Assistance Force (ISAF) in Kabul. This was initially led by the British, who have been replaced by the Turks. There is also a humanitarian assistance operation, taking place within a PSO context. And there is still a war fighting operation to track down remnants of Taliban and Al Q'aida forces in eastern Afghanistan. It is fair to say, in fact, that things are getting more complicated. Kosovo, where there is no indigenous government and which is therefore essentially an international protectorate, is more complicated than Bosnia or east Timor. And Afghanistan, where three concurrent operations are underway and where the central government, supported by an international force, does not control much of the country, is more complex again.

The revision of JWP 3-50 rests on the 'one doctrine' concept. The UK has a clearly articulated military doctrine laid down in British Defence Doctrine, of which a new version has just been published.[11] The emphasis is on war fighting and the main tenets are the manoeuvrist approach (perhaps more accurately the indirect approach)[12] and mission command (Auftragstaktik). There is no desire or need to have a separate 'doctrine' for Peace Support Operations. The author's research indicates overwhelmingly that the principles of war apply in large measure to Peace Support Operations and the characteristics of the latter are strikingly similar to modern operations of war.

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[11] JWP 0-01, *British Defence Doctrine*, *2nd Edition*, October 2001, promulgated by Chiefs of Defence Staff.

[12] The phrase made famous by Sir Basil Liddell Hart, *Strategy: the Indirect Approach* (4th revised and enlarged edition, 1967), but present in Sun Tzu, *The Art of War,* trans. and ed. Samuel B Griffith, (Oxford University Press, 1963); 'He who knows the art of the direct and the indirect approach will be victorious. Such is the art of manoeuvring'. (Book VII, Manoeuvre, p. 106).

As Clausewitz said of war, 'there can be no question of a purely military evaluation of a great strategic issue, nor of a purely military scheme to solve it'.[13]

In a Peace Support Operation, even more so: the military mission will be just one part of a much broader political strategy under civilian leadership. Usually the latter will be a High Representative appointed or 'blessed' by the UN. This has implications for the way the military plans and executes its tasks. The nature of the relationship between military and civil actors will change as the operation progresses, with the military probably playing a stronger role and even taking the lead in the initial stages. Once civilian structures are in place, the overall lead should pass to the relevant civil agencies, with the military continuing to deter violence, if necessary using coercion. The aim is for the military to create an environment stable enough for normal civilian institutions to function. However, the military will assist the civil agencies to take control, avoiding the creation of a dependency on the military and facilitating eventual withdrawal. During the transition from Peace Enforcement to Peacekeeping the military will probably become involved in humanitarian assistance to other agencies.

This is where the British experience and attitude differ substantially from that of the US. The US National Security Adviser Condoleeza Rice recently said that the Americans did not 'want the 82nd [Airborne Division] escorting kids to kindergarten.' This view has strong adherents in certain quarters who maintain that 'peacekeeping is for wimps', and that involvement in Peace Support Operations somehow drains combat readiness and testosterone.[14] One would be ill-advised to express such a view to the soldiers shown in Figure 3, helping build a playground for children in Kosovo as part of an initiative by the Non-Governmental Organisation (NGO) War Child. These soldiers are from 45 Commando, Royal Marines—arctic warfare specialists, based at Arbroath. The point is made more strongly because at the time this paper was delivered the same unit—45 Commando—was deployed in the mountains of eastern Afghanistan in the hunt for renegade Taliban and al-Q'aida troops including possibly Osama bin Laden himself.

Figure 3. So peacekeeping is for wimps? Members of 45 Commando, Royal Marines, constructing a children's playground, Kosovo, 2001.
Photograph: Heather Kerr, War Child UK

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[13] K von Clausewitz to C von Roeder, 22 December 1827, cited in 'Peter Paret, 'The Genesis of *On War*' in Clausewitz, ed. Paret and Howard, op. cit., p. 7.

[14] See the author's 'Combining combat readiness and compassion', *NATO Review*, Summer 2001, pp. 9-11.

It is not only possible to combine combat readiness with compassion: the best-disciplined, toughest and most professional soldiers usually make the best peacekeepers. This was the finding of a PhD thesis recently completed at the author's university.[15] Dr Ann Fitz-Gerald examined Peace Support Operations in Bosnia, Kosovo and Northern Ireland, and the relative effectiveness of different international contingents or, in the Northern Ireland case, different British battalions. In a Peace Support Operation the way these contingents were perceived by the local population was crucial to their effectiveness. If the locals have no confidence in a contingent—whatever its innate worth may be—then it will be ineffective. Her research strongly supported the view that, particularly in a society that has just emerged from armed conflict, professional, well-disciplined, well-equipped troops create the right impression and will be respected. It is also important to keep contact with the population. The British and Czech contingents came out particularly well in international operations. The US came out less well, in part because of their forces' reluctance to engage with the locals whether out of concern for 'force protection' or out of cultural differences. They would only go anywhere in fours, lived in fortified camps and imported everything. Such an approach is not conducive to building local confidence and starting to rebuild a shattered economy.

Not only do the best soldiers make the best peacekeepers, but military principles and concepts apply to Peace Support Operations. In Peace Support, as in war, operations can be divided into 'close' and 'deep', and characterised by the key functions of find, fix, strike and exploit. Close operations aim to ensure compliance with the Peace Support force's mandate and involve maintaining contact with the population. Foot patrols and checkpoints enable this to happen and also provide indicators as to where the 'spoilers'—those opposed to the 'peace'—are to be found.[16] They are therefore primarily concerned with fixing (checkpoints) and finding. Deep operations aim to affect wider perceptions. Using intelligence from close operations and restrictions on spoiler movements, these operations, coordinated at a higher level, may involve cordon and search and the seizure of illegal arms and materials, targeted arrests, interdiction of trafficking routes, and disruption of training bases and communications. The emphasis here is more on finding and striking—operations to damage and remove spoilers physically and financially. Exploitation occurs at both levels—swift approaches to local leaders to follow up a success, or visits to local people to explain, reassure and help overcome humanitarian problems.

The paradoxes and dualities of military operations apply here as well. While attempting to 'fix' the 'spoilers', it is all too easy to become locked into a network of static checkpoints and thus get 'fixed' yourself while the 'spoilers' and local hoods move around you. Modern technology, and in particular aerospace power, can help get round this problem. The use of Intelligence, Surveillance and Target Acquisition (ISTAR) radars, helicopters, fixed-wing aircraft or UAVs can significantly reduce the risk of the Peace Support force becoming 'fixed' in this way.

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[15] Ann M Fitz-Gerald, *Examining the Local Impact of 'Multinational responses' in Multinational Peace Support Operations: Implications for Training and Doctrine,* PhD, Cranfield University, February 2001.

[16] The United Nations*, Report of the Panel on United Nations Peace Operations A55/305, S2000/809*, August 2000, defined 'spoilers' as 'groups [who] seek to undermine a peace accord by violence… have the greatest incentive to defect from peace accords when they have an independent source of income… where such income stems from the export of illicit narcotics, gemstones or other high value commodities...' p. 4.

It takes time to build peace. Figure 4, taken from Lederach's seminal work Building Peace, shows notional 'time dimensions in peace building'.[17] The immediate, post-conflict intervention—primarily military—is likely to be limited to perhaps six months. Then other organisations become increasingly important as members of the local community are trained to train others to help themselves. When building peace, it is clearly helpful to have an idea of the desired end-state.

Time Dimensions in Peacebuilding

| Crisis Intervention | Preparation and Training | Design of Social Change | Desired Future |

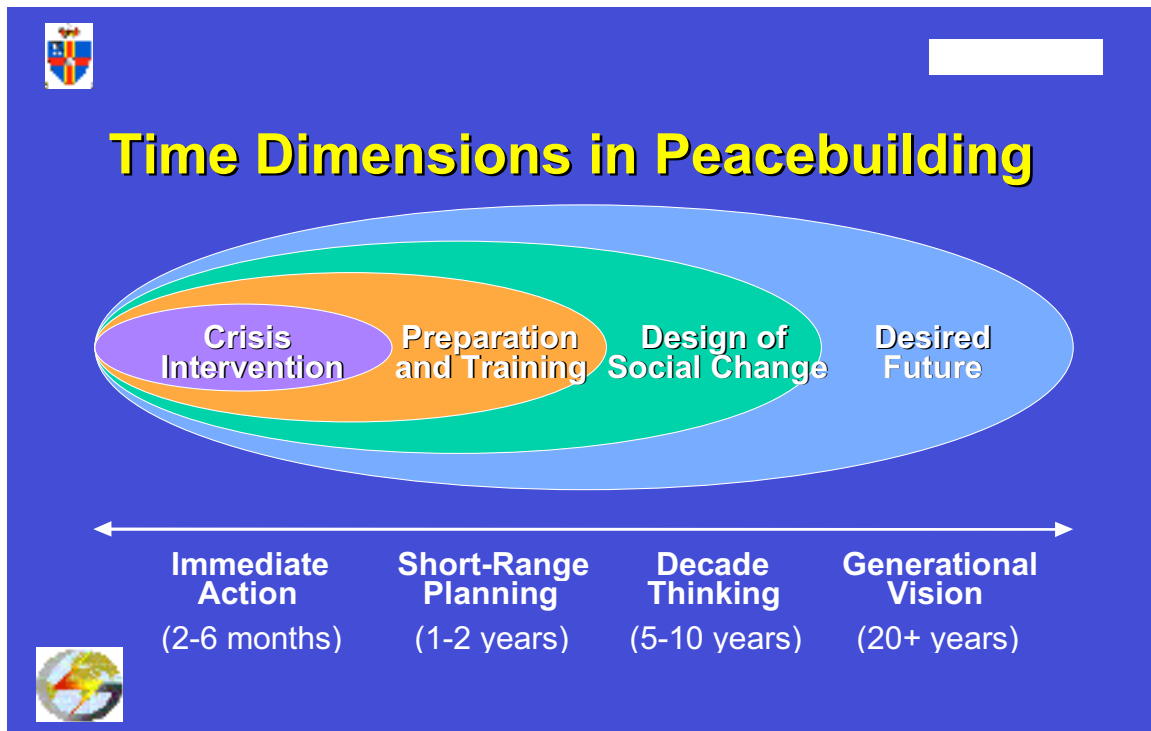| Immediate Action	Short-Range Planning	Decade Thinking	Generational Vision
(2-6 months)	(1-2 years)	(5-10 years)	(20+ years)

Figure 4. Time Dimensions in Peacebuilding

Realistically, this will often not be achieved in less than a generation, and that is probably not coincidental. One of the key components in 'state building' is holding elections and the creation of a stable indigenous government. That is part of the 'decade thinking', and even the 'generational vision', but someone has to run the country in the interim and therefore the first elections are held within a year or so of 'peace' breaking out. In East Timor the end state was both desirable and feasible—the restoration of an independent, sovereign country. The 'end state' came into being the week before this paper was delivered, with East Timor's creation as the 190th member of the United Nations. However, this is not always possible. In Kosovo (Serb spelling) or Kosova (Albanian spelling) the international community intervened in 1999 because, as so often, 'something had to be done'. But there was no planned end state. The Kosovar Albanians wanted to be an independent country. The Kosovar Serbs, and other Serbs, did not want that and neither did the international community. Indeed, it is dubious whether Kosovo or Kosova would be viable as an independent state.

The military component will be predominant only in the initial phases. After force separation, they will be involved in negotiating with local paramilitaries, disarmament and, at least initially, demining. Their continued presence will be required for border patrols, 'spoiler' management, and general monitoring. Very soon, however, the requirement will be for police,

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[17] Lederach, p. 77.

rather than soldiers. Humanitarian agencies will be needed for logistics, food distribution, water supply, transport and aid delivery, reconstruction, refugee camp construction and medical services. Development agencies take on education, improving health services, social welfare, agriculture, infrastructure, governance, finance and the development of civil society, including culture. That leaves a group of other areas—the organisation and monitoring of elections, human rights, the creation of an independent but responsible media and even 'protective accompaniment' of children. It is not necessary to use airborne troops for the latter, as Condoleeza Rice feared. Such functions could be coordinated by a civilian peace service such as those, which already exist in Germany and certain Nordic countries. The author attended the launch of a proposal for such a Peace Service in the UK shortly before delivering this paper.[18]

The need for greater coordination between all the different agencies involved in building peace is obvious. General Sir Mike Jackson, who commanded NATO's intervention force in Kosovo (KFOR) in 1999 likened the interlinked roles of the various agencies to the strands of a rope, the combined strength of which was more than the sum of the individual strands. General Jackson's 'rope' is represented in Figure 5.[19]

Figure 5. The 'rope' in Peace Support Operations

In this rope, the military strand is thickest. It would be in the initial stages of an operation. It also underlines one dilemma of such operations. The Non-Governmental Organisations (NGOs) resent what they sometimes see as military attempts to dominate them. Military forces, conversely, often think the NGOs are disorganised and uncoordinated, and therefore wasteful in duplicating effort. Part of the problem comes from cultural differences: while

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[18] Launch held at Portcullis House, Westminster, 21 May 2002.

[19] The 'rope' analogy was developed by Stephanie Blair in 'Weaving the Strands of the Rope'. *A Comprehensive Approach to Building a Self-sustaining Peace in Kosovo,* (MSc in Global Security Dissertation, Cranfield University 2001) published as ' Weaving the Strands of the Rope'. *A Comprehensive Approach to Building Peace in Kosovo* (Centre for Foreign Policy Studies, Halifax, NS, 2002).

many former military personnel do work for NGOs, many others come from a pacifist background which is automatically suspicious of the military component.

The NGOs get their funds from two sources: from ordinary people who give to good causes, and from national donors like the UK's Department for International Development (DFID) and US Aid. Commercial investors, including power and communications companies, are also important in reconstructing the country. Finally, the media is crucial in any developed, mature democracy. Many of the author's colleagues on the Independent and other newspapers are now involved in schemes to educate and train journalists to run a free but responsible media.

Such an operation is not merely joint, in that all three armed services are involved. Nor is it merely 'combined', or multinational. It is also multi-agency. The word 'integrated' has been used to describe the 'rope', but some NGOs dislike it because it implies domination by one component. To be integrated, someone has to impose integration on you. Therefore, the word that is coming to be preferred at the time of writing is 'complex'. The double meaning is useful. Such an operation is complex, because it is complicated. But it is also complex because all the components are mutually interactive and mutually supportive.[20]

Earlier, the point was made that the principles of war were largely applicable in Peace Support operations. Conversely, the complex approach developed for Peace Support operations applied with astonishing relevance to the situation after the terrorist attacks on Washington and New York on 11 September 2001. The first response was from emergency services—especially the fire brigade. Then came the intelligence agencies, attempting to find the organisation responsible. Airlines, whose security on US domestic flights had proved tragically lax, tightened their procedures immediately. The banks and other financial institutions tightened their procedures and began tracing terrorist funds, and stopping their transfer. Diplomats began constructing alliances and paving the way for some sort of military strike. Finally, in October, the military response against the terrorists' safe havens in Afghanistan got underway. As the northern alliance acquired swathes of territory and a foreign presence again became feasible, Non-Governmental Organisations, who had never been entirely absent, again moved in to relieve the humanitarian catastrophe left by 26 years of war and three years of famine.[21] The complex structure of the so-called 'war on terror' looks remarkably like the rope of Peace Support Operations, as shown in Figure 6.

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[20] Conversation with Wg Cdr John Harrison, PSO desk officer, Joint Doctrine and Concepts Centre, Shrivenham, 22 August 2002.

[21] See the author's chapter 'We're all in this together now', in Anna Kiernan, ed., *Voices for Peace*, (Simon and Schuster, London, 2001), pp. 47-54 and 'Tools of Ill-Omen': the Shifted Conflict Paradigm and Reduced Role of Conventional Military Power', *Cambridge Review of International Affairs*, Vol. 15, No. 1, 2002, pp. 149-57.

Figure 6. The 'rope' in post–911 operations.

Once again, the emphasis is on post-conflict operations. But ideally the relevant international agencies would get involved before conflict starts, while it is still latent (see Figure 2), or in the area of the first shaded circle in Figure 7.
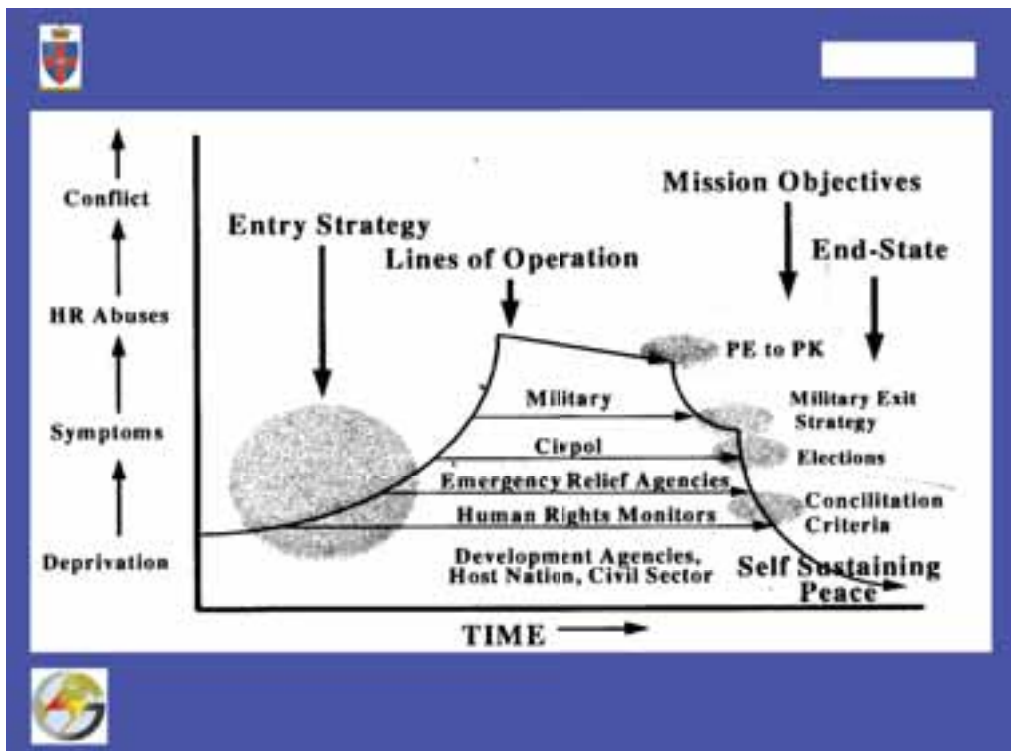

Figure 7. Full spectrum of 'conflict', showing where to pre-empt.

If we are serious about prevention being better than cure, we need to further develop ways of predicting when conflict is likely to happen.[22]

If we simply focus on the security sector, even that comprises three main strands. The military component is one. The others are the police, and the judiciary—courts and prisons, and a working non-corrupt system of civil and criminal law. The creation of a working police and judicial and legal system is utterly cardinal to building peace. Without a valid system of criminal law no one can feel safe or 'secure'. Without a working system of civil law no one can do business. Without a legal system, what is a contract worth?

In present Peace Support Operations there is a 'security gap' between the provision of security by armed intervention troops and the restoration of 'normal' policing. This 'security gap' is shown in Figure 8.[23]
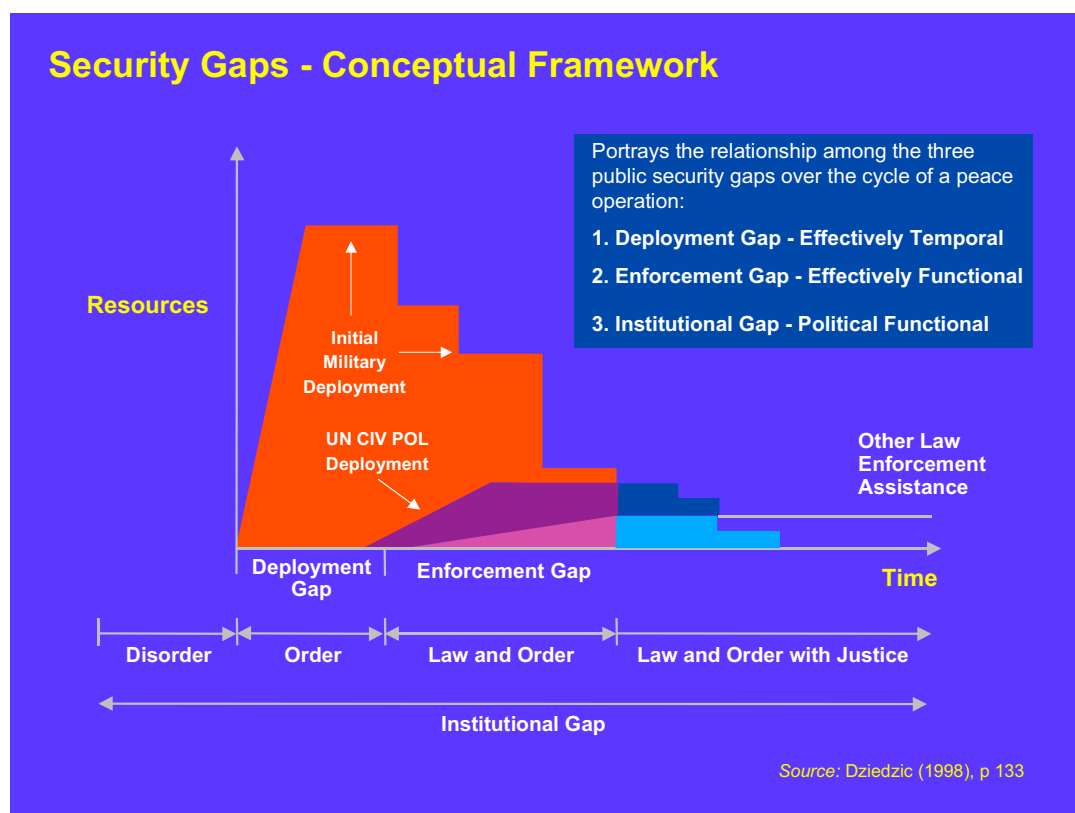

Figure 8. The 'Security Gap'.

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[22] An excellent website is maintained by the Institute on Conflict Resolution and Ethnicity (INCORE), based at McGee College in Londonderry—www.cain.ulst.ac.uk/cds. Some of the indicators are remarkably basic. Before the outbreak of rioting in Ulster in 1972, for example, the dairies noticed a sudden decline in the number of milk bottles being returned.

[23] See Major R. Dickinson, *Police Military Co-Operation in Peace Support Operations. How can the lessons of the post war period be used to develop methods to close 'The Security Gap' more effectively in the future?* (Master of Arts in military studies, Cranfield University, Shrivenham, 2002), and Michael J. Dziedzic, 'Policing the New World Disorder: Addressing Public Security Gaps in Peace Operations', *Small Wars and Insurgencies*, Vol 9, No. 1, Spring 1998, pp. 132-59, diagram p. 133.

The intermediate phase which coincides with the enforcement gap clearly needs police who are both skilled in 'normal' policing areas including criminal investigation, but are also armed and able to respond robustly to residual opposition including 'spoilers'. This gap has been a real problem because, put simply, it is much easier to employ—and deploy—a battalion of infantry than a battalion equivalent of police. Policemen and women are expensive. It is even easier, relatively speaking, to deploy a military force quickly. If we return to conflict prevention, then, as we can see from Figure 7, police would be needed before military forces, and, it is hoped, would preempt the need for them. The deployment of police in international Peace Support operations has been a particular problem for the UK which, unlike Australia, lacks a national police force. The Chief Constables of the 43 UK police forces are, understandably, unwilling to release their highly trained and scarce Armed Response Teams to go abroad. The lead here has therefore been taken by the only two fully armed police forces in the UK: the Ministry of Defence Police (MDP) and the Police Service of Northern Ireland (PSNI), formerly the George Cross winning Royal Ulster Constabulary. Both have been successfully employed in Kosovo. Deployment of 'ordinary' policemen and women is coordinated, rather quaintly, by the Warwickshire Constabulary.

In Kosovo the plan is for a gradual hand-over from KFOR to the Civil Police of the UN Mission in Kosovo (UNMIK)—effectively the Kosovo government—and the newly formed Kosovo Protection Corps (KPC) Unfortunately, the UN Civilian Police were slow to arrive and have been limited by language problems and the variety of legal systems used by its members. As the International Crisis Group reported,

> *'More than a year after the arrival of the international mission in Kosovo it is becoming increasingly obvious that it is virtually impossible for a foreign police force, dependent on interpreters and on other personnel whose ultimate loyalty may well be to structures outside the force to effectively police Kosovo'.[24]*

Even more crucial, however, is a fully functional judicial system. There is little use in having even a well-functioning police force if the rest of the legal system is not up to the job. It took the UN until December 1999 to make a decision on the applicable law in Kosovo. KFOR conducted arrests, often according to the national law of the various national contingents. As detention centres had been destroyed by NATO air strikes and by retreating Serb forces, makeshift centres were established. When they became full, suspects had to be released. Many trained and impartial judges had fled and those who remained would probably have been unacceptable to most of the local population.

Although there had been plenty of prisons, they were unlikely to comply with appropriate standards. The Special Representative of the Secretary General therefore had to ask donor governments to contribute to building prisons. Taxpayers and donors in general are often generous in contributing to the welfare of countries less fortunate than their own, but tend to prefer their money to go to medical or other humanitarian programmes than to build a new courthouse, or prison!

The process of arrest and trial in Kosovo underlines the difficulties faced by peace-builders in these situations. First, who does the arresting—KFOR, the International police, the Kosovo Protection Corps, the UN Mission in Kosovo, or the Organisation for Cooperation and Security in Europe? Second, what charge? Under whose law? Third, suspects have to be

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[24]   'Kosovo Report Card', *ICG Balkans Report No 100*, 28 August 2000.

remanded. Where? Fourth, there has to be a trial. What law? Which judge? Fifth, if found guilty, the convict must be imprisoned. Where? Finally, he or she will be released back into the community. What measures will be in place for parole, and for rehabilitation of offenders?

Attempts to set up a generic legal code for application by the international community have encountered many problems with cultural norms. Apart from a general consensus that rape and murder are wrong, although even this is subject to different interpretations, there is little that everyone agrees on.

The best that can be hoped for is probably the intent in the follow-up to the Brahimi report that a UN judiciary be created, which could be implanted into post-conflict situations. The creation of a working judicial system is also part of Lord Ashdown's mission in Bosnia.

It is in this 'security gap' area, however, that air power can be of particular use—almost as much, if not as much, as in the military sphere. Uninhabited Air Vehicles (UAVs) have already proved very useful for intelligence gathering and border patrolling. They have also actually shut down smuggling routes. In Kosovo there have been cases where merely sending a UAV up into the air has closed down a smuggling route. Even if the parties concerned just hear a UAV, that may be enough to persuade them to try again another night. Airborne platforms are also immensely valuable in finding anomalies in the ground and in predicting and tracking natural disasters.

This paper began with an example of humanitarian assistance—dropping medical supplies in the midst of somebody else's war—and has moved through time covering implementation, stabilisation, peace consolidation and peace sustainment, to the point where air power is facilitating police operations rather than military operations. It has stressed that our understandable preoccupation with post-conflict intervention must be tempered by greater concentration on conflict prediction and prevention. There is no need for a separate doctrine of Peace Support Operations: as shown, the principles of war apply very well to PSO—not least the first, what the British call 'selection and maintenance of the aim' or the Americans, simply, 'objective'. Conversely, the complex, 'rope' approach developed in Peace Support Operations has proved astonishingly adaptable to asymmetric war after 11 September 2001. As the film described at the start showed very well, aerospace power is as crucial in Peace Support Operations as in war. And the Peace Support Operations that will almost certainly occupy more of our time in future are, in their way, as challenging—technologically, doctrinally, physically and morally—as war itself.

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DISCUSSION

Mike Smith, Australian Defence Studies Centre. Professor Bellamy, thank you for a great presentation for any of us who are interested in complex peace operations—yet another term—and post-conflict reconstruction. I think this is a seminal performance so thank you very much. I'd actually like to take you on from where you finished, and perhaps you were going there anyway if you had more time. I'd just like to say though that as someone involved with the East Timor conflict I would certainly echo your finding for the need for military forces to be first and foremostly warfighing capable. We found in East Timor that really stood

us in good stead but we did have some chinks in our armour, particularly in our constabulary capabilities and also in our civil military cooperation capabililties, and we need to work on those. But my question relates to the bringing together of the strands of the rope. It would seem to me that some countries have moved further than Australia in trying to establish some type of centre or institute which brings together these strands—not in a research mode so much, because sometimes these lack government funding after a while, but more so in a training sense. I'm thinking here of some of the efforts made by the Pearson Peacekeeping Centre and what the Nordic countries are doing, and even to an extent what the Centre of Excellence is doing in Hawaii. I'm curious what your thoughts are as to the prospects of some countries establishing these type of institutes to try and bring together these strands so that better planning can be done in the pre-conflict arena rather than the post-conflict arena.

Professor Chris Bellamy. Yes, thank you. I echo your thoughts too. Several agencies from my side of the world are prominent. One of them in the training and capacity building area that's been very active is REDR (Register of Engineers for Disaster Relief) and they do things like mine action, for example. There is a centre for peace making and community development in Chechnia which is using local psychologists to talk to affected children. People like Safer World have played quite a leadership role there—one of the organisations which was involved in trying to set up a UK peace service. So its happening. As you say, the Nordic countries, and probably also Germany, are probably the most advanced in this area. On human rights, for example, in Barundi Norstaff, which is Norway based has been providing personnel to look at human rights issues. To echo something that was said yesterday, I suppose it needs a bit of a Nazi to take a grip of it and bring it all together. I would imaging that the UN would be the organisation where this should initially emanate from. As we all know, the UN has a reputation for things getting lost in its beaurocracy . So I think it will happen though. I think by evolution if not by instantaneous action it will happen.

Squadron Leader Bill Crompton, RAAF. Professor, I was fascinated by your slide on the time dimensions of peacekeeping. It's a very long term thing, certainly outlasts more than 5 or 6 electoral terms. Is there any imperical evidence that this actually works? Secondly, we seem to be into peace enforcement, peace keeping, it's flavour of the month, the body bags aren't coming home yet. In casually averse democracies how long is peace enforcement especially going to be popular once the body bags start coming back to London or Washington or Canberra? Finally, while we believe something must be done, do we not run the danger to the rest of the world that's not Western and democratic? That this looks like nothing more than paternalistic Western meddling, what in less correct days was called the 'white man's burden' taken up under a new guise?

Professor Chris Bellamy. There are three questions there. I think I'll wrap my answer up all in one. First of all, we must be abundantly clear that the military component of any such operation should not last too long. There should be a hand over to the relevant civilian agencies, and also to a viable and popularly elected government of the country as soon as possible. The British have fought three wars with the Afghans in 1838-42, 1878-88 and 1919, and the lesson of all three was do what you've got to do, put somebody that's acceptable on the throne and then get out, and that's what we've tried to do this time as well. The advantage of doing that is if you do install a government that does have popular support then you avoid the charges of meddling and of a repeat colonialism which is a repeated criticism of the kind of operations that we like to call force for good around the world. So I am acutely conscious of all the risks. You mentioned body bags and I come back again to something Tony Mason said yesterday, that the military's role is to suffer and if necessary die but they also have the

right to kill people and destroy things. The civilians who go into these situations put themselves at great risk. Some of them may suffer, may even die, because they are very vulnerable, but they don't have the right to carry arms and fight back. We're acutely conscious of their vulnerability, I assure you.

Wing Commander Emmanual, RAAF. It has finally clicked, your little talk here, what has been bugging me since yesterday morning. I have tried to put what has been said so far together. The approach towards aerospace power to non-state type threats. Then we had a speaker go up there and said that what has been presented was purely a western view. He also eluded to feelings and then we had a…(unable to determine) .. and your presentation had a lot of definitions. Maybe we should start with what is the definition of peace. What do you mean by peace? I, like you, have a secret weapon. I am the product of multi cultures. I was born in Southeast Asia, my father came from Sri Lanka, my mother is Chinese, my wife is an Australian of Irish descent, and I came to Australia 12 years ago. Having had the privilege to have been born and develop in a third world country but also having travelled widely, I have been able to absorb what is the civilised world's understanding of fair play, equal opportunity and everything else. What concerned me with your little presentation on the strings as to what you determine to be peace stabilisation may not necessarily be accepted by certain portions of the global community and of the 5 or so being at last count, I think the majority are in non-western countries, they have got strong beliefs like for instance the Indians and the Chinese, who make up more than half the world's populations, that they are the senior civilisation, that they were here before anybody else. Why should they accept white man's version of what peace is? In some cultures that I am fairly familiar with, revenge is an accepted form of peace. So until someone can define what peace is, we are never going to have peace. I'll throw that out on the floor for you to comment.

Professor Chris Bellamy. Well that's quite a big question really. Obviously wherever you are building peace it is no longer acceptable to introduce or to impose alien cultural forms. I appreciate that in some societies you don't have to come to this side of the planet, you only have to go to the Baulkans or indeed Sicily. Revenge and so on are parts of the culture—whether they're acceptable or not, probably not in Sicily, certainly its quite a strong factor in the Baulkans. I think most people would agree that murder is wrong. I think most people would agree that in order for society to function you need some form of legal system. If you don't have a legal system what is a contract worth? Nothing. Globalisation is happening. Some people oppose it, but I think most people in most societies welcome it, or want to take the bits of it that are acceptable to them. So I did not mean to imply that we should endeavour to impose the Western parliamentary democratic market-based society model unmodified on everybody. Certainly not. I do believe that people around the world, almost without exception, want to be peaceful, prosperous and happy, and that is what this is ultimately all about at the end of the day. Thank you.

THE WAR ON TERROR AND AIR COMBAT POWER: A WORD OF WARNING FOR DEFENCE PLANNERS

PROFESSOR PAUL DIBB

INTRODUCTION

Thank you for the opportunity to speak at the *2002 RAAF Aerospace Conference*. I would particularly like to acknowledge the presence of the Chief of the Air Force and other senior ADF officers, as well as distinguished guests—especially those from overseas.

A SUMMARY OF THE MAIN POINTS

I am sure that every two years when the Aerospace Conference commences, a speaker much like myself enthusiastically makes the claim 'this year is an important year for Australia's air power'. Indeed, one could argue that **every** year is an important year if we are to retain first class regional air combat capabilities in Australia.

But, I would go further and conjecture that the next 12-24 months will be more than important, they will be critical for air power and for the RAAF.

I do not describe this coming period as critical because a particular platform or weapon system is to be acquired; rather it will be critical because this period could possibly see capability priorities re-set in the wake of recent global events. I believe any such re-prioritisation could threaten to draw Australia away from our five enduring objectives of strategic policy. Moving away from these policy pillars will be to the detriment of the ADF and to the detriment of air power especially.

The global events I speak about are of course September 11 and the War on Terror (in its many guises). The events of last year in America, horrific and obscene as they were, have resulted in some unexpectedly difficult questions for Australia's defence planners. In particular:

- To what extent do the events of September 11 and the subsequent 'War on Terror' represent a fundamental shift in the way Australia perceives its strategic environment?

- What adjustments, if any, in terms of resources and capability development must be made now and in future plans to ensure the ADF is able to remain an effective fighting force?

In a nutshell, my view is that recent global events represent a significant shift in Australia's relations with the US and demands on our operational tempo. But our force structure planning must remain centred around the defence of Australia and our immediate region. This will require some adjustments to our capability planning but not a wholesale reordering. We are not in a radical new strategic era where we should completely restructure the ADF for the war on terror. Much of the old strategic agenda in Asia remains intact, as we Australians know only too well.

I intend then to assert that the key defence planning principles enunciated in the December 2000 White Paper, *Defence 2000: Our Future Defence Force*, have not radically changed.

This is not to argue that there is not a case for some adjustment to the ADF's force structure and the Defence Capability Plan—there is. For instance, we might have to bring forward shortcomings in our capabilities that the East Timor operation revealed: such as strategic and rotary airlift, air-to-air refuelling, and amphibious lift. But I see no argument for any major change. And in particular I believe that the dominance of the defence of Australia should remain firmly in place in our defence planning.

I would like to spend the remainder of my time elaborating on why I believe this to be the case and what the implications of my conclusions are for the ADF's air power.

SEPTEMBER 11 AND THE WAR ON TERROR DOES NOT REQUIRE WHOLESALE CHANGES TO THE PRINCIPLES ENUNCIATED IN THE 2000 WHITE PAPER

Do not get me wrong. Of course, the War on Terror will and must impact on the Defence Capability Plan (DCP), of this there is no doubt. But it should not fundamentally change the 2000 White Paper's emphasis on air power. Let me remind you, the White Paper stated quite categorically, and I quote:

> *Air combat is the most important single capability for the defence of Australia, because control of the air over our territory and maritime approaches is critical to all other types of operation in the defence of Australia.*[1]

This should continue to be a central priority for Australia's force structure development. Let me explain why.

The 2000 White Paper describes five strategic objectives for Australia—which are effectively unchanged by the events of September 11; certainly none are substantially changed.

As I have already said, I would argue that the War on Terror has no major effect on the Government's highest priority of ensuring the defence of Australia and its direct approaches.

The 2000 White Paper describes this as the bedrock of Australia's security and the most fundamental responsibility of Government. It is a principle that has endured for the last 30 years, since the Vietnam War, and I believe it is generally regarded by Government, the ADF and defence planners as unarguably our primary strategic objective. As the Prime Minister said, when he tabled the White Paper in the Parliament on 6 December 2000:

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[1]   *Defence 2000: Our Future Defence Force* (Canberra: Commonwealth of Australia, 2000), p.84.

> *The Government has reaffirmed the primacy in our defence planning of self-reliance in defending our own territory from direct attack. Such an attack is not at all likely under current circumstances, but Australia should, as a matter of enduring national policy, maintain the capacity to independently defend its sovereign territory against any threat that may emerge.[2]*

I would note in passing that this mission of the conventional defence of our own territory differentiates Australia from New Zealand and Canada—and even from the United Kingdom these days.

I would go on to say that the War on Terror's effect on the remaining four strategic objectives is broadly similar. It is focused upon a generic type of operation, which in reality cannot be prioritised by its geographic proximity to Australia and our maritime approaches (as Australia's strategic objectives are). But rather the 'terrorist threat' is prioritised via the complex set of political, ideological, economic and social factors that result in an organisation being labelled as 'terrorist' by the international community. Our concerns with terrorism are global and may extend from distant operations—such as in Afghanistan—to terrorist threats much closer to home. In the latter case, the US will expect us to take a much more active role.

To remind us of the four remaining strategic objectives for Government, they are:

- To foster the security of our immediate neighbourhood

- To promote stability and cooperation in South East Asia

- To support strategic stability in the wider Asia Pacific region

- To support global security.[3]

As you can see, these four strategic objectives form an ever-expanding series of geographic arcs that decide the relative priority of defence effort for Australia. They reflect the imperatives of our geographical location and what realistically Australia can aspire to do. This is a fair and reasonable approach for a middle-sized nation of some 20 million people like our own. The 2000 White Paper expanded upon themes that date back to my 1986 *Review of Australia's Defence Capabilities* and the seminal 1976 Defence White Paper. The themes are enduring and even today they are broadly agreed, so I see no reason to change them. They reflect the fact that 'there are limits to Australia's defence capacity and influence'. This, by the way, was a favourite statement of Sir Arthur Tange's, and should be chiselled in letters of gold over every Defence Minister's door!

To test my thesis, do you believe that the size and shape of Australia's commitment to coalition forces in Afghanistan would differ significantly if the terrorist threat were closer to Australia? My answer is no—although our government will expect the ADF to have readier forces for that eventuality. Geography is not the discriminating factor for terrorism that it is for the more conventional threats for which the ADF should still be structured.

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[2] Prime Minister's tabling speech in Parliament, (Dow Jones Newswires, 6 December, 2000), p. 4.
[3] *Defence 2000*, pp. 30-32.

The public face of terrorism is also the threat posed by Weapons of Mass Destruction (WMD) and the organisations that seek to use them. As described earlier, the interesting characteristic of this threat is that it is not affected by geography. WMD can appear in one nation as a threat and in another on the other side of the globe the next day, employed by the same organisation. As we have all discovered, terrorism is a difficult target to get at.

Against this threat our concentric arcs make no sense. The ADF has been deployed to regions well outside of our historically defined sphere of strategic interest in order to defeat terrorism. Afghanistan is one example, and it is unlikely to be the last. (Incidentally, whoever thought that we would be deploying RAAF aircraft to someplace called Kyrgyzstan?).

Right now the entire world is analysing and implementing force structure responses to the asymmetric threat presented by organisations intent on using terror. I think the Australian response to date has been appropriate, mainly due to our Olympics experience, where we trained intensively how to detect and respond to terrorist and WMD threats.

Following on from preparing for the Sydney Olympics, several additional changes post-September 11 have been made, for example:

- An additional Special Forces tactical assault capability;

- The decision to develop an improved response capability against chemical, biological, radiological and nuclear and explosive incidents; and

- Improvements to Australia's intelligence collection and analytical capabilities.[4]

I would characterise these changes as measured and appropriate. They address the specific, emerging threat of terrorism and the potential use of WMD from organisations capable of wielding them, a threat that requires a tailored response—but not one that requires a fundamental re-think of our force structure priorities.

Therefore, I think I have demonstrated that the 2000 White Paper's force structure priorities are soundly based on Australia's enduring geo-political interests in the defence of Australia and the security of our region. These priorities were challenged by September 11, and an adjustment has occurred—but the underlying rationale of the White Paper and the Defence Capability Plan remains extant.

THE WHITE PAPER DETERMINES THE DCP'S PRIORITIES: THEREFORE THE FUNDAMENTALS OF THE DCP REMAIN UNCHANGED POST-SEPTEMBER 11

The next logical step in my analysis is to argue that, if we believe that the fundamental strategic priorities of the 2000 White Paper have survived September 11, then we must also believe that the DCP survives September 11 as the DCP is built upon the White Paper.

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4   See *Portfolio Budget Statements 2002-03: Defence Portfolio* (Canberra: Defence Publishing Service, 2002), p. 14.

A simple test of this statement is to consider whether the extant force structure is able to meet the operational demands of Government. While the ADF can and must continue to enhance the 'capability menu' available to Government, I think the answer is that the ADF has been able to effectively match force structure to threat in all recent deployments. I recognise, of course, that this has been done with considerable stress and not least to our logistic support capacity (as the Australian National Audit Office report, *Management of Australian Defence Force Deployments to East Timor*, so vividly demonstrates).[5]

In reality, the vast majority of ADF activity and focus has effectively remained the same post-September 11:

- The ADF's primary operational focus remains East Timor where a fledgling nation requires our substantial support to ensure its security during transition

- The Navy and Air Force remain involved in enhanced border protection activities

- The Navy continues to support the economic blockade in the Gulf

- The Bougainville deployment is winding down, but this type of operation looks set to be an enduring theme for South Pacific island nations for the foreseeable future.

Lastly, there is Afghanistan, which is our latest deployment, and one that appears to be well handled by forces currently in the ADF inventory. In an operational sense, the addition of the Afghanistan deployment is not large, and has been provided for out of existing capability. Granted, SASR is world-renowned and certainly part of the ADF's A-Team, but it is these other on-going commitments that are generating the current levels of operational and budgetary strain.

If we agree that the current force structure is about right, and that the strategic basis upon which this force structure has been developed is correct, then we must believe in the analyses that currently underpin our force development priorities. For air power, the priority has never been clearer.

The 2000 White Paper declares:

> *The Government believes that Australia must have the ability to protect itself from air attack, and control our air approaches to ensure that we can operate effectively against any hostile forces approaching Australia. The Government's aim is to maintain the air-combat capability at a level at least comparable qualitatively to any in the region, and with a sufficient margin of superiority to provide an acceptable likelihood of success in combat. These forces should be large enough to provide a high level of confidence that we could defeat any credible air attack on Australia or in our approaches, and capable enough to provide options to deploy an air-combat capability to support a regional coalition. They will also have the capacity to provide air- defence and support for deployed ground and maritime forces in our immediate region[6].*

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5 *Management of Australian Defence Force Deployments to East Timor* (Canberra: Australian National Audit Office, Audit Report No. 38, 2002).

6 *Defence 2000*, p. 85.

I have quoted here at length from the Defence White Paper because of the crucial importance of these words for planning Australia's future air combat capability. The program that meets this requirement is AIR 6000.

I would like to conclude my analysis, which so far has confirmed, on strategic grounds, the continuing priority of air power within the DCP, with a short review of the implications for AIR 6000 as the highest priority and most expensive program for the ADF.

THE MOST IMPORTANT PROGRAM WITHIN THE DCP IS AIR 6000

I think it is probably important at this point to state that I have not formed a view on the best replacement capability for the F/A-18 and F-111 platforms at this early stage. The consensus seems to be that at least phase one of AIR 6000 will be a manned aircraft.

What I **have** formed an opinion about is the importance of the program. At some $16 billion it will be the biggest force structure decision that any Australian government will have ever made.

By comparison, the future air warfare destroyer program—which is the apple of our Navy's eye—is little more than $4 billion. According to an extremely well drafted speech by the then Defence Minister Peter Reith in June last year to the Defence National Procurement Conference, the total of **all** ground force projects in the DCP (excluding AIR87) is a little over $5 billion dollars.[7]

No doubt Army in particular will be putting forward a case for increased funding, and for increased uniformed personnel, in response to September 11 and Army's concurrent operations in East Timor and in Afghanistan. There is also no doubt that a significant case can be made for increased Special Forces personnel. But the calls by some retired generals to increase the army from 25,000 to 32,000 must be firmly resisted. Instead, Army should be directed to fleshing out its existing battalions including the use of Army reserves as formed units.

I say this because Air Force and Navy will be the undoubted losers if the agenda that exist in some parts of the Army—but not, let me stress, with the current top leadership in Army— should prevail. In money terms, such an increase might cost more than $1 billion a year or over $5 billion over the next five years. That is about the same cost as phase 1 of AIR 6000.

But my principal point about AIR 6000 is, whatever the eventual F/A-18 and F-111 replacement is, it must withstand the rigorous 'contestability test' of Government.

If I might reminisce for a moment, contestability was once the domain of an organisation called Force Development and Analysis (FDA)—which was sometimes derided by my military colleagues as the 'Forces of Darkness and Attrition'! In its day, FDA (which came under my control as Deputy Secretary of Defence) asked the difficult questions of any and every capability development proposal raised within the Defence Organisation. FDA made its point of departure 'why does the ADF need this capability at all?' and progressed from there,

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[7]   See *Australia Needs a Strategic Approach to Defence Industry Policy,* speech by the Minister for Defence, the Hon. Peter Reith to the Defence National Procurement Conference, Canberra 26 June 2001.

exploring issues around cost, performance, risk and the relevance of the so-called 'military requirement' to endorsed strategic guidance. All aspects of the program were contested, and this resulted in a stronger outcome for the ADF as a whole in my view.

While FDA no longer exists on Russell Hill, Defence should be under no illusions that the exam questions it once raised in-house will now be raised outside of it. Government, PM&C, Finance, the Industry Department and others will make it their business to understand and influence the AIR 6000 decision. Nobody should, for one moment, think that Defence will simply be allowed to form in isolation a view on what aircraft best meets the 2000 White Paper goal of acquiring an air combat capability 'at a level at least comparable qualitatively to any in the region' and then go out and purchase it. It must always be remembered in Defence—although it often is not—that money is not a free good, and that defence resources are finite. There are always many more useful defence projects than there is available money in the defence budget.

As an aside, I had the pleasure of attending the Team JSF briefing in Canberra on 8 May. An audience comprised of defence and industry stakeholders heard about the potential gains to Australian defence industry of Australia's joining the 'Systems Development and Demonstration' (SDD) phase of that program.

I made the point at the briefing—which applies to **all** contenders for AIR 6000—that the lessons of our F/A-18 acquisitions (lessons I learnt first hand) should not be forgotten. Let me remind you. In 1994, the Industry Involvement and Contracting Division of what is now called the DMO released its review of the F/A-18 industry program.[8] This review studied the premium, which was $713 million or 17 per cent of the total cost of the acquisition, paid by government to develop the industry capabilities to provide life cycle support of the aircraft, and to establish and maintain the capabilities to provide an ongoing workload for industry.

The industry capabilities developed under the program were not sustained because of the failure to develop and implement a strategy to ensure follow-on work went to industry. The majority of the follow-on support work was retained in-house by the RAAF and industry was only used to balance the in-house capacity, which was contrary to the original intent of the program and the reason for paying the premium. In fact, the RAAF kept in house about 44 per cent of the repair and maintenance work with only 11 per cent going to industry. Thus, the Department of Defence and the RAAF failed to make use of the industry capability developed at considerable cost to the taxpayer.

There were other failures with the F/A-18 acquisition program. They include a serious underestimation of the maintenance costs (which were about double those of the F/A-18's predecessor) and a complete failure to recognise the deficiencies of the APG-65 radar. On the latter, I personally experienced the most chronic difficulty in getting source code release from the Pentagon.

I raise this example because it is indicative of the type of AIR 6000 outcome that the National Security Committee of Cabinet will simply not tolerate come year of decision. The DCP is now 'owned' by National Security Committee of Cabinet and no significant changes can be made to it without NSC's agreement. And each major Defence capital acquisition has to go

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8   *Review of the F/A-18 Industry Program,* Industry Involvement and Contracting Division, Department of Defence, Canberra March 1994.

through what is known as a 'two-pass process' in Cabinet. The relatively privileged position that Defence—and Air Force in particular—enjoyed when decisions like the F/A-18 were made is long gone. External scrutiny will peak with AIR 6000.

This does not mean that NSC will or should be involved in the details of source selection, but it will be involved in force structure, capability and value for money decisions. Departmental submissions to NSC will need to be more robust and more rigorously contested in future.

In fact it seems to me that the lessons of the previous F/A-18 purchase are most pertinent in the industry area. For me issues of source code release, through-life support costs, and Australian industry involvement were key areas of under-performance with the F/A-18 acquisition and they are areas where Defence, and certainly stakeholders external to Defence, will focus a keen eye under AIR 6000.

Getting a better handle on through-life support costs **before** the project begins is a key lesson from the F/A-18 that AIR 6000 will either learn voluntarily, or be forced to learn by others. This is particularly the case given the current blowout in the support costs of the F/A-18 and especially of our ageing F-111 fleet.

The issue here is AIR 6000's ability to establish a set of sustainable industry outcomes for Australia. When the F/A-18 program paid its $713 million premium, Australian industry received almost nothing in terms of 'sustainable industry outcomes'. And, as a result, we have to contemplate re-establishing the industry capability in the next project. Not a smart way to do business. The projected investment for AIR 6000 is much, much higher and Government will not allow this to be an 'unrealised goal—the stakes are simply too high.

Therefore, I believe that AIR 6000 will continue to attract the scarce budgetary resources and management attention of Defence and, importantly, of Government. AIR 6000 must result in a considered, defendable decision on a replacement capability. All the options must be explored, all the factors and considerations tabled and understood and, finally, the best value for money decision made. There must be contestable and transparent analysis available to the Parliament and to the taxpayers of Australia.

CONCLUSIONS

So, what impact should September 11 have on the major capital procurement decisions for the ADF over the coming 10 years? This question will no doubt occupy the thoughts of defence planners in the lead up to the Strategic Review later this year. I have argued that, over and above those already agreed modest alterations, September 11 should not cause wholesale changes to the relative investment priorities in the Defence Capability Plan.

Therefore, given that air power is still a key priority, AIR 6000 remains the most important single acquisition for the future of the ADF. At some $16 billion it will be the biggest Defence capability decision that any Australian government will ever make. Whatever the eventual F/A-18 and F-111 replacement is, it must withstand the rigorous 'contestability test' of Government. And the lessons of the previous F/A-18 purchase must be learnt—not least with regard to Australian industry involvement, source code release, and through-life support costs.

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DISCUSSION

Air Commodore Norman Ashworth, Retired: Professor Dibb, the central theme of your presentation was obviously the continuing relevance of the White Paper for the development of the Defence Force, and that's a theme which I would personally strongly support. What concerns me a bit is the fact that you should find it necessary in this talk today to emphasise what has been put forward by the government as basic policy and that in turn tends to reinforce my own concerns that governments traditionally don't take the long term view. More immediate political pressures tend to come along, such as the War on Terror and the response to it. The possibility that the government—by government I mean not only the top politicians but also the bureaucrats and the leaders in the Defence organisation—might backslide on that particular strategy and go back to meeting the more immediate needs. A comment, please.

Professor Paul Dibb: Thanks, Norm. A former Secretary of Defence, who shall remain nameless, used to say, 'If you're going to choose between a politician and a tiger snake, always trust the tiger snake'. I do raise these issues that I have seriously, and I hope in a considered way this morning. Because although I don't think the White Paper's going to unravel—and I think I certainly do know the minds of the drafters of the new strategic review—there's a sort of trendy, fashionable sense around, isn't there, you know, that really what we now need to do is junk the White Paper and structure for the War on Terror? Or junk the White Paper and structure for peacekeeping, flat earth policy and hugging trees. You can see I'm very cynical about this because, as the Americans would say, 'I've been around this bouy so many times in the last 30 years it's not funny'. We of course should take these events—whether it's peacekeeping, peace enforcement, War on Terror—seriously and make appropriate adjustments. But it seems to me unarguable that what was set out in the White Paper, built on the last 25-30 years of very serious work, which a lot of people in this room have been centrally involved in, not least retired members of the ADF on the front row here. We must remember what our enduring strategic interests are. As I've stressed, they're not New Zealand or Canada or Britain these days. We have an entirely different strategic neighbourhood, going back to what I said at the very beginning.

Squadron Leader Bill Crompton, RAAF: Professor, given the healthy military scepticism for tree hugging and peace operations notwithstanding, given that we're about to embark on spending probably well in excess of $16 billion of the taxpayers money on AIR 6000, does it not strike you as somewhat ironic that the combat arms are actually the ones which are not only the least used but probably have not been used in the last 50 years, if we credit the Diego Garcia deployment as being a use? Yet, at the same time, the forces or the elements of our forces which have been used to the limit and beyond still largely remain the poor cousins.

Professor Paul Dibb: Yes. Well, clearly, in terms of operational tempo and operational moneys the poor cousins in all three services are clearly attracting more operational money. That's been a non-trivial issue both regard to East Timor, $657 million this current financial year that's just ending, and of course the operations in the Indian Ocean, Afghanistan. It would be an egregious error however to structure the defence force for the most recent threat. As my colleague, Hugh White, would say, 'that would be the error of structuring for what's just happened and the next series of threats may be entirely different'.

One can understand the enormous pressure in the US with regard to the War on Terror. They've been made vulnerable and obscenely attacked. We must do our bit, and we are. But when we're planning a force structure which will have in the order of battle, whether it's AIR 6000 or the air warfare destroyers or AIR 87 and the army equipment for, you tell me, the next 30 years, maybe the next 50 the way we're going, then none of us, not even Paul Dibb, can look out that far. Our intelligence community cannot. Therefore we need to focus on the enduring strategic objectives of our continent, the maritime approaches and our region.

Now, it is true that this project because it is so big will attract enormous attention. I think it is well known, isn't it, says he carefully, that at the time of the last White Paper being drafted, when we were in East Timor, certain senior people who were not politicians, not in the Department of Defence, extremely senior and influential people, were of the view, perhaps cynically, 'We're into peacekeeping, mate. Who needs submarines and AEW&C aircraft?'. That was a throwaway line. It was an issue that was debated we know by government, necessarily so, in mensurating the White Paper. But as I say to our New Zealand friends about peacekeeping and peace enforcement—and forgive my cynical aside about hugging trees—that not only should we not structure with that regard, as our East Timor deployment showed and as was publicised in the press—and you'll notice I'm saying this very carefully—we had F-111s and F/A-18s on strip alert and ships at sea and submarines. As John Baker would say, 'And that's the iron fist behind the velvet glove that New Zealand does not have and therefore which makes New Zealand a strategic liability to us'. We have to have that credible capacity even at that lower level of capability, let alone thinking the unthinkable about a highly dangerous, unpredictable Asian region that I described at the very outset.

Air Commodore John Harvey, RAAF: Thanks, Professor, for the words of guidance on AIR 6000. We'll be sure to take those into account. One other comment beyond that as well, I guess it's probably true now more than in the past, we're taking much more of a systems view, if I can use that word, in terms of capabilities like AIR 6000. It's not just the aircraft, obviously it's the weapons, it's the tankers, it's the AEW&C and integration with things like SEA 4000 ground-based air defence, the C4ISR system overall. So obviously a complex project. We are trying to link more broadly. In general terms though your comment about force structure, you don't see a fundamental need to change but do you see a need to change perhaps in terms of military posture concentrating more on readiness sustainability than perhaps we have in the past with perceptions of very long lead times?

Professor Paul Dibb: Yes. I mean, needless to say, you're the expert and you're obviously correct with regard to the systems approach to networking enabled warfare. I think also, John, you're right about readiness. You know, what I'd call the arc of instability in our immediate neighbourhood, the uncertain future of Indonesia, Papua New Guinea and the islands and the extremely modest defence spending of New Zealand may mean that whether it's in that immediate neighbourhood or further afield in our region, we might have to contemplate in our planning an East Timor plus and some concurrent operations elsewhere with our American ally. As Air Vice-Marshal Al Titheridge and others would remind me, that would be extremely stressful for our operations and, indeed, expensive. We've already seen the expense, the very high expense, of current operations.

I for one was pleased with the current defence budget, John, but it's only just adequate. Given the extra operational costs and the recompense for most but not all of that, but given the fact that for understandable reasons, budgetary reasons, the DCP has been chiselled by $150

million this year. No big issue for a capital spend of close to—what is it?—$3 billion. But I do hope that that chiselling away of the DCP in Year Two is not the beginning of attacking the integrity of the Defence White Paper as so many other governments in the past have, as has been my experience.

Squadron Leader Damian Gilchrist, RNZAF. I just wanted to follow on that issue of process of the White Paper and the DCP. You did draw a strong link between the two and I would just like to challenge you on that. They are obviously two very different documents, both in terms of their inputs, their outputs and their intended outcomes. Indeed, it's one of the weaknesses, I think, of the DCP that while it protects our valued projects or projects that might be valued in the longer term, it also can protect projects that might not be so useful. As was mentioned over here with our long acquisition cycles, it's very difficult, or it looks to me to be very difficult for us to actually say, 'No, it's say six years of a ten year acquisition program'. I just wanted to see what your opinion is on that process.

Professor Paul Dibb: Well, you're obviously experiencing it first hand and I am aware of some views that the DCP was cobbled together fairly quickly with what Claude Newman [Defence Inspector General] would call indicative pricing estimates, and that they need more rigorous testing as each year the DCP is implemented. I mean, don't get me wrong, the White Paper provides endorsed strategic guidance. It's the bible. In my language, by the way, the King James authorised version. But, you know, the DCP, as with the previous Pink Book Five Year Program that we managed, without a lot of government involvement, that nothing is set in concrete. As you know better than me, every acquisition project has to go up at least twice, the two pass before cabinet, and the DCP cannot be changed without their agreement. But I would hope that the processes of high level policy advice in the department, both uniformed and civilian, would be drawing to government's attention that the DCP is not set in concrete and that some projects, you know, are underfunded, troop lift helicopters, and others may not have quite the same priority that perhaps the DCP set. And that others, as I argued, and you may disagree, that because of our experience in Timor might have to be brought forward, like strategic airlift and inflight refuelling. I mean, the thing should not be set in concrete and there should be some reasonable flexibility. But within the overall bag of money, which is three per cent real growth, which is a total spend in the DCP as Peter Reith [former Minister for Defence] said in this place in that marvellous speech of his last year, 'Is a $47 billion commitment over ten years, a non-trivial amount'.

Air Marshal Ray Funnell, Retired: Thanks, Paul. Not so much a question as it gives me the opportunity to make a comment. The world is now a very different place from what it was on 10 September last year. But you've reminded us in your presentation there are some things for all nations but in this particular case for Australia that are enduring and we mustn't lose sight of those. But also it brought to mind for me something I'd like to share with others in that namely terror is not a new phenomenon. You mentioned our preparation for the Olympic Games, which reminded me of the terrorist incident at Munich in 1972. Then you reflect on terrorism as it's affected the modern world. It's been a threat to us all for at least the last 150 years. It reminds me that one of the catalysts for the start of that awful war in 1914 was a terrorist act. But one thing we now have is that was the assassination of one single individual. What we now have with terror is the capacity to kill thousands of people with one single act. So the comment I make is please let's remember this is not a new phenomenon and consequently we should not overreact to it. Terror is a threat and we must react to it but we must not overreact to it.

Professor Paul Dibb: Thanks for that, Ray, and I couldn't agree more. You know, in our sort of 30 second focus Australian media, if you can't get it out in a 30 second bite on Australian TV they don't want to talk to you, in my experience. When was the last time, Ray, you and I read a really thoughtful reflective piece in the Australian media? You know, it's all current events. As I used to say when I ran Defence intelligence, 'Today's current intelligence is tomorrow's fish and chip paper'. We're all current intelligence driven now. I understand this. But you're so right about terror. If I might, Mr Chairman, I just want to end on another reflective point which I promise you I'll write about in the public domain, Ray. That is, you know, this war on terror is serious, it's serious for the US. They will never forget the humiliation and now this newfound feeling of vulnerability. God help us all, by the way, if some terrorist group explodes a tactical nuclear weapon in downtown Manhattan. The Americans will respond, in my view. They won't have the patience of last September.

But have we forgotten that in the Cold War, Ray, it was an enormously dangerous time in our lives. You and I lived through it. It formed our views. The risks of nuclear winter, of total nuclear devastation, were infinitely more dangerous than this period now that we call a dangerous time. However, what is different is the Cold War was much more predictable. This is now an unpredictable era of strategic shocks. Not just the War on Terror but, the Asian economic crisis, the overthrow of Suharto, Indonesia, maybe India, Pakistan, whatever. We're in a period of great strategic shocks and unpredictability and the rules of the game have gone. We're in a much more anarchical international community. By that I mean, you and I recall this, in the Cold War there was go and no go areas for both the Soviet Union and the US. Remember Cuba, remember Hungary and Czechoslovakia? In addition, there were strict understandings about behavioural patterns. In the Cold War neither the Soviet Union nor the US directly exchanged combat firepower, directly. Thirdly, there were very intrusive rigorous arms control agreements - SALT I, SALT II, START. In the end, you recall, even what was called portal gate inspections to count ICBMs. I remember this only too well. Now we have, with the War on Terror, no rules of the game, no no go areas. The risk now of the use of nuclear weapons in a much more imminent way than we ever contemplated in the Cold War, including America's new nuclear posture, in my opinion. I don't say that in a critical way. I understand what the Americans are doing.

So, do I like this period we're in? No, I don't. I actually preferred the Cold War. If the Soviet Union would have done to the US what Bin Laden has just done, that would've been the beginning of an exchange of nuclear weapons. So we are in a new strategic era but you are dead right, we need to put it very much in context and have the courage of our convictions about our own unique environment, whilst doing our bit for the Americans.

THE BIGGEST FORCE MULTIPLIER?
KNOWLEDGE, INFORMATION AND WARFARE IN THE 21ST CENTURY

PROFESSOR JOHN FERRIS

Ideas about a Revolution in Military Affairs (RMA) arose in the 1990s, a time when a 'new economy' emerged, information technology boomed and slogans about e-business abounded. This context shaped discussions on military policy. That firms should make profits was just too old economy; that wars might involve costly battles and tough foes seemed too old strategy. E-businesses needed flat hierarchies. E-armies should abandon every level of command between sensor, shooter and, perhaps, commander. Any management system suited to business should fit armies, though Microsoft competes on costs and prices, not by shooting its rivals: of course, one hesitates to suggest this option to Bill Gates. Again, a failure of 'just in time' logistics costs firms money but armies, battles. The British Army used a similar method to resupply riflemen at Isandhlwana in 1878; no customer survived to complain. The recent techwreck raises questions about many assumptions in recent military debates. Are virtual strategies viable? Like the new economy, do Joint Visions rest on bubbles? Will armed forces be transformed into boo.com or Enron?

Advocates of the RMA assumed that information (as technology or superhighway or revolution or age) would transform the knowledge available to armed forces, and thus their nature and that of war. Joint Visions 2010 and 2020 treated information technology as first among equals among drivers for revolution. Colonel John Warden, USAF planner and theorist of air power, held 'Information will become a prominent, if not predominant, part of war to the extent that whole wars may well revolve around seizing or manipulating the enemy's datasphere'.[1] This paper will assess these assumptions and three concepts which stem from

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[1] 'Joint Vision 2010' and 'Joint Vision 2020', www.dtic.mil/doctrine; Colonel John A. Warden III, 'Air Theory for the Twenty-first Century', *Aerospace Power Chronicles, "Battlefield of the Future: 21st Century Warfare Issues*, 1995. The seminal study on Information Warfare is Winn Schwartau, *Information Warfare: Chaos on the Electronic Superhighway*, New York, 1992. A major collection is John Arquina and David Ronfeldt, *In Athena's Camp: Preparing for Conflict in the Information Age*, Rand, 1997. For advocates who differ on many points, but agree that information technology will transform warfare, cf. Roger C. Molander, Andrew S. Riddile and Peter A Wilson, *Strategic Information Warfare, A New Face of War*, Rand, 1996; Colonel O.F. Jensen, 'Information Warfare: Principles of Third-Wave Warfare', *Aerospace Power Journal*, Winter 1994; 'Leveraging the Infosphere: Surveillance and Reconnaissance in 2020, A Spacecast 2020 White Paper", *Airpower Journal*, Summer 1995; Thomas G. Mahnken, 'War in the Information Age', *Joint Forces Quarterly (JFQ)*, Winter 1995–96; James J. Schneider, 'Black Lights: Chaos, Complexity, and the Promise of Information Warfare', *JFQ*, Spring 1997; General Gordon R. Sullivan and Colonel James M. Dubik, 'War in the Information Age', SSI, US Army War College, 1994; George Stein, 'Information Warfare', Colonel John A. Warden III, 'The Enemy as a System' and Colonel Richard Szafranski, 'A Theory of Information Warfare, Preparing for 2020', *Airpower Journal*, Spring 1995, Colonel Richard Szafranski, 'Parallel War and Hyperwar: Is Every Want a Weakness' and George J. Stein, 'Information War-Cyber War-Netwar'. all in *Aerospace Power Chronicles*, *Ibid;* Commander Byard Q. Clemmens, and Major Gary D. Brown, 'Cyberwarfare, Ways, Warriors and Weapons of Mass Destruction', Colonel Timothy L. Thomas, 'Infosphere Threats', and Robert J. Bunker, 'Higher Dimensional Warfighting', *Military Review*, Sept–Oct 1999; and articles in *Sun Tzu Art of War In Information Warfare*, 1996–1997, INSS, NDU. Some important

them: 'IO' (Information Operations), netcentric warfare (NCW) and 'C4ISR' (command, control, communications, computers, intelligence, surveillance and reconnaissance; loosely speaking, how armed forces gather, interpret and act on information). It will view these issues of strategy, command and intelligence through the lens of **praxis**, a combination of theory and practice. I may seem a Luddite; that is not entirely so. The foundations of power clearly are changing: they always are. Information (as system, technology and content) is central to those alterations. Armed forces should adapt to changing times—attempts to do so will take them somewhere, if not necessarily where they thought they wanted to go. Adaptation can take armies to useful places, sometimes to the space they wanted to reach, or beyond. Often, however, one cannot get there from here, to the destination one likes. Armed forces do not always succeed in adaptation as planned. Efforts to force the pace of events can misfire. A revolution is not a road one takes to a certain destination. Attempts to ride the road will have unexpected results—your efforts to take the lead may cause a second party to nudge a third into your path and force you to kill a fourth, or fall behind the pack.

The relationship between knowing and doing during a military revolution is a complex matter by nature. It has been made doubly so by nurture. Writers on the topic describe different matters with the same words, sometimes changing their definitions or the things which terms describe. Some such confusion is hard to avoid. Only scholastics can define the words 'information' and 'intelligence' in a watertight fashion. Most folk use them loosely, blurring their meanings and that of 'knowledge'. So too, in the debate on information in the RMA, one word can have many meanings, without warning. The concepts of C4ISR and IO have the virtue of placing their individual components in a process, each affecting and affected by each other, or 'fused'; unfortunately, they also have eroded useful boundaries of meaning maintained by older concepts. Thus, 'information' means different things for IO and intelligence. Where *The Joint Doctrine Encyclopedia* distinguishes 'data', 'information' and various categories of 'intelligence', the Joint Chiefs of Staff's doctrine on IO defines information to mean all of these things, along with 'understanding' and 'knowledge': '1. Facts, data, or instructions in any medium or form. 2. The meaning that a human assigns to data by means of the known conventions used in their representation'. In IO, information means everything that stems from or affects knowing and its relationship to doing, in your adversary and yourself. This definition follows those in the unofficial literature about 'Information Warfare' (IW) and the USAF variant of IO, which defined 'information' as 'data and instructions', or what one perceives and how one perceives it.[2] In 1995, one IW theorist, George Stein, wrote:

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critiques of this literature of advocacy are Ryan Henry and C. Edward Peartree, 'Military Theory and Information Warfare', *Parameters*, Autumn 1998; R.L. DiNardo and Daniel J. Hughes, 'Some Cautionary Thoughts on Information Warfare', *Airpower Journal*, Winter 1995;, Major Yu Lin Whitehead, 'Information as a Weapon, Reality versus Promises', *Aerospace Power Journal*, Fall 1997; Thomas P.M. Barnett, 'The Seven Deadly Sins of Network-Centric Warfare', *Naval War College Review (NWCR)*, Summer, 1998; Brent Stuart Goodwin, 'Don't Techno for an Answer, The False Promise of Information Warfare', *NWCR*, Spring 2000; Glenn Buchan, 'Information War and the Air Force: Wave of the Future? Current Fad', *RAND Project Air Force ,Issue Paper*, March 1996. I have also drawn heavily from an important but unpublished briefing paper on information warfare by the late Michael Handel of the US Navy War College.

2   *The Joint Doctrine Encyclopedia, Joint Doctrine for Information Operations*, JCS, Joint Pub 3-13, 9.10.98, entry for 'information' in Terms and Definitions, JCS website; *Cornerstones of Information Warfare*, USAF, 1996, www.infowar.com/mil.

> *Information warfare, in its essence, is about ideas and epistemology—big words meaning that information warfare is about the way humans think and, more important the way humans make decisions...It is about influencing human beings and the decisions they make.*

Another, Colonel Szafranski, spoke of '**targeting epistemology**'.[3] The same word means raw data, filtered information, processed intelligence and considered knowledge. Ambiguity has its advantages, and its dangers.

Confusion occurs because terminology is too loose and too precise. The civilians and soldiers who originated the concept 'IW' meant it to indicate something between the poles defined by John Arquilla and David Runfeldt: 'netwar' (non-state actors using techno-political means on the Internet to further their objectives, for example by enhancing their propaganda) or 'cyberwar' (state sponsored hacking against any adversary, and defence against the same).[4] In American doctrine, however, 'CNA' or 'CNA/E' (Computer Network Action/Exploitation) means 'cyberwar', while 'IW' means a struggle by a state in time of war over data, information and knowledge through all means, ranging from CNA to deception to jamming a radio frequency to bombing a headquarters. 'IW' is just one form of 'IO', which can occur in peace and war. The defined applications of IO, 'command and control warfare' (C2W), in civil affairs and public affairs, fall short of 'netwar', but that is partly an artifact of bureaucracy. Though civilian agencies and intelligence services conduct many functions of IO (for example, black propaganda in peacetime), the American literature focuses on those matters controlled by armed forces. The Pentagon cannot write doctrine for the CIA nor is the latter likely to be published; one should not forget the context merely because it is unspoken. Even more, many extant publications use the terms IW and IO in superseded ways, while the USAF defines IO rather as the JCS does IW.[5] Those problems can be overcome with time and the harmonisation of terminology. For convenience sake, I will use contemporary American terminology but aim for precision in my use of the words data, information, intelligence and knowledge.

Faith in knowledge is central to military doctrine, expressed in formulas like Information Superiority or the Joint Visions which guide strategic policy, the concepts of war pursued by each service and the overarching idea of NCW, that armed forces will adopt flat organisational structures for command, units working in nets on the net, sensors linked to shooters, data processing systems at home serving as staff for the sharp end through 'reachback'. Joint Visions 2010 and 2020 predict forces with 'dominant battlespace awareness', possessing better knowledge than and a 'frictional imbalance' and 'decision superiority' over an enemy, and unprecedented flexibility of command: the ability to combine freedom for units with power for the top and to pursue 'parallel, not sequential planning and real-time, not prearranged, decisionmaking'.[6] These and other official documents agree that friction and uncertainty will continue to shape combat, but **sotto voce**; they place these

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[3] Stein, 'Information Warfare', Szafranski, 'Information Warfare', *Airpower Journal*, Spring 1995.

[4] John J. Arquila and David F. Ronfeldt, 'Cyberwar and Netwar: New Modes, Old Concepts of Conflict', Rand, 1995.

[5] For the USAF definition, see 'Cornerstones', www.infowar.com/mil; for variant US Army definitions, see US Army, TRADOC Pamphlet 525-69, 'Concept for Information Operations', 1.8. 95, www.tradoc.army.mil/pubs/pams and US Army, FM 100-6, *Information Operations*, www.adtdl.army.milcgi-bin/adtl.dll ; compare to *Joint Doctrine for Information Operations*, JCS, Joint Pub 3-13, 9.10.98, JCS website.

[6] 'Joint Vision 2010' and 'Joint Vision 2020', www.dtic.mil/doctrine.

matters more in the theory of war than its practice. The revolutionary literature goes further still. Colonel Jensen holds that one can not merely 'thicken the fog of war for our enemy' but also 'lift the fog of war for ourselves to create a transparent battlefield …The enemy completely and forever loses the element of surprise. We watch him, we hear him, we seek out his hiding places'.[7] The **Air Force 2025** project wrote, 'Knowledge is the biggest force multiplier'. Its contributors predicted a C4ISR system with the self-awareness of a man, or a god:

> *a series of intelligent microprocessor 'brains'...all-knowing, all-sensing with regard to changes in the target environment, system status, sensor status, access, information demands, user needs, people skills and expertise, as well as detecting sophisticated hackers violating the system;*

> *an intelligence architecture with human-like characteristics. It will simultaneously sense and evaluate the earth in much the same way you remain aware of your day-to-day surroundings'; and*

> *'thousands of widely distributed nodes performing the full range of collection, data fusion, analysis and command functions—all linked together through a robust networking system. Data will be collected, organized into usable information, analyzed and assimilated, and displayed in a form that enhances the military decision maker's understanding of the situation. The architecture will also apply modeling, simulation, and forecasting tools to help commanders make sound choices for employing military force'.[8]*

Such statements come from enthusiasts, but they are indicative. A key group assumes that C4ISR will function in a system, precisely in the way a person sees the world and turns data to knowledge and acts on it. Anthropomorphism is a costly fallacy—one misinterprets animals when likening them to humans; so systems. Enthusiasts, including senior officials, assume armed forces can comprehend an enemy and a battle perfectly, and act on Dominant Battlespace Knowledge (DBK) without friction, through NCW. David Alperts, the Pentagon official in charge of developing NCW, holds:

> *we will effectively move from a situation in which we are preoccupied with reducing the fog of war to the extent possible and with designing approaches needed to accommodate any residual fog that exists to a situation in which we are preoccupied with optimizing a response to a particular situation.*

> *In short, we will move from a situation in which decision making takes place under 'uncertainty' or in the presence of incomplete and erroneously sic information, to a situation in which decisions are made with near 'perfect' information.[9]*

Mainstream officials go less far in theory, but still approach these views in their predictions of practice.

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[7]   Colonel O.F. Jensen, 'Information Warfare', *Aerospace Power Journal*, Winter 1994.

[8]   'Preface', '2025 In-Time Information Integrations System (I3S)', 'The Man in the Chair: Cornerstone of Global Battlespace Dominance', 'Wisdom Warfare for 2025', *Air Force 2025*, 1996, www.au.af.mil/au.

[9]   David Alperts, 'The Future of Command and Control with DBK', in Stuart E. Johnson (ed), *Dominant Battlespace Knowledge*, NDU Press, October 1995; for similar views by other officials, see Thomas G. Behling and Kenneth McGruther, 'Satellite Reconnaissance of The Future', *JFQ*, Spring, 1998.

Even more: in moving from RMA to DBK, war has been conceptualised as game and strategy as shooting. The revolutionary literature and Joint Visions alike assume that to be seen is to be shot, to be shot is to be killed, and to be fast is to win. As Colonel Warden wrote:

> *a very simple rule for how to go about producing the effect: do it very fast...the essence of success in future war will certainly be to make everything happen you want to happen in a very short period of time—instantly if possible'.*[10]

These tendencies are reinforced by the routine use of Colonel John Boyd's OODA cycle— Observe, Orient, Decide, Act—as the means to conceptualise all forms of conflict on all levels of war, with the aim usually defined as being to move through the cycle faster than one's opponent: wiser heads urge that this edge be used to think more rather than simply act faster. This model, derived from Boyd's reflections on his experience as a fighter pilot in the Korean War, is a good means to conceptualise any form of one on one combat. It is less useful for war. In a boxing match, speed of decision may equal quality of decision; in strategy, cries of 'faster! harder!' produce premature ejaculation. In contemporary military theory, the focus on the OODA cycle, 'sensors to shooters', 'one shot one kill' weapons and the idea that armed forces can act almost without friction on near perfect knowledge, has led to a fetishisation of speed and the tacticisation of strategy. These assumptions are especially seductive to airmen, because they reinforce long-standing characteristics in the Anglo-American tradition of air warfare: the tendencies to generalise about a looming RMA, and then to treat one's guesses as facts and a future as if it were the present; to confuse the process involved in achieving an object for its significance—what Colin Gray calls 'the world is my dartboard view of aerial strategists...To the air strategist targeting is strategy'[11]; to overcentralise C2 and to pursue knock outs through one precise blow against a vital target without engaging the enemies' forces. Airmen are great problem solvers, but prone to view conditions as problems.[12]

The faith in the military value of knowledge is multiplied by a tendency to mistake the rarest achievements of intelligence for its norms. In 1995, for example, the USAF chief, General Ronald Fogleman discussed triumphs like ULTRA and said, 'Throughout history, soldiers, sailors, Marines and airmen have learned one valuable lesson. If you can analyze, act and assess faster than your opponent, you will win!'—unless, of course, it is stronger or smarter or luckier than you are.[13] Where intelligence once was undervalued, now it is oversold, also oversimplified. The assumptions are that it will be entirely reliable, understood, useful and usable. One can learn exactly what one wants to know when one needs to do so, and verify its accuracy with certainty and speed. The truth and only the truth can be known. It will show what should be done and what would be the consequences of so doing. Actions taken on knowledge will have the effect one intended, nothing more or less.

Of course, intelligence is valuable. Often it is a powerful force multiplier; rarely it strikes like lightning. It reduces friction and uncertainty. It maximises the efficiency of the use of one's resources, while minimising that of any opponent. All of this, however, occurs in the context of a balance of intelligence, of a reciprocal struggle between actors where every action shapes

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[10]   Warden 'Air Theory', *Aerospace Power Chronicles*.

[11]   Colin Gray, 'Why Strategy is Difficult', *JFQ*, Summer 1999, pp 10, 12.

[12]   The outstanding account of the Anglo-American tradition of air strategy is Tami Davis Biddle, *Rhetoric and Reality in Air Warfare, The Evolution of British and American Ideas About Strategic Bombing, 1914-1945*, Princeton University Press, 2002.

[13]   General Ronald Fogleman, speeches, 25.4.1995, 'Information Operations: The Fifth Dimension of Warfare', *Defense Issues*, Volume 10, Number 47, www.defenselink.mil/speeches/1995 and 'Fundamentals of Information Warfare-An Airman's View', 16.5.1995, www.af.mil/news/speech/current.

all of them, in anticipated ways and unexpected ones, where two good intelligence services can negate each other and gain less than a mediocre bureau does against a bad one. Intelligence also has limits. It is marked by frictions, pathologies and uncertainty. The quality of intelligence varies from case to case, and its value is unpredictable in advance. No method can always lead to truth, which often is useless. Nor is intelligence easy to assess. An event may have an unambiguous meaning; evidence about it rarely has an unambiguous interpretation. Decision makers are reluctant to change their minds, and they tend to interpret bits of information on the basis of preconception. Good intelligence may be unusable or it may invalidate itself. If one determines another side's intentions and forestalls them, one may force it toward unexpected action. Intelligence can fail by succeeding. It is as important to know what intelligence cannot do as what it can.

In order to understand these matters, one must embrace paradoxes, not dismiss them; they embody the unresolvable dilemmas without linear solutions which epitomise the relationship between strategy, intelligence, decision making and war. Failure to appreciate this point cripples the case that NCW and C4ISR will overcome uncertainty. They merely will create a new kind—what Michael Handel called 'Type B uncertainty', the problem of decision making in a context of too much and too constantly changing information.[14] Uncertainty is not merely about what is seen, but with how we see; not just what we know, but how we know that we know what we know; because of too few facts, and too many. Uncertainty is a condition associated with problems. The problems can be solved, though attempts to end one often create another and probably it is impossible to eliminate all of them at any one time; the condition can only be endured. One can increase one's certainty, and reduce that of an adversary or gain a relative advantage over it, and these gains may be great; but none of this is easy to achieve. Usually, uncertainty will remain sizeable. It can never vanish—chess players, knowing their foe's dispositions, remain uncertain about its intentions and the clash of their own strategies. C4ISR and DBK will increase uncertainty precisely through the way they reduce it; so too friction. In time of routine, they will provide more data than a general needs. In time of crisis they will produce less intelligence. How far will the ability to collect and process information under routine circumstances affect ideas of what intelligence can do when it matters? Will such a routine not merely hide pathologies and paradoxes and make them even more debilitating when they strike?—which will be when it matters. What will a machine relying on the receipt of facts in hosts do if deprived of them? How will information junkies behave when thrown into cold turkey—just when battle starts?

One can reduce these new forms of uncertainty through old fashioned means. One must start by dismissing the idealist fallacy from strategy, by putting information and intelligence and knowledge in their places. They do not make or execute decisions, people do, and more fundamental issues—their education, intuition, doctrine, character, courage, openness of mind, wisdom, attitudes toward risk—determine how they understand and apply it. Knowledge is only as useful as the action it inspires. Decision makers should listen to intelligence, and consider whether their perceptions are accurate, if they are pursuing the best means to achieve their ends or noting all the salient points; yet they must also remember that intelligence cannot answer every question. They cannot wait for the last bit of information to be received and for data processing to make their decisions. They must know when to act without intelligence or knowledge—that is why they are leaders. Soldiers are not scholars— they do not need to know everything about something, or more and more about less and less. They simply need to know well enough so they can act well enough when they must, and to

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[14] Ferris, J.R., and Michael Handel, 'Clausewitz, Intelligence, Uncertainty and the Art of Command in Modern War', *Intelligence and National Security*, vol. 10, no. 1, January 1995, pp. 1-58.

understand when that moment is, no more, no less. The key questions are: what do you need to know; and when and how can you know that you know enough to act, or know that you know all you can use?

The answers stem from the training of commanders and the techniques of C4I. The Command, Control, Communications and Intelligence office at the Pentagon defines the aim of information superiority as 'ensuring that the right people, and only the right people, have access to the right information at the right time in the right forms'.[15] That is the right aim, but it is easier said than done. Many records in the public domain indicate it has not yet been achieved. Experience in the Kosovo campaign led Air Commodore Stuart Peach to sombre conclusions:

> *the drive to streamline procedures and handle ever more data has had an important side effect; airmen have become driven by process not strategy;*
>
> *in reality, theory, doctrine and practice collide with process. Airmen claim one thing (centralized command and decentralized execution) and in fact practice another (centralized command and centralized execution); and*
>
> *refining the process of airspace control orders, air tasking orders and air task messages became the performance criteria, rather than creative and bold operational ideas or campaign plans'.[16]*

The USN's Global 2000 war games tested the application of NCW. It found both the power of C3I and its classic problems multiplied; for example, with every member of the net able to post notes and edit orders and reports, information overload paralysed command—officers had so much data that they could use little of it, bad coin drove out good. One witness questioned the validity of:

> *visions of a command-and-control structure akin to the civilian internet... that the natural creativity, spontaneity, and adaptability of war fighters can be unleashed by freedom from constraint analogous to that of the civilian Internet in commercial settings.[17]*

All shades of opinion recognise that the move toward C4ISR has magnified problems such as information overload, micromanagement and the fruitless search for certainty, for which they share many proposed solutions, such as changing the culture of command. None the less, major differences have emerged between revolutionaries and others, between those who see only problems, and those who also see conditions. The USMC's draft doctrine on IO denounces the idea that technology can solve all problems, and emphasises the need to retain 'our timeless fighting principles'; Army doctrine shares this view.[18] Enthusiasts, conversely, perceive solutions through revolutionary changes to command, such as war like Nintendo or

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[15] ASD, C3I, Office, *Information Superiority, Making the Joint Vision Happen*, www.c3i.osd.mil/infosuper.

[16] Air Commodore Stuart Peach, 'The Airmen's Dilemma: To Command or Control', in Peter Gray, (ed) *Air Power 21, Challenges for the New Century*, Defence Studies (Royal Air Force), Ministry of Defence, London: The Stationary Office, 2001, pp. 123-24, 141. An American Army observer, Timothy L. Thomas, offered similar views, 'Kosovo and the Current Myth of Information Superiority', *Parameters*, Spring 2000.

[17] Kenneth Watman, 'Global 2000', *NWC Review*, Spring 2000. For a more optimistic reading of this exercise, and of experiences with others in NCW, cf. *Network Centric Warfare, Department of Defence Report to Congress,* 27.7.01, pp. E-24, www.c3i.osd.mil/NCW/.

[18] Marine Corps Combat Development Command, Draft *Information Operations*, 25.9.01, USMC, Doctrine Division Home Page; FM 100-6, 'Information Operations', www.adtdl.army.milcgi-bin/adtl.dll.

by swarms. Either commanders will have instantaneous and simultaneous control over all of their pieces, or units will operate with complete independence while still achieving a harmony of the whole.[19] One revolutionary theorist, Thomas K. Adams, notes:

> *our endless quest for certainty is creating an 'information pathology'...Increasing complexity has led to increasing specialization that has led to increasing demands for information at all levels. This spawns new organizations and expands old ones to satisfy the demand for information, which in turn creates still more demand which in turn creates more complexity and so on. This cycle quickly becomes debilitating and, at best, to severe information congestion and overload.*

He concludes, 'Future generations may come to regard tactical warfare as properly the business of machines and not appropriate for people at all'.[20] Instead, only digital, automatic, nonhuman and inhuman means can allow a true C4I and NCW and S2S system to work.

The conditions of command for humans cannot be solved, but the problems may be. Technology can transform some matters, for good and ill. Between 1898–1945, radio enabled a revolution in command and also created a new source of intelligence and insecurity. Efforts to deal with jamming, interception and physical attack reduced the theoretical efficiency of the military use of radio by perhaps 90 per cent. In recent years communication technology may have reduced these problems but multiplied those of information overload, just as computers increase one's ability to process data while swamping one in it. Meanwhile, institutional solutions can turn some problems of intelligence into those of information processing, and of strategy into tactics. Between 1912–45, battleships had data processing displays which represented the adjacent battlespace with power and in real time, as have fighter aircraft since 1975, though during those years the space represented expanded from two dimensions to three and in diameter from ten to 500 miles. Strategic air defence systems and General Staffs allowed military institutions to handle extraordinary problems of collection, analysis and action with great efficiency. Even in 1918, British air defence was able to collect and correlate reports on enemy air raids from thousands of sources over a 2500 square mile area and convert them into an accurate and real time picture for its commander within 90 seconds, and to launch fighters to act on this information within another 90.[21] In order to create a fluid but hardened information and command system under present circumstances, one must determine how C4I will function and each level or unit will interact when at work in war. This will determine how far armed forces can fight in nets on the net and how flat or fat their hierarchy can be. Possibly one or another layer of command may safely be eliminated; certainly, forms of middle management and hierarchy still will be needed to let units fight effectively when under attack. Then, one can devise organisational short cuts, such as 'push' or 'pull' techniques to distribute information to units, or 'directed telescopes' to let commanders learn with immediacy and effect about whatever matters concern them, or drills to link sensor and shooter. The aims must be to simplify the flood of data and direct it where needed, so avoiding the classical problem with satellite imagery, when one knew what to look for only after the start of the crisis when that knowledge was

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[19] Dr. David S. Alperts, *The Unintended Consequences of Information Age Technologies*, NDU, NDU Press Book, 4.96; John Arquilla and David F. Ronfeldt, 'Cyberwar is Coming!', Arquilla and Ronfeldt, *Athena's Camp*.

[20] Thomas K. Adams, 'The Real Military Revolution', *Parameters*, Autumn 2000 and 'Future Warfare and the Decline of Human Decisionmaking', *Parameters*, Winter 2001–02.

[21] John Ferris, 'Airbandit!: C3I and Strategic Air Defence During the First Battle of Britain, 1915-1918', in Michael Dockrill and David French (eds), *Strategy and Intelligence: British Policy during the First World War* (Hambledon, 1995).

needed. It will hard to gain full access to data about known unknowns and impossible about most unknown unknowns. Nor can any such systems be effective unless doctrine and training prepares peoples to use it. Units must be able to operate in harmony without command, through some new version of 'marching to the sound of the guns'. Commanders must learn to act when they have a good enough picture of events even when it clearly is imperfect and new information constantly is arriving, and to understand when they have achieved that condition. Sometimes this process is called 'to opticise'; Clausewitz termed a similar process the 'imperative principle'.[22] When combined, these means have power and limits. They can solve many problems of command, perhaps most of them, but not all; and conditions will remain. C4ISR will be a function of a complex system manned by many people. It will suffer from all of the things natural to humans and complex systems, including uncertainty and friction, unachieved intentions, unintended consequences, unexpected failures and successes.

If so, how likely are the claims for DBK and NCW to be realised by 2020? They can most easily be fostered for diplomacy and strategy in peace—too easily. This, alas, will reinforce attempts by figures at home to control all tactical details abroad, increasing friction, micromanagement and information overload, as politicians get tangled with their privates. In war, DBK and NCW may work as hoped, but only when one belligerent absolutely outclasses its adversary. They probably cannot function in a serious clash between peer competitors, because simultaneously each would attack the other's ability to fight at this level, forcing both into the classic downward spiral which degrades the power of C3I. For the strategic level in war, the case is uncertain but important: how will generals act when they can command any but not every individual soldier; or soldiers when they can seize the prerogatives of command; or armed forces when all these things happen simultaneously? Again, without middle management, armed forces have no operational need for officers between Major through Brigadier. What would this do to career structures? How will Captains learn to be Generals? For this reason, the officers of elite forces question NCW. At the operational level, DBK and NCW will work far less well for armies than for air forces and navies, which over past generations often have used a C3I system structurally similar to that assumed by NCW, if the shooting platform, warship or aircraft, is treated as the unit, rather than the individual members of a cruiser, fighter base or infantry battalion. Some forms of platform-centric warfare also were net-centric. NCW may work well against some conventional enemies, perhaps many of them, and the ability to deter or defeat such a source of challenge is a major gain, but with limits. NCW and DBK will always be vulnerable to any technologically competent foe. GPS was essential to the left hook that flattened the Iraqi Army but such channels are easily jammed; what if this had occurred in 1991? NCW will be irrelevant in irregular warfare, including struggles against terrorists. If NCW fails in any instance on which it is relied, disaster will be redoubled precisely because of that fact; and fail NCW must sooner or later. If successful, it will force one's adversaries to find solutions by evading your strength or by making you play to your weaknesses. It always is convenient when one's enemy chooses to be foolish or weak, or foolish and weak, but sometimes it does not choose to be; and you will be a fool to assume it must be one. A smart but weak foe may simply refuse to play any game where you can apply your strengths, and make you play another one, such as terrorism. A tough and able foe might turn the characteristics of your game and machine into a strength of its own, by attacking any precondition for DBK and NCW and then by imposing its rules on you. By doing what suits them in the context of our power, they will change their strengths and weaknesses—and yours too.

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[22] Ferris and Handel.

Compared to C4ISR and NCW, IO is a less novel and less problematical concept. IO is a new term, perhaps adopted because IW already had acquired conflicting meanings. It embraces many 'disciplines'—deception, operational security, electronic warfare (EW) and psychological operations. With the significant exception of CNA, however, IO does not involve pouring old wine into new bottles, merely placing new labels on old bottles. Functions which intelligence officers once might have conducted in a General Staff, perhaps with operations, security and signals personnel in secondary roles, are now treated as a combat arm, controlled by the senior Operations officer, with intelligence personnel first among equals of specialist elements. This rise of Operations and decline of Intelligence is marginal and reasonable; IO are operational matters, but in need of a close relationship with intelligence and other elements. The basic doctrine for IO is sound, and close to the best practices of the best practitioners of two world wars. IO should be controlled by an officer directly responsible to a commander, guided by a small 'cell' of specialists, able to provide expertise and liaison; the various 'disciplines' of IO should be 'fused'; not merely coordinated, but combined.[23]

American doctrine on deception, for example, rests on intelligent consideration of the analyses of the best practitioners and scholars. It defines all aspects of intelligence as force multipliers, to be integrated into every aspect of planning and operations. Intelligence, psychological warfare and operations security have a dynamic relationship with deception, the attempt to '**deliberately mislead adversary military decision makers as to friendly military capabilities, intentions, and operations, thereby causing the adversary to take specific actions that will contribute to the accomplishment of the friendly mission**'. This doctrine for deception defines sound principles—'centralised control', 'security'; 'timeliness' in planning and execution; 'integration' of deceit with an operation; and, above all, 'focus' and 'objective', aiming to influence the right decision makers and to affect their actions—to treat the manipulation of intelligence and ideas merely as means to an end. In order to achieve these ends, practitioners must understand their foe's psychology, 'possess fertile imaginations and the ability to be creative while using and understanding each component of deception and C2W capabilities'; they must pass a story through many sources which an adversary will find believable, ideally by reinforcing its expectations. This doctrine is powerful, but it has weaknesses which stem from the roots of its strength, the influence of the British tradition of deception, reflected through the campaigns of 1943–44 which culminated in FORTITUDE, the cover for the invasion of Normandy. The latter stems from so many unique circumstances that it is a poor guide to the average. To treat it as normal is to assume deception is precise and predictable, that one will have edges equivalent to ULTRA and the 'double cross system', while the enemy's intelligence is castrated. These are tall assumptions. Again, 'focus' and 'objective' are fine principles: but in order to make key decision makers act as one wishes, one must know who they are, what they expect, how to reach them and how to know whether one has succeeded. This is not easy. Deceivers wrestle with uncertainties and pull strings they hope are attached to levers in a complex system they do not understand. Deception rarely has just the effect one wants and nothing else. The unintended cannot be avoided. American doctrine urges that this difficulty and others be resolved through risk assessment, but that is to mistake a condition for a problem. Reason is good, war games are fun; when assessment

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[23]   Joint Chiefs of Staff, Joint Pub 3-58, *Joint Doctrine for Military Deception*, 31.5.96 (under revision as of time of writing, August 2002); Joint Pub 3-13.1, *Joint Doctrine for Command and Control Warfare (C2W)*, 7.2.96; Joint Pub 3-54, *Joint Doctrine for Operations Security*, 24.2.97; Joint Pub 3-13, *Joint Doctrine for Information Operations*, JCS, 9.10.98; Joint Publication 2-01.3, 24.5.00, *Joint Tactics, Techniques, and Procedures for Joint Intelligence Preparation of the Battlespace*, JCS website.

concludes, risks remain. Never when one deceives will one know all the unintended consequences in advance. Rarely will one know if deception has worked when one must act.[24]

What can one expect from IO? They have a proven track record. During World War I, psychological operations achieved remarkable successes as did deception and operational security in 1917–18, though EW remained primitive. IO had even greater effect in World War II. Perhaps the greatest change was in deception, which was applied to more and greater matters, to cover German and Japanese surprise attacks in 1941 and to mislead Germany about the capabilities and intentions of every ally between 1942–45; meanwhile, EW became mature. During the cold war these matters were practiced constantly and often with significance, though the full story no doubt has not been told. IO are powerful tools, but they do not necessarily work as one hopes, and they can also be used by one's adversary. Defence matters as much as attack; it simply is harder. Their power will be multiplied in an unpredictable way by the rise of a new discipline. Unclassified material rarely refers to CNA but the topic has not been ignored, simply treated with secrecy, just as armies did deception and signals intelligence between 1919–39. One USAF intelligence officer notes 'offensive IO weapons...remain shrouded in limited-access programs'; the JCS's doctrine on IO discusses CNA in a classified annexe; in 2000–01, the USAF sponsored research into specialist 'Cyber-Warfare Forces', 'potential targeting issues' and 'how to mitigate or minimize collateral damage effects', how CNA would affect 'the full-spectrum of Information Attacks ' and create new 'broadly defined multi-disciplinary activities, such as: cyber-based deception, Electro-Magnetic Interference (EMI), Web Security, Perception Management. How do we integrate/fuse input and provide a COA (Course of Action)?'[25] The Pentagon's Command and Control Research Program describes CNA as 'a rapidly evolving field of study with its own concepts and technology'.[26] Sooner or later some state will let slip the bytes of cyberwar, with uncertain effect. CNA may revolutionise IO by incapacitating computer systems, or replacing true data with false; or it may prove Y2K revisited. So too, the nature of power in CNA is unknown: 'how do you measure IO power?' asks the USAF's Institute for National Security Studies; 'how would one calculate Correlation of Forces à la past Soviet/Russian approaches?' and what are the 'units of IW force' or their structure 'e.g. squadrons of IW computers'.[27]

The literature on IW and IO has been Americocentric, focusing on how the US should exploit the information revolution. In fact, IW may multiply the power of other states more than of the US, which might not be a hyperpower in this area. It has the greatest potential ability to conduct cyberwar, but this position has been sapped by the NSA's feud with the American computing community, its greater power in and reliance on computers increases the US's vulnerability to cyberwar, while anyone can exploit for free the massive American investment in the internet. Anyone able to employ a hacker for love or money can hope to gain from

[24] John Ferris, 'The Roots of FORTITUDE: The Evolution of British Deception in the Second World War', in T.G. Mahnken (ed), *The Paradox of Intelligence: Essays in Honour of Michael Handel* (Frank Cass , London, forthcoming, 2002).

[25] Research Topics proposed by INNS, 25.7.00, 'Information Operations (IO) 5.16', Computer Network Warfare, 'Information Operations (IO) 5.23, and 5.29'; and 'Air Force Materiel Command, 8.28.01', 'Effects Based Information Operations', Air University Research Web, research.maxwell.af.mil/js_Database; Colonel Carla D. Bass, 'Building Castles on Sand, Underestimating the Tide of Information Operations', *Aerospace Power Journal*, Summer 1999.

[26] 'CCRP Initiatives', Office of the Assistant Secretary of Defense Command, Control, Communications and Intelligence, 9.26.2001, www.dodccrp.org.

[27] Research Topics proposed by INNS 25.7.00, IO 5.48, and IO 5.24, Air University Research Web, research.maxwell.af.mil/js_Database.

cyberwar, while attack somewhere is easier than defence everywhere. The entry costs for cyberwar are small, the potential payoff large, and the consequences uncertain. Defence of vital sites and recovery from onslaught may prove easy, cyberwar may be treated as a weapon of mass destruction, and never used for attack, though adding a new twist to deterrence, a first strike in IW may be so advantageous that it creates an imperative to move first. If CNA proves significant, that fact alone may raise the average of IO to its top level of the twentieth century.

Despite its power, the idea of IO has its problems. In American doctrine, its main role is to support C2W, perhaps the main form of conventional operations that the US plans to fight and one that does target epistemology. The aim is:

> ***to deny information to, influence, degrade, or destroy** the **information dependent process**, whether human or automated, of enemy C2*
>
> *by attacking all the capabilities, thought processes, and actions that allow a commander to correctly observe the AOI; assess what these observations imply about the operation; use assessments to make timely, effective decisions; and communicate these decisions as orders to subordinate commanders in order to control the course of an operation;*
>
> *causing hesitation, confusion, and misdirection among adversary commanders contributes to slowing the adversary's operational tempo.[28]*

C2W is an effective way to conceptualise conventional warfare, and to bring intelligence and IO to battle. This end is worth pursuing but it is not easy to reach. In order to do so, an armed force requires relative superiority in and a high absolute level of intelligence and IO; while the latter have an excellent track record in attritional struggles, they matter less to them than to mind games. One can win decisively in attritional or manoeuvre warfare without first doing so in intelligence or IO; a draw in intelligence precludes victory in C2W. This idea also suffers from flaws like those of C4ISR and NCW. It overstates the significance of intelligence and knowledge in battle. It assumes one can always play to one's strengths and ignore one's weaknesses and impose one's will on an enemy and stamp one's rules on war. Drawing from Sun Tzu, Basil Liddell Hart, J.F.C. Fuller, Guilio Douhet, Hugh Trenchard and Colonels Boyd and Warden, C2W rests on the assumption one shatter an enemy's will or command or key nodes of power while evading its strength, whether that is used on the defence or the attack. Sometimes such ends can be achieved, but not always, nor often. C2W can succeed when one has a great edge over one's enemy in IO, C4ISR and power and precise attacks against key nodes are possible. When both sides are closely matched, or the enemy is strong and tough, then combat of a more conventional kind will occur; attrition is a natural form of warfare—perish the thought. The doctrine of C2W does not discuss these possibilities. Indeed, it masks their existence, because its definition includes physical attack on the enemy, through which means C2W may easily turn into more conventional combat. So long as those planning for C2W appreciate how easily it can be transformed and prepare for such an event, however, they can gain from the effort. Even if C2W fails to work entirely as planned, partial success will bolster one's position in other forms of conventional combat, for which IO and intelligence will be valuable. The watchword for war in 2020 should be: play mind games, prepare for body blows.

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[28] Joint Pub 3-13.1, *Joint Doctrine for Command and Control Warfare (C2W)***,** Joint Chiefs of Staff, 7.2.96.

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DISCUSSION

Major John Stephens, Capability Development: Intuitive decision making, that is making decisions with incomplete information, as you and Lind have argued, can be the difference between good and great leaders, particularly in the fog of war. Can you provide some practical advice on how we should be training our officers to be good intuitive decision makers?

Professor John Ferris: It depends on the level. One of the important things about these issues is that the first lessons you learn are often the lessons you carry forward, but the lessons you learn at one level aren't necessarily appropriate at another level. At a tactical level you can get a lot of information these days, and especially if you are a fighter pilot. You can have an extraordinary amount of information on the other guy. But if you assume that you can have the same knowledge and the other guy's capabilities and monitor the way that he is executing them at a strategic level, especially in sort of a diplomatic/strategic level, then you're going to run into problems. In other words, the first thing I think you have realise is that it is a complicated matter and the lessons to be learned vary from level to level. I would say that you have to understand that it does work, that it can be useful, that a lot of it is very boring and pointless, but on occasion it can serve as a significant force multiplier. So I'd simply say treat it with respect. But don't assume that as a matter of fact all the time that you can be playing chess. If I were to saying anything the very best analogy for anyone who is thinking about how to use intelligence is to play games of chance with cards. Think about how you are thinking about your own lack of knowledge or the knowledge you have. If you play hearts and wist and poker, after a while you start to get a sense of the different ways that intelligence can in practical terms be useful to you.

Then finally the thing I'd say is this: ask yourself how you behave with knowledge when you're in a condition of crisis. What do you do with bad news? What do you do with lots of news? How do you yourself behave under those circumstances? In other words, if you search yourself to see how you behave with data in your day to day life and with knowledge in your professional life, that may give you a better sense of how you're going to respond to intelligence than any set of formal lessons in a doctrine manual. I wish I could be helpful than that.

Fiona Peacock: Professor, I'm a great proponent of 'I own myself' but I do have a concern about one fundamental assumption. That is that it assumes that any adversary would have a similar Western psyche that we're working from and, namely, that they would apply rational decision making ie. that they would want to survive. How can we best adopt IO to our current dilemma of suicide bombers and the threat that they pose?

Professor John Ferris: It's a very good question. In fact, I've thought about it a lot because in the guise I have as an historian of Anglo-Japanese relations I've had to deal occasionally with issues of the same sort of thing. It can be very rational to choose to die in order to achieve a military objective. In fact, very often we give Victoria Crosses to people who do it. So I think the first thing to do is realise that part of the reason it's adopted is because it's rational. That, I think, helps us then to move toward the areas where we find it irrational. Irrationality, the lack of seeming rationality from our point of view, I think you really have got to be willing in a way to be kind of a cultural anthropologist. You can understand

something about why the Japanese did what they did with suicide bombers. You can understand something about suicide bombers in Lebanon by looking at religious and cultural history. Now, what happens with the Sunnites on the West Bank is a different phenomenon. But I guess what I'd say there is simply that intelligence officers have to be willing to learn a lot about other cultures. You can learn, it's possible to learn a good deal about the way other groups behave and why they make different decisions than you do and why it is that their decisions, seemingly irrational, can actually be more efficacious than one's own. So really I'm advocating a liberal education.

Flight Lieutenant Reece Lumsdon, RAAF: Professor, I was wondering if you could talk a little bit about the Office of Strategic Influence that was set up within the confines of the Pentagon in response to the Afghanistan experience. What it was designed to do in the white and, if you can, the black world. I guess, more to the point, why it was that Secretary of Defence Rumsfeld decided to have it closed down.

Professor John Ferris: They closed it down because it was bad press and I'm sure they started it up again the next day with a new name. This is standard American doctrine and, in fact, it's been standard American doctrine for a long time. It's also standard British and I'm sure probably standard Australian doctrine too. It's done either by diplomats or by military forces. The American Army has a firm belief that information operations has to involve what they call public affairs and civic affairs. Now, civic affairs are how you deal with peacekeeping, in a way. The public affairs are essentially how you shape the media's opinion or impression of what you're doing in order to minimise collateral damage. They are heavily marked by the influence of trivial tactical matters reported on CNN, on attitudes in public opinion in the US during various engagements of the early 1990s. Their standard drill is you set up a team, a cell as they call it, whose task is to help with white propaganda. Now, there's nothing new in this. For what it's worth, white propaganda and black propaganda certainly are both common throughout the 20th century from late 1914 onward. So the Americans were not only doing nothing unusual but, in fact, who can blame them? As far as the black propaganda goes, it will exist but I would suspect that it's probably handled more by CIA than by the American military, although here I'm speaking entirely through my hat. But generally in the Cold War the CIA was more responsible for black propaganda than an American military service would have been.

Unidentified: We do seem to have a bit of time and I couldn't miss the opportunity when someone raised the issue of intuitive decision making to say a bit about it. The question is how we train for it. I think most people will find that if they think of intuitive decision making as not necessarily focusing on what you don't know when you make the decision but, in fact, what you do know but you don't realise that you know it when you make that decision, then we'll find that intuitively most people intuitively make intuitive decisions. All we really need to do as we go into that process is accept that fact. The challenge really then is to bring the information to yourself and the real challenge then becomes how you use the staff and the systems to bring that information to yourself. If you use what the Americans have called the tactical decision making process or what we call the military appreciation process—I don't think there's actually an end to the question, by the way, I was just going to mention that—if you use the tactical decision making process, what we call the military appreciation process, which is a process and only applies to a period of decision making when you're using the information, when you actually have time to do it, then you can arrive at a situation where every commander and every member of the staff has full access to whatever knowledge there is, plus is fully informed on the attitude of the commander.

Now, in relation to any operations, much less information operations, that's a great start, that's a great place to start. I guess the challenge then becomes when you're working with human beings is that the next step is to accept—and how far this goes into 2022 I don't really know and that's the big question—but the next point I think is to accept the fact that the commander of an organisation does or should know a hell of a lot more and have an experiential base on which to make decisions than any of his commanders or any of his staff. I make the statement, which is challenged sometimes by my staff, that 80 per cent of the time I can make a better decision than anyone else in the joint taskforce in five minutes, given any situation. I can also make an 80 per cent wrong solution. The challenge of the staff is firstly to give me the information and to give any commander the information which they need to make intuitive decisions. Then once the commander has made an 80 per cent decision the staff can then take the commander from 80 per cent to 100 per cent, at the same time stopping him making the wrong decision. Yet, what we're talking about here in relation to information operations, to revolutionise the speed of that decision making process.

Now, what fascinates me about this entire thing is that as we apply the technology that you've spoken to it, how does that in fact develop. I'd say that if we take the fact that jointery is based on trust, and we're not talking about trust between machines or systems, we're talking about trust between people, at least in the immediate future we're going to have commanders talking to commanders and talking to their own staff and that's where the trust is established. In my view reach back certainly goes from the commander back somewhere and doesn't get between a superior commander and his subordinate commanders or his staff. Now, I guess where I'm coming to really is just to make the statement that all of that requires an incredible amount of training and familiarity between human beings. The information can be brought in in any system that you like, but it still comes in and will for a while, I think, and maybe yesterday at the 2022 presentation I think that was implied, we're still talking about human beings and intuitive decision making and relationships between human beings. The trick, of course, is to feed the information into that by information systems but all of that, in my view, is based on training and training and training and familiarity between individuals within that system. I told you there was no question at the end of it.

Professor John Ferris: Well, I agree with you. I mean, what you're really saying though is this: we're going to take new technology and we're going to bring it into a traditional system. We're going to use the technology to make the traditional system work better, which I agree with actually. But what the revolutionaries who are involved in all of this—and the rhetoric is very pronounced. If you go through joint vision 2010, joint vision 2020, if you go through the mid-centre of warfare report that was sent to congress last July, what you find are people are saying, entirely unlike you, the following: there will be flat hierarchies. Between the commander and the CNC and his section commander there will be no middle management. The commander will be in direct contact with people on the sharp end who will give him correct information. The people who are in charge of developing network centre of warfare, in fact, say quite explicitly, 'What ideally we will have is a censored shooter link'. In other words, you will have a means by which any censor can provide information on any phenomenon and route it directly to a shooter who will act immediately without consulting you. Now, what they would say, the revolutionaries would say about your approach, and mine for that matter, is that we are not using anywhere near the capabilities of information technology and systems and that what we are doing is gumming up the works. To which your response and mine would be the only way you can make a system function in conditions

where you've got a potential enemy and you're scared stiff is through the kind of thing you've outlined, which I agree with.

BATTLESPACE INTEGRATION AND THE AEROSPACE TOOL

DOCTOR CHRISTINA GOULTER

When we talk about 'battlespace integration' today, there is a tendency to view this not only as a new concept but also as a purely technical question, specifically, one of digitisation. But, as this paper intends to demonstrate, 'battlespace integration', or 'integrated battlespace management', as it is more commonly called, is nothing new. Indeed, ever since the advent of organised warfare itself, those going to war have grappled with the problem of how best to apply various force components to the battlefield in a timely fashion. However, the danger today is that digitisation is masking or is being used as a substitute for what lies at the heart of battlespace integration: decision-making, the experience and skill of the operational commander, and the fundamental principles of jointery. Indeed, digitisation has many inherent dangers or weaknesses, and it is important that these be flagged up, because there are very few critical voices in the field. Ironically, perhaps, some of the finest examples of battlespace integration have occurred historically, long before the digitised age, and, so, when we want to distil jointery down to its fundamental principles, it is often easier for us to look at historical examples. Certainly some of the most accessible examples of air to surface integration occurred during World War II.

References to 'battlespace management' and 'battlespace integration', started to appear in the 1980s, and, in retrospect, this struck the author as being odd. The commander's desire to control the battlefield (or battlespace) and make sense of it is nothing new. Clausewitz devoted the best part of his study to offering advice on how to give oneself a comparative advantage on the battlefield, and this boiled down largely to knowledge and an understanding of warfare in the round.[1] Rommel, one of World War II's greatest operational commanders, spoke of the need to 'grasp' the battlefield, and to mould it to your advantage.[2] Talk of 'battlespace management' or 'battlespace integration' was, therefore, new packaging for a very old pursuit. However, one of the reasons for a heightened interest in the area during the 1980s was the appearance of computer related communications technologies and a new generation of sensor systems. References to 'battlespace management' and 'battlespace integration' also coincided with developments in the manoeuvre capability of NATO's forces and greater lethality of weapon systems, and, therefore, the need to increase the rate at which information was gathered, processed and disseminated. It was a period of great optimism; it seemed that NATO had finally taken possession of real force multipliers, systems which would negate the impact of the Soviet superiority in numbers. Further, the digitisation of Command and Control (C2) seemed to make warfare an exact science, and the appeal of this should not be under-estimated. For the Americans, who led the way in digitisation research, this was one of the important ways of burying the Vietnam ghost; digitisation enabled them to control warfare and gain the initiative in ways that had eluded them in a complex war like Vietnam. They could now concentrate on high-intensity conventional warfare, their traditional forte, and out-manoeuvre a larger enemy through superior knowledge of the battlespace.

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[1] Clausewitz, Carl Von *On War* (eds Michael Howard and Peter Paret), Princeton, Princeton University Press, 1976. See esp Books One, Three, Four and Five.
[2] British Army Doctrine publication 71564, *Command*, Vol II, April 1995, p. 22.

By the end of the 1980s, the US, Britain and West Germany were in the lead in digitisation research, and the basic assumption was that all three would have digitised forces within ten to fifteen years, and that other NATO and western forces would follow suit soon after.[3] The Gulf War in 1991 reinforced the view that this had been the right policy decision. Although a fully digitised battlespace was not yet in existence, the application of information technology enabled quicker acquisition, processing and movement of information around the battlespace, and, by linking this to the latest generation of precision guided weapons, the world was seeing war waged at a tempo and lethality never seen before. General Schwarzkopf's victory in the land war, especially, was largely credited to his having 'information superiority', allowing him to get inside the Iraqi action-reaction cycle and: 'observe, in real time, orient in minutes, decide in hours and act the same day'.[4] Indeed, this led to a variety of commentators to suggest that the Gulf War had demonstrated that the West was now enjoying a Revolution in Military Affairs, thanks to the development of advanced communications systems. Alvin and Heidi Toffler remarked that 'information' had become the core of future military power.[5]

In the immediate aftermath of the Gulf War, there was almost universal optimism over new technology tested in battle, especially stealth platforms, such as the F-117. As the 1990s wore on, some of these new technologies were found to have performed below expectation (especially PGMs and the Patriot Theatre Missile Defence system), but people continued to have high expectations of digitisation of the battlespace. In the US, the Army took the lead in research and development of digitised systems, and devoted the bulk of their Advanced Warfare Experiments (AWEs) to digitisation trials. The other US Services commenced their own trial work shortly afterwards, and, by the mid-1990s, all three (including the US Marine Corps), placed digitisation at the core of their future development under the so-called 'Joint Vision 2010' concept.[6] It was generally accepted that digitisation would result in the following benefits: an increase in operational tempo, by getting 'inside the enemy's decision cycle'; an improvement in situational awareness, by providing a common picture at all levels of command; an improvement in lethality and enhanced survivability of one's own forces by minimising the 'fog of war', through the acquisition, exchange and employment of timely information.[7] Certainly by the late 1990s, digitisation had become gospel in the US, and the following excerpt is typical of the in-house publications of the period:

> *The revolution in information technologies (IT) and knowledge-based systems hold almost unimagined promise for the Army that grasps them. IT will be a break-through in warfighting... Discriminating sensors providing information on enemy and friendly forces will link to computers that display relevant information in real time digestible bites. Using IT more than explosive weapons, forces will manoeuvre against and defeat their enemies more quickly and with less risk. Targeting the enemy's fighting forces and, more decisively, his command and control facilities will provide an unprecedented ability to defeat him.[8]*

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3   See, for example, the following upbeat predictions: Burke, J. 'The Next Step: Managing Battle with Technology', *Army*, March 1986, pp. 56-60; 'Battlfield Mission Management System to Extend ATGW helicopter capabilities', *Armed Forces*, June 1982, p. 171; Brown, F.J. 'The Commander's Need for Positive Control', *Armor*, Sept–Oct 1985, Vol.XCIV, No. 5, pp. 4-5.

4   Starry, M. 'FM 100-6: Information Operations', *Military Review*, Nov 1996, p. 3.

5   Toffler, A and H. *War and Anti-War: Survival at the Dawn of the 21st Century* (Boston, Little, Brown and Co, 1993).

6   US Joint Chiefs of Staff publication, *Joint Vision 2010* Washington DC, Government Printing Office, 1997), p. 19.

7   For a discussion of the US Army's digitisation program, see first 'Digitisation of the Battlefield', *The Infantryman: The Journal of the British Infantry*, 1995, p. 30.

8   Mains, S. 'Adapting Doctrine to Knowledge-Based Warfare', *Military Review*, March–April 1997.

In the UK, the language was less effusive, and, until the mid-1990s, there was no over-arching program of digitisation comparable to the US example.[9] But digitisation gained a large following within Army circles, in particular, because it was seen as an important way of enhancing Britain's manoeuvrist approach in warfare (which focuses on shattering the enemy's cohesion, typically through getting inside the opponent's action-reaction cycle). Britain had adopted officially the 'manoeuvrist approach' as a means of countering the Soviets' numerical strength, even though it had long been a feature of the 'British way of warfare'.[10] For Britain, the main benefit of digitisation is perceived to be its force multiplier effects; thanks to digitisation, Britain can operate her smaller forces over vast distances with greater agility than ever before.

Elsewhere, other NATO and western defence establishments also came to see digitisation as a means of making best use of increasingly lean forces.[11] As post-Cold War budgetary constraints started to bite, digitisation was seen not only as a desirable policy but a very necessary one. Therefore, at least in public forum, assessments of the utility of a digitised battlespace have been almost universally optimistic. There has been little acknowledgment of the considerable weaknesses and vulnerabilities associated with digitisation, and there is an uncomfortable feeling that the wider implications of digitisation have not, necessarily, been considered.

At the most basic level, digitisation is supposed to aid the commander in the decision-making process, by providing real-time information about friendly and enemy forces and the surrounding environment. However, digitisation may, in fact, degrade decision-making in a number of significant ways. First, information overload may lead to command paralysis. With real-time information flooding into a command HQ, a commander may have difficulty distinguishing between relevant and irrelevant information. He may be tempted to fire at everything he sees, rather than prioritising his targets. So, rather than helping to minimise the 'fog of war', digitisation may, actually, be exacerbating it, in some cases. Second, a commander may fall into the trap of waiting until he has 100 per cent information feed before engaging the enemy, when a 70 per cent picture may suffice. General George S. Patton once remarked that 'a good plan now, violently executed, is better than a brilliant plan next week'. Third, and related to both these points, is the mere seduction of real-time imagery. During the Kosovo campaign, it was observed that some senior field commanders were 'glued' to monitors, watching live imagery returning from UAVs. Unless a commander sets images in a wider context and continues to ask the 'so what' question in relation to anything he is seeing, then he can easily fall into the trap of watching the screen 'just in case' something of relevance comes up. The senior commander does not have the time to do this; his job is to make decisions, based on the best advice given to him by members of his staff, and these are the people responsible for filtering, digesting and utilising information and intelligence feed.[12]

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[9] 'Digitisation of the Battlefield', *The Infantryman; The Journal of the British Infantry*, 1995, p. 30.

[10] Examples of 'manoeuvrist approach' applied by Britain historically include the peripheral campaign in Spain against Napoleon's forces, or, similarly, the Gallipoli campaign in World War I. By doing the unexpected, such campaigns aimed to draw off a disproportionate amount of enemy strength, thereby aiding the main effort in North-West Europe.

[11] See, for example, the German experience, as outlined in Druhm, F. 'The German Army Battlefield Management System (GeFuSys)', *Military Technology*, 6/99, pp. 91-3.

[12] Quoted in British Joint Services Command and Staff College *Notes on the Planning Process* (2000 edition), p. 1.3; Lecture by Maj G. Price, 'The UAV to Date', Royal Aeronautical Society Conference, 'The Operational Utility of the UAV', 31 October 2002.

Another serious problem, which has already been observed during operations in the Gulf War and the Balkans, is a flattening of the command structure. With the benefit of real-time imagery, senior commanders and politicians alike have fallen into the trap of micro-management or, at least, a desire to have 'a feel for' the minutiae of tactical operations. General Schwarzkopf admitted that, during the Gulf War, he did not feel comfortable unless he had an array of communications around him.[13] He attributed this to his Vietnam experience (doubtless because of the highly complex and multi-layered command structure, which left many in the field feeling that they were totally isolated from the command centres). Later on, during the various Balkan engagements, but especially during the Kosovo conflict, the immediacy of communications allowed politicians in various national capitals to take a personal interest in the targeting process, mainly because of concerns over collateral damage. So, one of the unintended consequences of an increasingly digitised battlespace has been the pushing of decision-making further and further up the command chain, especially during politically sensitive conflicts. This is ironic, because one of the supposed benefits of digitisation is to allow Mission Command, the decentralised execution of plans. This is particularly troubling for British forces, as Mission Command lies at the heart of British command philosophy (decentralised command, freedom of action, initiative, as well as unity of effort at all levels).[14] But this should also be of great concern to the American forces, which have long suffered from a tendency to force decision-making further and further up the chain, so that the type of decision which might be made by a British NCO, for example, would have to be staffed through a US Army Colonel.[15]

The flattening of the command chain has, potentially, very serious implications for the campaign planning process. If it is possible for a senior commander or, indeed, a politician, to reach down and dictate operations at the tactical level, then there is a real danger of the operational level of planning to be derailed. The planning process is very complex and, especially in the Joint and Combined arena, involves multiple inputs to ensure the success of a particular campaign. There are many inputs into the planning process which go well beyond mere information feed, and comprise the real underpinnings of a campaign plan. One of the most important foundations of a campaign plan is intelligence on the enemy. However, there is a danger currently of commanders (both senior and field) elevating information feed over intelligence (the analysed product), and worse, perhaps, of their becoming their own intelligence analysts. Although there have been numerous examples historically of commanders not always trusting their intelligence officers, the problem is likely to increase with digitisation. During the Gulf War, Schwarzkopf and his headquarters staff were distrustful of the Battle Damage Assessment performed by the Defence Intelligence Agency back in Washington DC, and preferred to do their own assessments in the field, based on imagery gathered in near real-time.[16] Schwarzkopf's main objection to the DIA's assessments was that they were too conservative and took too long, thereby destroying the type of high operational tempo that he sought to get the job done quickly. What Schwarzkopf and his team overlooked, however, was the fact that DIA analysts were deep specialists on the region and were basing their analyses on all source intelligence, rather than the typical single source or

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[13] Schwarzkopf, N. *It Doesn't Take a Hero* (Bantam Press, London, 1992), pp. 421–9.

[14] British Army Doctrine, Vol II, *Command*.

[15] This is not an exaggeration. The author saw numerous examples of this while she worked at the US Naval War College, Rhode Island, and similar observations have been made by military colleagues who have worked with the Americans, either in the field or in Combined HQs.

[16] Freedman, L. and Karsh, E. *The Gulf Conflict, 1990–1991: Diplomacy and War in the New World Order* (Princeton, Princeton University Press, 1993), pp. 368-73; Schwarzkopf, N., *It Doesn't Take a Hero*, pp. 430-2.

dual source feed that Schwarzkopf was receiving in theatre (usually satellite or photographic reconnaissance). While it is probably true that DIA analysis took longer than operational tempo demanded, the dangers posed by faulty analysis in the field are usually serious. An over-optimistic assessment of damage to the enemy means that he had not been degraded to the extent hoped for, thus endangering one's own forces when they have to engage the enemy. On the other hand, an overly-cautious assessment could lead to targets being revisited unnecessarily, also endangering one's forces.

The elevation of information feed over intelligence has other serious implications. Intelligence provides an understanding of the enemy which cannot be derived merely through digital means. This is particularly so with regard to an enemy's intent and morale, but also the foundations of an enemy's strength (including industrial economy and outside sources of supply). Indeed, the type of snapshot picture of an enemy which is given by digital means can be very misleading, and may cause either an over-estimation or underestimation of the opponent's strength, especially in the longer term. What digital feed almost certainly does is to make us focus purely on the 'face' of the enemy, rather than his substance, because interest in the digitised picture stems primarily from the need for target acquisition.

Faith in the digitised picture is problematic in itself. There is a very great danger that the commander will view everything derived from digital sources as the 'true' picture, because we, and the military in particular, have been taught to believe in the precision of science. This should not surprise us. The military mind has always preferred to see the world in black and white terms; it has always tried to impose order on chaos, because this is a means of diminishing uncertainty and, therefore, danger on the battlefield. However, there are a number of pitfalls associated with this faith in the 'scientific' approach, and there are some important lessons from history. During World War II, for example, the development of Operational Research techniques was undoubtedly key to success in various campaigns (especially the Battle of the Atlantic), but a preoccupation by the end of the war with mathematical formulae led to a 'war by numbers'. This was most evident in the Battle of the Atlantic, during which some analysts viewed submarine 'kills' as the only yardstick of success, and in the Combined Bomber Offensive, especially against Japan, where the number of cities bombed and bombloads delivered became all important. When this preoccupation with the numbers game was carried over into various counter-insurgency wars fought by the West (especially in Malaya and Vietnam), it became evident that an enemy bodycount was not a sufficient yardstick of progress, and how success had to be defined in much broader terms. Similarly, a digitised picture may offer a specific 'truth', but it may be very dangerous to extrapolate from the particular, and, in order to obtain a realistic picture of the enemy, a commander should, ideally, get inputs from a variety of sources. Some of these sources may well go beyond intelligence, and may include a commander's previous experience of an enemy, for example.

Another obvious danger posed by an absolute faith in digitisation is the erosion of traditional warfare skills. One of the very few voices 'in the wilderness', expressing concern over this, was the former Commandant, US Marine Corps, General Krulak. He observed that during the early 1990s, every 'grunt was kitted out with a laptop', as he put it, but how basic training had been cut back to compensate for the additional cost of digitisation.[17] Krulak's initiatives managed to restore some balance, but elsewhere, in other US and Western forces, basic skills such as navigation and target acquisition have been all but lost. For example, as automation

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[17]   Discussions with US Marine Corps Lt Col Art Adkins, US Naval War College, 1996; discussion with Gen Krulak, British Joint Services Command and Staff College, 2001.

has taken over, manual navigation (including dead-reckoning and astro-navigation) is no longer taught in most air force training establishments. The implications of the loss of some of these traditional skills are not yet known, but there have already been instances where the failure of digital communications has proved to be the critical vulnerability in a campaign. This happened to the US forces in Somalia in October of 1993. The loss of a single communications link between the Forward Air Control helicopter and the forces on the ground led to a complete unravelling of that operation.[18] In this instance, the Americans had contravened one of the most basic rules of warfare (always build in an element of redundancy), but it did highlight the risk posed by over-reliance on a particular technology.

If the Americans thought that they had managed to put the Vietnam ghost to bed after the Gulf War, Somalia was yet another uncomfortable reminder that the technologically superior nation does not always end up on top. More recently, the events of 11 September 2001 demonstrated what a determined opponent can do with everyday resources. Therefore, the danger has to be that as the West continues down the path of digitisation, it runs the risk of asymmetric responses from enemies. Few states would relish the prospect of facing the US or NATO forces in the open, and sub-state players, such as Osama Bin Laden, are known to have interest in or active WMD programmes. Even if enemies of the US and other NATO forces do engage in conventional conflict, they are likely to seek comparative advantage by engaging in cyber attack and Electronic Warfare. The prospect of cyber war is not fanciful. Back in 1990, as the US was preparing to deploy to the Middle East, the US Defence Department's main computer system was hacked into on a number of occasions, and subsequent security analysis has shown that over 88 per cent of military computer systems are easily penetrated and corrupted. Two years ago, the Chinese engaged in cyber attacks on Taiwan in order to undermine the democratic process. But even if enemies do not opt for such asymmetries, they may do something as simple as trying to draw US forces into urban warfare, with its inherent risks and higher rates of collateral damage. One lesson that various opponents of the West have taken away from conflicts since Vietnam is that democracies are acutely sensitive to media coverage of civilian casualties, and this has proved to be either the main cause of a loss of public support for a war (as in the case of Vietnam) or, at the very least, a major constraint on the conduct of operations (as occurred in the Kosovo campaign).[19]

The immediacy of communications, generally, has added unexpected complications for the senior commander, as the Gulf War demonstrated. In his book, *The Eye of the Storm*, Major General Patrick Cordingly referred to a case where British soldiers had been photographed carrying weapons while dressed in T-shirts and shorts.[20] The Press captioned the shot: 'Dressed to Kill', which prompted the Prime Minister's office to query the General's judgement in allowing his soldiers to go into combat in less than appropriate battle rig. So, far from being able to concentrate on the battle ahead, Cordingly had to respond to the Prime Minister's office, going through the usual staffing. This particular incident was caused by an otherwise innocent photograph wending its way back to the national capital, and similar

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[18] The helicopter concerned was more a hybrid between Forward Air Control and an Elevated Command Post. For one of the better accounts of the operation, see Bowden, M., *Black Hawk Down* (Corgi Books, London, 1999), esp. pp. 185-8.

[19] Everett, C. *et al The Silicon Spear: An Assessment of Information Based Warfare and US National Security* (Institute for National Security Studies, Washington, 1997), p. 17; August, O. 'China Conducts Cyber Attacks on Taiwan', *The Times*, 8 March 2000.

[20] Cordingly, P. *In the Eye of the Storm: Commanding the Desert Rats in the Gulf War* (London, Hodder and Stoughton, 1996), pp. 44-5.

diversion of a commander's precious time must be occurring whenever imagery from the field reaches command centres, especially if there is a political interface within a headquarters.

The immediacy of commercially available imagery and general media also means that the West's lead in digitisation is growing relatively smaller. Recent media coverage of the operations in Afghanistan involved, in many cases, no more than a couple of journalists equipped with a digital camera, a wideband mobile phone to link to a satellite, and a laptop. While such teams were conveying their stories, the Taliban and Alliance forces alike were making use of high-resolution satellite imagery, purchased on the open market. Such imagery can be obtained for very little cost. For example, the US company Space Imaging Inc. offers general imagery for $500 and can re-task a satellite for a specific job for as little as $3000.[21]

So, far from digitisation providing the West with an enormous comparative advantage over an opponent, that advantage seems to be getting smaller rather than increasing, and, although one hesitates to say this, the next generation of digitised warriors may not, necessarily, be more effective than the current one. We have already alluded to the erosion of traditional warfare skills (such as navigation and target acquisition) and the various pitfalls and vulnerabilities created by digitised systems, but the potential threat that digitisation poses to military effectiveness is, perhaps, even more basic than this.

During the 1980s and 1990s, the technical developments that underpinned digitisation were not matched by comparable conceptual thinking. Although 'battlespace management' or 'battlespace integration' became popular buzzwords, in the absence of any conceptualisation, digitisation became overly focused on technological capability, and technology became more the master than the servant. The problem was caused in part, and certainly exacerbated, by the lack of a doctrinal lead. Battlespace Management is mentioned in component doctrine, but not fully explored in over-arching joint doctrine, where it needs to be discussed in the context of the joint battlespace. Even existing Joint Operations Doctrine in the UK devotes only a couple of paragraphs to the general subject, and descends quickly into narrow statements of how the Joint Task Force Commander must take advantage of the opportunities within the Electro-Magnetic Spectrum to give himself an information advantage.[22] What joint doctrine needed to do, however, was to talk about battlespace management in the round, how this involves controlling the battlespace through a superior understanding of a particular environment (which involves the experience and knowledge of the commander, as well as intelligence and information feed). Any definition of battlespace management should include reference to what you are trying to achieve, namely, the detailed orchestration of your own component forces, resulting in a higher operational tempo than your opponent, battlefield dominance (holding the initiative), greater manoeuvre capability than your enemy, and the ability to inflict greater attrition on the enemy than your own side is receiving.

Therefore, lying at the heart of battlespace management is decision-making, because the results of battlespace management mentioned above all rest on having a faster action-reaction cycle than the enemy. It is worth spending some time reflecting on the complex business of decision-making. T.E. Lawrence once remarked that 'the chief agent must be the General's head', and this is true of any type of conflict.[23] When talking about the need to make sense of the battlespace, the classic theorists of war, Sun Tzu and Clausewitz, were very interested in the role of the individual commander. Clausewitz placed a great deal of emphasis on the

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[21]   Internet reference, http://www.spaceimaging.com/aboutus/corpFAQ.htm#pricing
[22]   Joint Warfare Publication (JWP) 3-00, July 2001, Section X, pp. 3.37-3.38.
[23]   Lawrence, T.E. *Seven Pillars of Wisdom* (Garden City, New York, 1935), p. 194.

individual commander's genius for orchestrating forces in the most appropriate manner, and by genius he meant 'all those gifts of mind and temperament that in combination bear on military activity'.[24] Above all, he valued intuition: 'the man responsible for evaluating the whole must bring to his task the quality of intuition that perceives the truth at every point'.[25] Intuition was considered especially important because, according to Clausewitz, it can compensate for a lack of operational and tactical level intelligence, which, he believed, is both difficult to obtain and often unreliable.[26] While, clearly, there are enormous dangers in taking this line of argument too far, he was right in the sense that decision-making on the battlefield (or in any battlespace) is ultimately dependent on the makeup of the individual commander. This is, perhaps, the most important point made by Clausewitz, within the context of this discussion. He reminds us that decision-making is a very human business, and each commander brings with him his own experience, knowledge, perceptions, prejudices, etc. In short, decision-making is not an exact science, and, therefore, falls more into the realm of 'art' rather than 'science'. The danger, as we discussed above, is that the military mind's penchant for precision and certitude favours the digitised picture over any other, and the tendency since the 1980s has been to view the action-reaction cycle far too narrowly, usually in terms of the commander's assimilation and utilisation of raw data feed. In short, digitisation may be obscuring the importance of many essentials of command.

There is also a risk that digitisation may serve to weaken, rather than strengthen, jointery. This may happen, for a number of reasons. First, by offering greater connectivity between Service and force elements, digitisation may result in complacency, and those who need to practice jointery may stop thinking about what it entails. Jointery is like marriage; you have to work at it, and, because it is not a natural state of affairs, it must not only be taught in Service education, but has to be articulated and practiced constantly. This is true at all levels, from military-strategic down to tactical levels. It is one of the ironies of digitisation that when it first appeared on the scene, during the 1980s, it was probably one of the factors compelling the Services to think about integration (and jointery), but, as time has progressed and as computer systems have advanced, there may be a danger of digitisation being seen as a substitute for the real issues of force integration. Second, there is a notion in some quarters that the greater connectivity provided by digitisation means that the operational level of war is being made redundant, because the senior commander can reach down to the tactical level.[27] This is a very dangerous line of argument, because you cannot think about jointery properly outside of the operational level of war, nor is it possible to engage in campaign planning at anything other than the operational level. Thirdly, at the tactical level of war, there is great potential for jointery to unravel, as there may be a temptation to reason that because the operational HQ will have the big picture view of the battlespace, and is therefore directing operations, there is no need for force elements in the field to think jointly. Although the Army has never stated anything blatantly, because it was in the lead in digitisation, it came close to forgetting that digitisation needs to be applied across all the Services if joint operations are to work properly. Especially during the 1980s and 1990s, publications emanating from Army circles, whether in the UK or the US, spoke about digitisation of the 'battlefield' (as opposed

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[24] Clausewitz, Carl Von *On War* (eds Michael Howard and Peter Paret), Princeton, Princeton University Press, 1976, p. 100.

[25] *Ibid.*, p. 112.

[26] See also *Ibid.*, p. 102.

[27] This opinion was expressed by one of the speakers at the 'Conflict: the State and Aerospace Power' conference, Canberra, May 2002.

to the battlespace), and almost all early digitisation efforts focused on heavy mechanised forces (this is certainly the case in the US and Germany).[28]

However, some of these latter concerns over the impact of digitisation may evaporate in the new strategic environment, because with the emphasis on expeditionary warfare, the Services are compelled increasingly to think in joint terms. This is particularly the case with expeditionary operations from the sea. But there are also numerous joint structures now in place which, over time, will mean that the Services operate jointly in a more instinctive fashion than is currently the case. For example, most of the defence forces in the West are going down Britain's route of having joint education, joint Operational headquarters, joint support elements (such as the Joint Helicopter Force), joint logistics, etc. For most countries, jointery has been driven by financial imperatives, because the end of the Cold War saw the likelihood of defence forces being cut down to cadre sizes. Jointery was a way for the various defence establishments to peg their respective defence budgets at a reasonable level; Treasuries the world over saw joint forces as far cheaper than the old-style standing armies, and, so, accepted the arguments about transforming defence structures into largely joint organisations. It was also generally accepted that the most probable type of warfare to engage Western forces in the near to mid-term would be in the littoral environment, so it was acknowledged that jointery would become an operational necessity.[29]

In many countries, jointery has also been driven by coalition requirements. There is the acknowledgement that if you want to be a serious coalition partner these days, especially within NATO, you have to be joint. However, adopting jointery has proved extraordinarily difficult for some nations. One NATO nation to have faced major hurdles in implementing jointery is Greece, and one of the most interesting questions is why Greece came to adopt jointery so late on. This is a country whose geographical and strategic situation calls for jointery—the need for Rapid Reaction Forces for island defence and quick deployment to defend a long northern border. Yet, as some elements of the Greek Defence Force tried to take jointery forward in the early 1990s, there were restraints. These came in the form, mainly, of the retired Generals used as advisors, and these acted as single Service brakes on jointery.[30]

Some nations have embraced jointery very quickly on paper, only to find that it is more difficult in practice. Even NATO's leading nation, the USA, has found jointery difficult to implement, simply because of its physical size. The enormity of each of the US services is such that they have retained most of their organisational structures, with a veneer of jointery imposed over the top. Although the Joint Chiefs of Staff structure has been in existence since the late 1940s, it has tended to co-ordinate the Services, rather than putting into place any structures which facilitate full integration of the Services. This distinction between co-ordination and integration is an important one in the context of this discussion. Similarly, the US has had joint doctrine since the late 1980s, but, although this is a gross generalisation, only lip-service is paid to this in most quarters. Evidence of this was seen first during the Gulf

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[28]   See, for example, Brown, F., 'The Commander's Need for Positive Control', *Armor* (Sept–Oct 1985), pp. 4-5; 'Digitisation of the Battlefield', *The Infantryman: Journal of the British Infantry*, 1995, pp. 30-3; Burke, J., 'The Next Step: Managing Battle With Technology', *Army* (March 1986), pp. 57-60.

[29]   USMC White Paper, 1997. *From the Sea: the Naval Service for the 21st Century*; (British) *Strategic Defence Review*, (London, The Stationery Office, 1998). Since these were published, a number of other NATO and other Western nations have engaged in their own Strategic Defence Reviews, including Greece (which made public its initial Joint intentions in Athens, Nov 2000).

[30]   The author was invited by the Greek Ministry of Defence to contribute to the Greek Strategic Defence Review of 2000. One of the author's principal suggestions was to abandon this practice of using retired senior officers as advisors, known as apostrati.

War, when the US Navy and the US Marine Corps were both resisting the move to the Joint Force Air Component Commander (JFACC). Up until two months before the conflict, the US Navy was still seeking ways to sabotage the JFACC concept, because it felt strongly that it should retain control over its organic air assets. But the greatest resistance came from the Service which is considered the most 'joint' in its outlook: the US Marine Corps. It was adamant that it should retain control over all its air assets because they were there primarily to provide cover and support to the ground element.[31]

Indeed, it is in the US that we tend to see the greatest gap between doctrine and practice. This is ironic because the Americans have some of the best organisations for collating and digesting joint lessons learned. Take, for example, the so-called JMO Historical Collection within the Joint Military Operations Department. This work is supposed to be read in conjunction with Joint Doctrine, but, for many years, it seemed to be a case of lessons flagged up rather than taken on board in practice. For example, many important jointery lessons from the Vietnam War were flagged up, but many of the issues have only recently been addressed. If we were to use the early years of Vietnam as an illustration, one of the reasons the 'Rolling Thunder' air campaign failed was the lack of anything approximating a JFACC. To say that it was a confused and confusing Command and Control arrangement would be a gross understatement. Responsibility for air operations over North Vietnam was divided between the US Navy and the USAF. The Navy was responsible for four zones, through a headquarters at PACOM, Hawaii. The USAF had responsibility for two zones, and whenever its 'strategic' assets (B-52s) were used, they came under Strategic Air Command HQ, Omaha, Nebraska. Meanwhile, the zone immediately above the DMZ on the 17th Parallel was considered part of the ground war, so came under HQ Military Assistance Command, Saigon. This fractured C2 arrangement meant that the US Navy and the USAF were waging parallel wars over North Vietnam, and this was exacerbated by there being little intelligence sharing between the two Services (or certainly nothing approaching the type of joint targeting bodies we have developed within recent years). The lack of co-ordination had many ramifications. It meant that air effort could not be concentrated on targets that demanded heavy or repeated attacks; a lack of co-ordination between the Services meant that if the North Vietnamese suffered serious damage to a particular target set in one zone but not in another, the sites left unscathed in that other zone would be utilised to a greater extent to compensate for diminished activity elsewhere. Although the fragmented C2 arrangement was only one of many reasons why 'Rolling Thunder' failed in its objective (coercion of the North Vietnamese regime), it undoubtedly played a significant part, and it is widely used in the US as an example of the dangers of getting Command and Control wrong. Yet, as we have seen, it took the Americans over twenty years to implement the JFACC concept, and, even then, it had major detractors.[32]

In Britain, the path of jointery has been smoother, but out of necessity. Successive defence budget cuts in the early 1990s compelled the Services to explore means of pegging the defence budget, and expeditionary warfare from the sea was sold as the future modus operandi, and this was accepted by the Treasury (as, indeed, it had been on the other side of

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[31] When the US was trying to implement some of the Joint initiatives during the mid-1990s, it faced services of the following strengths: USN (482,800), USMC (174,000), USAF (433,800), US Army (559,900). Source: IISS, *The Military Balance, 1994-1995*, pp. 22-33. See also Joint Chiefs of Staff publication, *Joint Military Operations Historical Collection* (Washington DC, 1997), p. vi, and Peach, S. 'The Airmen's Dilemma: to Command or to Control?', in P. Gray (ed) *Air Power 21: Challenges for the New Century* (London, The Stationery Office, 2000), pp. 142-4.

[32] US Joint Chiefs of Staff, *Joint Military Operations Historical Collection* (Washington DC, 1997). For a discussion of the Vietnam era, see Thomas Hone, 'Strategic Bombardment Constrained: Korea and Vietnam' in R. Cargill Hall (ed) *Case Studies in Strategic Bombardment* (US Govt Printing Office, 1998), pp. 469-526.

the Atlantic). However, it was relatively easy for the Services to sell the expeditionary warfare concept because of events in the Balkans, East Timor and Sierra Leone, and because of predictions that the most likely source of instability in the future will be in the littoral areas of the world. But while the expeditionary warfare concept was very important in providing the Services with some financial security, its real importance in the longer term lay in the realm of doctrine. After the end of the Cold War, there was a tendency, on both sides of the Atlantic, to take blue water dominance for granted, and there was a general urgency to dismantle those force structure elements most closely associated with the Cold War. The obvious sacrificial lambs were battleships, but there was also pressure to downsize radically Anti-Submarine Warfare capability. In the US, this meant the halving of their maritime patrol assets. In Britain, the Nimrod squadrons came under close scrutiny (but were saved, in the first instance, thanks to their performance in the Gulf War), but the RAF lost its dedicated anti-shipping capability (in the form of two Tornado maritime attack squadrons). What a focus on expeditionary warfare did, if rather belatedly, was to remind people that if you want to conduct operations over vast distances, you still need force protection against threats (such as conventional submarines) and the capability to project power inland (so, in addition to protecting a force en route to the littoral, you must also protect Sea Lines of Communication to sustain follow-on forces and you must have the type of force structure which has the best chances of success against typically larger enemy forces, for most amphibious forces face a much larger enemy). So, in short, what a focus on littoral warfare did was to reassert the importance of jointery and, perhaps to a greater degree than any other operating environment, highlighted the complex mutual interdependence of land, sea and air. But, interestingly, as it has been observed, a very good case can be made for air power having a dominant position in expeditionary warfare from the sea, because the air contribution is essential across all three operating environments (transit to the littoral, within the littoral and in support of operations on land). The way in which air power offers a seamless contribution across the various environments serves to highlight air power's inherent characteristics, especially ubiquity, flexibility, and speed, and these are major strengths, providing the force multiplier effects so critical to the success of any amphibious operation.[33]

The 1990s witnessed some interesting conceptual thinking surrounding littoral warfare, and, in Britain, one of the new concepts to emerge was the so-called Joint Force Harrier. The 1998 Strategic Defence Review identified the need for a rapidly deployable offensive air capability to meet the demands of expeditionary warfare, and the proposal was to integrate the Royal Navy's FA2 and the RAF's GR7 Harriers as a forward deployed carrier based force. The initiative aimed to build on the success achieved by the RAF and the Royal Navy in previous joint operations, such as the Gulf crisis of 1997-98, when the two British carriers, Illustrious and Invincible, embarked joint air groups, using the FA2s for defence of the Task Group and GR7s for offensive air support against ground targets. This is a truly novel concept, and although Britain has experienced difficulties with the serviceability of its Sea Harriers, and there were debates over the viability of such a force in anything other than low intensity conflict, once the Harrier replacement (in the form of the Joint Strike Fighter) and new carriers come into service, it will prove to be a useful capability in the type of expeditionary operations contemplated by Britain. At least prior to 11 September 2001, and the shift in the focus to a 'war on terrorism', Britain envisaged being increasingly involved in interventions in places such as the Balkans, East Timor, and Sierra Leone.[34]

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[33] Goulter, C.J.M. 'Air Power and Expeditionary Warfare' in P. Gray (ed) *Air Power 21: Challenges for the New Century* (London, the Stationery Office, 2000), pp. 183-207.

[34] *Ibid.,* pp. 203-6.

In helping people to think about jointery, the new emphasis on expeditionary warfare from the sea also witnessed much 'reinvention of the wheel'! During the early to mid-1990s, jointery was often presented as a new phenomenon, but the fundamental principles of jointery being espoused were no different from those thrashed out in the early stages of World War II. Indeed, it is often easier to go back and look at the World War II experience to see jointery in a raw state, unencumbered by the types of political and operational constraint more common today. Further, World War II experience offers some stark reminders of the dangers of doctrinal dogma, and having to rely on the heat of battle to forge jointery. It is no exaggeration to say that most of the early campaigns foundered largely because the Services had no concept of operating jointly (this is certainly true of the campaigns in Norway, the Low Countries, France and Greece). For the RAF, a pre-war doctrine preached strategic bombing virtually to the exclusion of all other types of aviation, with at least one pre-war Chief of Air Staff stating in open forum that air support was ' a gross misuse of air forces'.[35] World War II, of course, quickly demonstrated the requirement for all types of aviation, but with no doctrine covering support and maritime aviation, aircrews pressed into those roles after war broke out found that they had inadequate training, and no specialised aircraft or weaponry. Their only assets during the first years of the war were their courage and determination. However, nor were the other Services without fault. Years of inter-Service rivalry between the Navy and the RAF over ownership of carrier aviation meant that there had been little useful co-ordination between the two services prior to World War II, even though the relationship between the Navy and maritime aircrews at the grass-roots level had always been good. As far as the Army was concerned, it regarded aviation purely as a Close Air Support weapon, and was not content with anything other than immediate battlefield cover. As the war developed, the Army came to understand (as did the RAF) that gaining air superiority was the first prerequisite for any air or surface operation; that air support involved both direct and indirect support (including air interdiction); and that strategic air operation (whether bombing or blockade) could have an important impact on the land war. In the early stages of World War II, the Army also had the problem of not knowing precisely what to ask for in air support terms, so the confusion surrounding many of the early operations was partly due to this.

Space prevents a detailed examination of the early World War II campaigns, but quick reference to some of these is helpful in understanding the difficulties associated with building joint operations from scratch, especially during wartime. The bottom line to emerge from any of these campaigns is that if a nation goes to war with a doctrine that is dogma, many lives will be lost unnecessarily, for war is a very stern teacher. It is possible to join battle with the wrong doctrine, and still win, but this requires flexibility, to think and plan around the unexpected. However, doctrine invariably has training, equipment and weapons ramifications which cannot easily be rectified overnight, so although you may be prepared to admit to wrong doctrine, it may take years before an adjustment in thinking is matched by capability. The problem with air doctrine and those in senior positions straddling the late 1930s and early war years was a lack of flexibility. The Air Staff, almost to a man, were not prepared to admit that the RAF's prime raison d'etre (that is, strategic bombing) was not the be all and end all of air power.

As the serious campaigning unfolded in the spring of 1940, it was very apparent that jointery was not a feature of the planning process, at either end of the spectrum. The Supreme War

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[35] The CAS concerned was Sir Cyril Newall, in 1937. Terraine, J. *The Right of the Line: The Royal Air Force in the European War, 1939-1945* (Hodder and Stoughton, London, 1985), p. 64.

Council had decided that a British Expeditionary Force going to Norway would not be covered by the RAF, even though air power had been a key feature of the German campaigning style since the start of the war, and was a major player in the assault on Denmark and Norway (with the use of airborne forces and aircraft to seize key centres, airfields and ports in the latter case). Further, because the French and British forces sent to Norway had no air support of their own, they quickly became prey to the German fighters and light bombers (especially Ju-87s), which had quickly established a footprint ashore. The Germans, meanwhile, because they had near air supremacy (and not merely air superiority), could reinforce and resupply their forces virtually at will. When the RAF was finally called upon to provide an air contribution, it used obsolete bi-planes in a fighter role, for the RAF had no modern fighters to spare for out of area commitments. Fighter defence was not accorded significant status during the interwar years, the presumption being that Britain would always be in a position to launch the 'knock out blow' from the air before any enemy had a chance to launch its own bombing attack. The fact that Bomber Command had been lulled into a false sense of security, and did not have the means to mount a concerted bomber offensive against an industrialised nation such as Germany was not appreciated across the board in 1939–40. But, worse, when the gravity of the strategic situation in the Norwegian campaign became apparent, Bomber Command was pressed into service attacking mobile shipping targets (a role it had not practiced, even though the interwar Air Staff said that bomber aircraft could easily be diverted to fulfil this function if called upon), and Coastal Command was required to do long-range armed reconnaissance, even though it had no purpose designed anti-shipping training, aircraft or weaponry.[36]

However, it was in the Battle for France that Britain and France reaped the benefits of what one writer has called 'blindness, hysteria, dogma, credulity and, at times, sheer folly'.[37] There are many reasons for the Allied failure in France in 1940, on both the French and British sides, but, in the context of this discussion, one of the elements contributing to disaster was a lack of joint doctrine, especially air-ground co-operation doctrine, but, most fundamentally, the inability to hold onto air superiority. Building on the experience they had gained in Poland, Denmark and Norway, the Germans recognised the force multiplier effects of an air supporting arm in land warfare, and the important psychological impact that air power can have, not only against civilian populations, but opposing armies. The Germans had built an army co-operation doctrine which was applied to devastating effect in France. The first objective was to eliminate the opposition's air capability, then attacks would be mounted against Command and Control nodes and communications, and, after this had been done, the air component would swing into action in support for the land forces, acting as a spearhead. The main reason for Allied defeat in France was the Command and Control paralysis brought about, in large part, by the speed of the German attack, and the high operational tempo was achieved mainly through the use of the air arm. By saturating the battlespace, the Allies spent precious time trying to work out where the main German effort was coming from. The RAF and French Air Force had nothing to compare with this approach; neither air force had given any consideration to army co-operation work. In 1939, the British Army had requested the allocation of one squadron per division and one per Corps for air support, but nothing had been done by the time war broke out. Like the Norwegian experience, operational necessity demanded that some type of air contribution be made, but the initial capability was limited to two Hurricane fighter squadrons and ten squadrons of obsolete, under-powered light bombers (Fairey Battles), which had been rejected by Bomber Command as too slow and

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[36] *Ibid.*, pp. 115-8. See also: Goulter, C. *A Forgotten Offensive: Royal Air Force Coastal Command's Anti-Shipping Campaign, 1940-1945* (Frank Cass, London, 1995), esp. Chaps 3-4.

[37] Terraine, p. 118.

unmanoeuvrable for their purposes but were now being pressed into low level bombing attacks to try to stem the German advance. Opposed by German fighter and AAA defences, some Battle squadrons were almost completely wiped out. But, as one writer observes, fighters were the key at every stage of the Battle for France.[38] If the Combined Allied air forces had managed to retain air superiority, then the German aircraft could not have attacked French Command and Control facilities, neutralised French artillery and caused psychological dislocation among the infantry. An overly centralised Command and Control system among the French exacerbated the disaster for them; without Mission Command, the isolated pockets of French opposition quickly disintegrated under the weight of a simultaneous German air attack. The Battle for France was one of those campaigns that had major ramifications across the broad spectrum of military capability, including the air. The loss of over 900 aircraft was a serious blow for the RAF, and most significant was the destruction of 453 fighters (386 Hurricanes and 67 Spitfires). With the air superiority battle of its life just around the corner (the Battle of Britain), Britain could ill afford any fighter losses.

Perhaps the only ray of sunshine to come out of the disastrous campaign in France was the realisation that the RAF needed to rethink air support issues. An Army Co-operation Command was established in December of 1940, and there was some conceptual work going on between the Army and the air force, under the auspices of a Colonel (later Lieutenant General) Woodall, in conjunction with a Group Captain Wann. These two had served in HQ, British Air Forces France, and, coming out of their experience of the Battle for France was a system now recognised as the first truly effective means of co-ordinating the action of forward troops and supporting aircraft. Army officers would be sent forward in the battle in armoured cars, from which they would signal back requests for air support to a control centre manned by Army and Air Force officers. Such a system ultimately formed the basis of what would be known as Army Support Signals Units (ASSUs). But, there is no evidence that Woodall and Wann's work was circulated during 1940, and subsequent air support development in the Middle East seems to have been done independently. Meanwhile, nothing of substance came of the new Army Co-Operation Command in between the end of 1940 and more bad experiences, this time in the Mediterranean.[39]

In many ways, the Greek campaign of 1940–41 was even more of a stark reminder of the dangers of dogma. After the Italian invasion of Greece in October 1940, Britain had sent support initially in the form of a mixed squadron of Blenheims (fighter and bomber variants). As the threat of a German invasion neared, a land contingent was sent, and the air contribution increased gradually to over 200 aircraft. The Army and the Greek Commander-in-Chief, General Papagos, asked for the aircraft to be used in an air support role. However, the Air Officer Commanding the RAF component, Air Vice-Marshal D'Albiac, made it clear that the RAF was not going to do air support, and stated that his force would be best employed against Italian ports and Lines of Communication. So, in April 1940, when the anticipated German invasion of Greece occurred, the RAF doggedly carried on bombing the Albanian port of Valona, while German armour squeezed through narrow mountain passes on the border. Missing such an ideal opportunity to stop the German offensive, literally in its tracks, was criminal. Once German armour and infantry broke out into the Greek plains further to the south, it was all over. With air support, the Germans quickly gained air superiority, and, thereafter, no meaningful defence could be mounted. The British General in charge of the land effort, Wilson, had also made the fateful decision to pull back to the area

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[38] *Ibid.*, p. 161. See also Chaps 12-15 generally.
[39] Air Historical Branch Monograph, AHB/II/116/22 'Air Support'. See also Terraine, pp. 347-352.

just north of Athens, and this meant losing some vital airfields on the Thessalian Plain, being used mainly by Greek air force aircraft and RAF fighters. As British forces had already found out in North Africa, there was a very close relationship between provision of airfields and the ability to provide effective, timely air support. The loss of Greece led to much bitterness in Service circles. The charge coming from most quarters was that the RAF had let down the Army. The RAF countered by saying that the Army had failed to hold air bases and had, therefore, let down both itself and the air force. Whatever the arguments of the period, the Greek campaign had demonstrated a number of important points. Like the campaigns in North-West Europe, this was yet another uncomfortable reminder that the air had added another dimension to warfare. Like the earlier campaigns, the Allies had attempted to meet the German invasion with the old concept of line defence. With the advent of air power, zone defence became more significant than line defence. Second, the Allied forces had failed to understand that to move by day, on congested lines of communication, invited destruction in the face of an enemy possessing air superiority. Third, the RAF was to see that its communication system was faulty. Information had to be sent back from the front to Army HQ. From here, the information on the tactical and operational situation was sent to RAF HQ in Athens. From RAF HQ, orders were sent to fighter or bomber airfields, where the unit commanders had to co-ordinate their plans. Worse, it often took three to four days for detailed information to get to Army HQ, and orders from RAF HQ in Athens often took at least twelve hours to relay. Wireless Telegraphy was available, but ciphering was inadequate and mountains made reception difficult. In practice, it meant that air attacks had to be confined to heavily prescribed target lists, and short-notice air support was virtually impossible. This, as much as D'Albiac's preference for attacks on ports, led to the cries from the Army of Royal Absent Force.[40]

The commitment to Greece and especially the loss of over 200 aircraft destroyed any hopes of quick victory in North Africa. But, like France, the strategic stakes here were great (the potential loss of the Suez Canal and the Middle East oilfields). So, while it was possible to let Greece go, as uncomfortable as that might have been, North Africa was a high stakes venture. So, although the war in the desert faced many of the same steep learning curves as far as jointery is concerned, it was made to work in this theatre. This was the crucible of true jointery, and the principles which were hammered out remain universal.

The Greek saga coincided with Rommel going on the offensive in the Western Desert, and a handful of squadrons were pressed into trying to stem the German advance. Strafing and bombing of the German armour and supply columns did inflict serious casualties on the enemy, but there were some unfortunate 'blue on blue' incidents, which made the RAF very cautious about its support of the Army in the field. As one historian of the RAF has commented: the period 'April to September 1941 was time in the classroom. The next eleven months showed that time in the classroom does not automatically confer degree status. But there has to be a classroom, and, frequently, some disagreeable time has to be spent in it'.[41] During the spring and summer, there were to be some very disagreeable lessons for both the Army and the Air Force. These were centred on the two operations designed to relieve Tobruk: Operation Brevity (15–17 May) and Operation Battleaxe (15–17 June). Both operations proved to be premature, were inexpertly executed, and were complete failures. Nevertheless, some important lessons were learned. During Brevity, an argument broke out between the operational air commander, Air Commodore Collishaw, and the commander of

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[40]   Air Historical Branch Narrative, AHB/II/117/8, 'The Campaign in Greece', pp. 1-80 esp.
[41]   Terraine, p. 337. See also Air Ministry, *Air Support* (1955), pp. 47-55.

the land forces, Brigadier Gott. The land commander wanted the RAF to focus its attention on the enemy armour, acting as free-ranging artillery. Collishaw disagreed over this use of aircraft, arguing that when the Italians had attacked the British 7th Armoured Division with small bomb loads, these attacks had been ineffective. The RAF concluded that tanks were not good targets for the air, and that a better target would be enemy transport vehicles. Gott finally agreed, but the battle was too short to prove Collishaw's point. Then, during Battleaxe, air support clearly broke down. This was due to a complete breakdown in communications. There was a failure of the pre-arranged air-to-ground recognition system, as a result of the Army failing to respond to aircraft signalling. There was also the failure of wireless communications between forward troops and their HQ, and this resulted in a serious lack of information on enemy dispositions, so that it was impossible for the Army HQ to give the RAF even a conservative bombline. The RAF, for its part, said that it was extremely reluctant to bomb unless there was a clearly defined bombline. A major problem revealed at the time of Brevity and Battleaxe was that the Army was still labouring under the misconception that air support amounted to nothing more than immediate battlefield (umbrella) cover.

The two failed operations coincided with major changes in higher commanders in the desert, and this changeover had important implications for jointery. General Wavell was replaced by General Auckinleck, and, on the air side, Tedder replaced Longmore. Although Wavell had been a supporter of the RAF, and gave what support he could to Longmore when the latter was unfairly blamed for the poor performance of his minimal air assets, the relationship between land and air was to get much stronger under Tedder's tenure as AOC-in-C, Middle East. This is an important point about the influence of personalities in jointery. Especially in the early stages of jointery being forged, the determination of the top land and air commanders to make jointery work was to provide a very necessary foundation.

One of Tedder's first initiatives on taking over in mid-1941 was to bring together an Inter-Service Committee, based in Cairo, to examine air-land co-operation issues. As a result of this committee's work, a directive was issued in September of that year which made the first important step, by defining what exactly was meant by air support. Direct Support was defined as air support intended to have an immediate effect on current land or sea operations, while Indirect Support was support given to land or sea forces against objectives other than enemy forces engaged in the tactical battle. The latter included Air Interdiction of enemy Sea and Land Lines of Communication. The Inter-Service Committee recommended that joint exercises be carried out to help solve the problems associated with recognition and communication which had been a feature of all the engagements up to that date. This was impressive: while the main battle raged in the coastal regions of North Africa, elements of the Army and the RAF exercised together further inland. Out of this period of experimentation came the important move of creating a jointly staffed Air Support Control (ASC) headquarters. An ASC was to be provided for each Army Corps and for each Division, and each ASC was linked by two-way wireless telegraphy (usually carried in trucks) to brigades in the field. Each Brigade would have an RAF team, known as a Forward Air Support Link (FASL), and this had two-way radio to control the supporting aircraft and to receive tactical reconnaissance reports. This organisation allowed Brigades to make their requests for air support heard quickly. These requests were then evaluated by Air Support Control HQ, which, in turn, communicated directly with the airfields and landing grounds.[42]

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[42]   Air Ministry, *Air Support*, pp. 55-60.

This fledgling air support organisation was about to face a stern test. For both sides, the summer of 1941 was a time largely of preparation for what was expected to be the decisive engagement of the desert war: Tobruk. Rommel was intent on reducing it; Auckinleck was determined to relieve it. On the air side, the Germans had numerical superiority, but Tedder had to his advantage the services of Air Vice- Marshal Arthur Coningham, who had replaced Collishaw as the head of tactical air assets in the theatre. Coningham and Tedder became the chief architects of inter-Service co-operation, and, with Tedder's approval, Coningham set about refining the air support organisation just introduced. His first act was to set up his field HQ alongside that of his Army equivalent, Lt Gen Sir Allan Cunningham. The Air Vice-Marshal was firmly of the belief that, over time, air support had to emanate from his own Advanced HQ, not any further back. He argued that only in the field, with his Army equivalent alongside, could a true battlefield picture emerge, and for immediacy's sake, control of air assets did not need higher clearance, he argued.[43]

Operation *Crusader*, designed to relieve Tobruk, opened on 18 November 1941. Rommel allowed himself to be taken by surprise, and then engaged in spectacular, if unprofitable, manoeuvres. The Allies, meanwhile, failed to combine the fire of all arms instantly, but Coningham's desire to work closely with the Army was in no doubt. Demonstrating what would become hallmark energy, Coningham took advantage of some freak rainstorms which had waterlogged the German airfields, and many aircraft were caught on the ground. The RAF established air superiority very quickly, and the Army enjoyed the unusual spectacle of a sky full of friendly aircraft. Tobruk was relieved, and Allied forces were able to push on to Benghazi, but in what would become a familiar pendulum back and forth across the Western Desert, Rommel rallied and inside a week, he was back to a position just west of Tobruk. So, Crusader had been something of a 'Curate's Egg'. The new air support system had worked well, but there were deficiencies. Bombing had responded quickly to reports on the first day that German armour and transport was bogged down in soft ground. But subsequent days brought confusion, and the bombers found it increasingly difficult to distinguish between friendly and enemy ground forces. The RAF also had to wait for longer and longer periods for calls for air support from the Army formations, who were equally confused about their relative positioning. As the days wore on, the average time lag between a request for air support and the dropping of bombs on enemy positions was three hours. In that time, the mobility of the battle often meant that targets had been replaced by friendly forces, and there were many 'blue on blue' incidents. The problem was caused in large part by the large distances aircraft had to traverse to get from their bases to the battlefront, often as much as 200 miles. The solution advocated by Coningham was the use of a fighter-bomber, located much closer to the front line, and this prompted the introduction of the Hurri-bomber (a Hurricane fitted with a 250lb bomb). As 1942 opened, other, more suitable platforms came into service (such as the Beaufighter).[44]

The year of 1942 marked the turning of the tide against the Germans, in a number of respects in this theatre. While Coningham was perfecting air support over land, another important battle was being waged over the sea, against German Sea Lines of Communication. Like air support of the land battle, maritime aviation had suffered during the reign of strategic bombing doctrine, and 1942 was the first year RAF anti-shipping squadrons received specialised weaponry and effective platforms. In the meantime, Tedder had created a specialised 'naval co-operation' Group (No. 201) within the Middle East Air Command, and

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[43] Orange, V. *Coningham* (Centre for Air Force History, Washington DC, 1990), esp Chap 7; Air Ministry, *Air Support*, pp. 60-2.

[44] Air Ministry, *Air Support*, pp. 60-2.

this worked closely with the Navy in the tracking and attack on German merchant shipping and main units operating in the Mediterranean. Such was the efficacy of this inter-Service co-operation that, in the Spring of 1942, Rommel complained that he was losing up to 63 per cent of his supplies to Allied air and naval operations.[45]

The importance of maintaining logistics was highlighted during mid 1942, when Rommel resumed his offensive in the desert, pushing eastwards over the Libyan-Egyptian border. The advance was finally halted at El Alamein, a mere 60 miles from Alexandria. The air component played a major role in stemming the German offensive by attacking Rommel's supply lines. By advancing so far into Egypt, Rommel had over-extended his supply lines, and he exacerbated this problem by pressing on without the Luftwaffe's support. Steady attrition and hard campaigning during the previous months had reduced the Luftwaffe's serviceability to the extent that he had very few aircraft to cover his drive into Egypt. Rommel's decision to use the land component virtually alone to achieve his objective (ultimately to reach Cairo and Suez) was one he would come to regret bitterly. Not only were the British 8th Army's columns left to manoeuvre unhindered, but German surface forces were subjected to continuous harassment. This was yet another example of the importance of having air superiority to protect any surface campaign.[46]

While Rommel had, apparently, forgotten this basic tenet, the new British land commander, Gen Montgomery, not only grasped the importance of air power to his campaign but became an air power evangelist in a way that had never been seen. Tedder noted, with great satisfaction, how Monty put co-operation with the RAF as the first order of priority, and insisted that his HQ be co-located with Coningham's:

> It was most refreshing to find in Eighth Army Advanced HQ the embryo of a real operations room, copied directly from our own mobile operations rooms. I took it upon myself to tell the soldiers that it was the first sign I had seen of their being able to collect and sift information about their battle, and consequently the first sign I had seen of their being able to control it.[47]

General Montgomery's actual pronouncements on air power in support of the land battle put flesh on the bones of the air support system defined back in September of 1941, and it is worth quoting Montgomery at length, because the principles he identified remain good for today:

> I believe that the first and great principle of war is that you must first win your air battle before you fight your land and sea battle ... The second great principle is that Army plus Air ... has to be so knitted together that the two together form one entity. If you do that, the resultant military effort will be so great that nothing will be able to stand against it. The third principle is that the air force side of the fighting machine must be centralised and kept under Air Force command. I hold that it is quite wrong for the soldier to want to exercise command over the striking forces. The handling of an air force is a life study, and, therefore, the air part must be kept under Air Force command. There are not two plans, Army and Air, but one plan, Army-Air, which is made by me and the Air Vice-Marshal together. Next, the Army and Air Staff must sit together at the same headquarters. There must be

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[45] Goulter, *A Forgotten Offensive*, esp Chaps 2-5; Terraine, pp. 353-4.
[46] Air Ministry, *Air Support*, pp. 62-9.
[47] Quoted by Terraine, p. 379.

> *between them complete mutual confidence and trust. Each has to understand the*
> *problems and difficulties of the other.*[48]

Montgomery went on to say that 'confidence, trust, and integration of the two staffs' was quite remarkable, and he made the additional point that the Senior Air Staff Officer had, ideally, to be good friends with the Army Chief of Staff. He made the point that the joint machinery was so delicate that it could be thrown out of gear very easily.

Montgomery and Coningham went on to apply the perfected joint organisation to great effect in the coming months, achieving ultimate success in the Battle of El Alamein at the end of October. The battles of the late summer-early autumn represented the pinnacle of army-air co-operation in the Western Desert. It had been Rommel's intention to launch an offensive which would destroy the British Army at El Alamein, leaving the road open for a drive as far as Suez. Rommel tried tactics which had served him well in the past: covering attacks in the north, with his main effort swinging south, in this case towards the Alam Halfa Ridge. Each evening, Coningham and Monty had a meeting, during which the General gave Coningham the clearest possible appreciation of the situation, what he intended to do, and what he expected the enemy to do. The AOC then said what he could do himself, and then a general air plan was agreed upon. A further meeting would be held next morning to factor in events overnight. Coningham remarked that he had never received such a clear and concise exposition of the land situation and its requirements. The Army plan was to force the enemy to fight on ground selected and prepared by the defenders. The battlefield preparation was to be done by the air force. The enemy was to receive no respite; the bombing would be concentrated in the South, where the weight of the enemy attack was anticipated, and the bombing would go on day and night. This it did, over a nine day period. The German Afrika Korps diary recorded that not only was this bombing an effective battle technique, but that it had had a substantial impact on German morale. It stated that officers and men alike were badly shaken. Similar bombing operations were undertaken in support of the main El Alamein battle the following month, and complemented the artillery barrage being laid down by the 8th Army. Mopping up operations and attacks on targets of opportunity were done by fighter-bombers, and aggressive Offensive Counter Air operations were performed against Axis airfields. With air superiority, the RAF could harass at will the German forces as they attempted to retreat. From this point, the Germans were in almost constant retreat. A point that both Allied and German observers made at the time is that if you have air superiority, you generally have the initiative in any surface operation.[49]

Undoubtedly one of the great mysteries of World War II, as far as jointery is concerned, is why air-land co-operation took so long to work up in North-West Europe at the time of D-Day. There was an almost direct transplanting of the same senior field commanders (Montgomery and Coningham), yet Montgomery seemed to forget many of his own precepts. Having had air support at the forefront of his planning process in the desert, it dropped off the plot in the land planning for D-Day. This can be explained in a number of ways. The plan for D-Day itself had the land component advancing sufficiently far inland to capture enough flat ground for the provision of airfields, so that securing ground purely with air interests in mind was less of an issue. What Monty's plan overlooked, however, was the scenario whereby he would not be able to breakout of the beachhead easily, and had to call on air assets based back in England (which is what happened for the first three days of the Normandy campaign), thereby destroying ay hope of immediacy of response to events unfolding on land. Another

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[48] Quoted by Terraine, p. 380.
[49] Air Ministry, *Air Support*, pp. 69-74.

major factor explaining the lack of an adequate air-land co-operation plan was a falling out between Montgomery and Coningham, exacerbated by the provision of airfields issue, but stemming from the closing stages of the north African campaign, when Coningham felt that Monty was giving the air force insufficient credit to the air force for its contribution to victory in the Western Desert. What all this highlighted is the importance of personalities in any joint venture; if the senior commanders are not on good terms, then meaningful joint planning becomes difficult, if not impossible. It also underlines the importance of embedding joint structures, so that they are not tipped off-balance by the personality factor.[50]

What emerged from the World War II experience were a number of vital lessons in relation to jointery. It showed the importance of having a common language and a common understanding of each other's business, a co-located headquarters, where the broad brush and detailed orchestration of Service components could be planned and then adjusted as the battle unfolded. It underscored the importance of willingness to co-operate, and, perhaps most important of all, trust between the Services. It was clear from the World War II experience that effective jointery could not be manufactured overnight, and this highlights the danger of relying on the heat of battle to forge joint organisations. This latter point is aimed particularly at Britain, which has prided herself on extemporising in warfare, and all three of Britain's Services are guilty of what can best be called 'all right on the night-ism'. This criticism of the British Services may sound a little harsh, because they have been compelled to operate in this manner for many years due to financial constraints. But the danger of forgetting joint lessons from World War II was amply demonstrated during the Falklands War, where Britain had to relearn very painfully all those important lessons of the need for air superiority, sea control and joint planning. However, to end on a positive note, having to relearn joint lessons each time a war is embarked upon may be far less of an issue in the future, because Britain has made a concerted effort to embed joint structures throughout its defence organisation. Nevertheless, what Britain and any western defence force needs to continue guarding against is the 'silver bullet' solution or single-shot strategy; we saw what doctrinal dogma did in World War II (ultimately resulting in lives being lost unnecessarily), and this is why it is dangerous to view something like digitisation as the total solution to operational problems

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DISCUSSION

Warrant Officer Ian Kuring, Army History Unit: Dr Goulter, you mentioned about the US Marine Corps but perhaps you'd like to give your view on the US Marine Corps as being a joint force in it's own right?

Dr Christina Goulter: Yes. I have tremendous respect for the US Marine Corps actually. In fact, dare I say it, when I worked with the Americans I was always very, very impressed with my marine corps students. I realise I'm really skating on thin ice here simply because these guys were always very good at thinking flexibly and thinking outside the box. Whereas perhaps the other services, again because of their physical size, were greatly constrained by their doctrine and had difficulty thinking flexibly. Now, I realise it's all relative because, of course, the US Marine Corps has a size of 72,000-odd. You know, by our standards that's still

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[50] For a good discussion of the Normandy period and the tensions between Monty and Coningham, see Vincent Orange's work, *Coningham*, especially Chapter 15.

fairly substantial. But these guys, because they're small, they're used to thinking about jointery. That's their business. At that level I have a tremendous respect for them.

But I always found it fascinating. There was one instance again where a particular general, when it came to their exercises, made the comment to the navy, 'Well, we're going to do exercises. If you guys want to join us, that's fine by us, but don't expect great invitations'. I found that intriguing. Very joint within the confines of their own service, but when it comes to interoperability, especially in a coalition context, it is problematic. But I have a lot of time for the US Marine Corps—very good at thinking through. We were talking about, you know, the genius of the commander. Some of the sharpest thinkers I've seen have been marine corps guys. Yes, good question.

Unidentified, Aerospace Development. You mentioned very early on in the piece about your opinion that perhaps joint education and training should start from an earlier age in the profession. In Australia we actually don't do that. We have a joint staff college, we have optional joint warfare courses at ranks below the rank of major or equivalent of other services. The idea behind that is that as an army officer I bring to the joint table my land speciality. Would you like to comment on the education below the staff college level?

Dr Christina Goulter: Yes, I think that's interesting. The main point I was driving at was my concern that if you turn everything joint there is a slight danger that you don't have a grasp or an appreciation sufficiently of your own service to contribute adequately to joint operations. I'm a bit of a voice in the wilderness on this. You know, occasionally I get hit over the head by the commandant of my outfit. But it's just a personal point of view. You were talking about other ranks and joint education?

Unidentified: (inaudible)

Dr Christina Goulter: Yes. We see it increasingly in Britain at flying officer and flight lieutenant level, things going increasingly joint. In fact, there's a great pressure to reduce a lot of the single component phases, which I think is a little dangerous.

Unidentified: Dr Goulter, I was fascinated by what you said. I'm a retired air force officer, not Greek, British, working for BAE systems. I almost hesitate to you a question which will get me fired. I was fascinated also to hear you talk about the way people think. At a conference like this, which has made us all think a great deal, I think it's clear that we have a history as military men of thinking, for want of a better phrase, in straight lines. In today's environment there's an increasing need, it seems to me, for people who can think, to use your phrase, outside the box. As someone involved in the education of military men, can you give us some idea as to how you can promote that kind of thinking?

Dr Christina Goulter: Yes, it's a very good question and I think somebody else was touching on this. I believe, and I suppose I would say this as a military historian by training, one of the greatest ways of developing flexibility of mind is to get people to look back at historical examples like World War II and see how various people have coped with particular situations. I think in this respect the American service education has a bit of jump, certainly on the British service education. The Americans have always used historical case studies in their service education and have got some very good programs. I really do think that this is one of the best ways of developing flexibility of mind. This is why I rant against my colleagues, perhaps the international relationists and political scientists who dismiss history as a reference

point because they're unable to have that sort of flexibility of mind. But really that I would offer as one of the best ways of developing a sort of conceptual toolbox for dealing with anything that might be thrown at you. Perhaps if we look at people like General Paton and some of the greats in military history have always said, you know, 'Look back to see what's happened before as a way of developing a healthy mindset' and I really do believe in that. Thank you, good question.

Maurice Horsborough: Dr Goulter, I think you are the third person to mention at the conference that we won the war referring to Gulf War I. I'm just wondering how we define having won and is there degrees of winning? I'm just looking at since Gulf War I Maggie Thatcher's gone, John Major's gone, President Bush senior's gone, Bill Clinton's gone, Suddam Hussein is still there, and according to news reports he's number one in the charts of the popularity charts. Then since then we've had Gulf War II which is more or less ongoing on a fairly daily basis but it's never reported. Now, according to President Bush and Donald Rumsfeld we're very soon going to have Gulf War III which can escalate into a nuclear confrontation. I wonder if you'd like to just comment on that, please? Thank you.

Dr Christina Goulter: Yes, that's very topical, of course. If you look at a lot of the senior commanders who are out in the Gulf, you know, there was this frustration that, we weren't able to finish the job against Saddam. But I think, you know, I'm a great Clauswitzian here where you must, if you've got a defined end state you must stick to the political objective. And the stated objective was, of course, liberation of Kuwait. If it had pushed on beyond that you would have seen the coalition, particularly the Arab nations, you know, splitting off. That, of course, was the great worry, having the Arab nations flying off because they were not accepting of the idea of going into Iraq and really them a thrashing. But if you look at Schwartzkopf and many of the senior people, they felt at the time that it was very wrong to have stopped the war when they did. They were on a roll. But, again, it sort of gets back to victory fever. You have to be a bit careful. Stated political objectives, given the context of the time, I think it was right to draw stumps. But if in the course of that conflict, if we'd managed to hit Saddam when he was travelling around in his Winnebago, if we'd managed to drop a bit of ironmongery on his head, you know, we would have been perfectly happy.

Of course, we couldn't say that as a sort of stated objective. You know, democracies aren't supposed to go for leadership. But it is a problematic point and, again, it's one of these tensions particularly between the sort of military and civilian side of the house that you see. I understand the frustration from the military side of the coin. If you look at the Iraqi Republican Guard, they'd been seriously demoralised by the B52 operations against them. There was a lot to suggest that, you know, if we'd been able to push the advantage we could've got the job done. But given the nature of the stated political objectives, we couldn't have done that. Thank you.

THE AFGHANISTAN EXPERIENCE

DOCTOR ALAN STEPHENS

Operation *Enduring Freedom* is the fourth theatre-level campaign fought by American-led coalitions in the past eleven years, the others being Operations *Desert Storm* against Saddam Hussein (1991), and *Deliberate Force* (1995) and *Allied Force* (1999) against Slobodan Milosevic. Like its predecessors, *Enduring Freedom* has been characterised by an overwhelming and extraordinarily one-sided application of aerospace power, which in each case impelled the enemy's leadership to capitulate following a series of debilitating strikes against strategic targets, including the opposing land forces. So successful has this model been that in two of the campaigns (*Deliberate Force* and *Allied Force*) no substantial commitment of Western armies was needed, and in a third (*Enduring Freedom*) modest numbers of Western soldiers have thus far been sufficient, and then have been needed only after Al Qaeda's and the Taliban's main strongholds were broken by air strikes.

As was the case with the other campaigns, *Enduring Freedom* was preceded by a chorus of alarm from doomsayers who asserted that, notwithstanding the evidence of the past decade, aerospace power could not break a strong, determined army. It needs to be said that in this instance, those commentators who raised the spectre of the Soviet Union's military disaster in Afghanistan between 1979 and 1989 as a caution against the West mounting a campaign against Al Qaeda and the Taliban revealed nothing more than their own dismal knowledge of both the degenerate condition of the Red Army in the 1980s and the capabilities of modern aerospace power.[1]

In a number of important aspects the air campaign in Afghanistan was not new, but simply represented the latest stage of a continuum which previously had progressed from Iraq to Bosnia to Kosovo, and which for the time being resides in Afghanistan. Ideas may have been refined, concepts of operations extended, and technologies enhanced, but essentially the template was the same, as was the end result.

This paper will concentrate on those military aspects of Operation *Enduring Freedom* that seem to have been new, or different, or particularly significant. Special reference will be made to air warfare, and to the campaign's relevance to the defence of Australia.

THE WESTERN WAY OF WAR

Al Qaeda's attack on America on 11 September 2001 was shocking but it should not have been surprising. Many security analysts had been predicting some kind of devastating terrorist/asymmetric assault on the West for decades. Now it has happened and it will almost certainly happen again. Consequently, the nature of homeland defence has changed forever, for all countries, regardless of their size and wealth. In particular, states can no longer rationally endorse a national defence strategy predicated on an essentially defensive outlook.

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[1]   Of the 642,000 Soviets who served in Afghanistan 484 685 became casualties, with 15,000 listed as dead or missing. Of the total casualties, 415,932—86 per cent—were attributed to disease. That is an astonishing number and is indicative of an army with appalling health and safety practices; that is, of an army in decline.

That approach not only concedes the initiative to an aggressor, but also allows him to prepare and grow strong in his own time. 'Homeland Defence' will be a credible catch-phrase only when it incorporates the commitment and the military capabilities to go out and destroy the enemy, wherever his bases and strength may be. Waiting for something to happen is not an option.

Australian Defence Minister Robert Hill acknowledged the nature of that change in a recent speech to the Australian Strategic Policy Institute. Noting that contemporary threats arise 'with little warning and in unpredictable forms', Senator Hill stated that the Australian Defence Force must be capable of deploying faster, more often, at shorter notice, and for longer periods.[2] His assessment has clear implications for force-structuring.

Regardless of the nature of the enemy, warfighting in the twenty-first century will be typified by mobility, speed, the precise application of lethal force, and the ability to fight at a distance, all enabled by a swift and dominating flow of information. Those features are consonant with the preferred model of warfighting which has evolved in the West since World War II. In general, the Western way of war has been characterised by systematic organisation complemented by individual initiative at the fighting level, and massive and concentrated killing power derived from the exploitation of the most advanced technology.[3] Although developed initially in general and limited wars, that approach is likely to be maintained against terrorists who use a state apparatus to shelter behind, but who can be separated from their sponsors by such means as precision bombing (as has been the case with Al Qaeda) and who are then vulnerable to hostile elements within that state (as was the case with the Taliban).[4] Many of the world's potential trouble spots fit that model, including Iraq, Iran, and the Sudan.

Increasingly, the 'advanced technology' component of the Western way of war means 'aerospace power'. (Indeed, it was ironic that once air power had rapidly routed enemy concentrations in Afghanistan, the allied commander, army general Tommy Franks, was reportedly criticised by American Defence Secretary Donald Rumsfeld for his excessive caution in employing ground forces against the remaining pockets of Taliban and Al Qaeda fighters.)[5]

Presently only the US can fully apply the form of advanced military power described above, and very few countries possess the skills, qualities and resources to develop the necessary capabilities within the next twenty years. But for those that do the goal is now more achievable than ever before.

The essential ingredients are a highly-educated workforce, a strong indigenous technological base (including defence research and development), a resilient economy, a close security relationship with the US, and a robust air power tradition. (It has been suggested that only liberal democracies enjoy the social conditions needed to develop and to properly exploit advanced aerospace power, a proposition which seems to be validated by the history of air

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[2]   'ADF must be able to move fast: Hill', in *The Canberra Times*, 14 March 2002, p. 3.
[3]   James Kurth, 'The War and the West', in *Watch on the West*, Foreign Policy Research Institute, Volume 3, Number 2, February 2002.
[4]   The term 'general war' is used to describe global conflicts such as World Wars I and II, while 'limited war' defines geographically constrained conflicts such as Korea, Vietnam, the Six-Day War, the Falklands, and so on.
[5]   'General's Caution Dismays Rumsfeld', in the *London Sunday Telegraph*, 24 March 2002, p. 15.

warfare.)[6] In the near-term the handful of nations that satisfy those criteria should benefit from tremendous advances in at least the following technologies: miniaturisation, which reduces costs and increases payloads of aeroplanes, uninhabited aerial vehicles (UAVs), missiles and satellites; low observability; communications (including real-time data sharing); information collection; and knowledge dissemination. Those kinds of developments will make the required architecture both more accessible and cheaper. In other words, the fundamentals of a twenty-first century defence force based on asymmetric aerospace power will be affordable as long as budgets are not diverted to legacy capabilities.

Australia is one of the handful of countries capable of taking advantage of this dominant way of warfighting.

THE AIR CAMPAIGN

Operational concepts in Afghanistan generally followed those apparent in Iraq and the Balkans but there were some distinctive features. Control of the air was a prerequisite for almost every other activity on air, land and sea, as it has been with the Western way of war for more than half-a-century. On the evidence of the past ten years, no state or organisation can realistically hope to challenge any American-led coalition's aerospace supremacy inside the next two decades at the least.

Once control of the air had been seized, or perhaps more accurately conceded, and the battlespace therefore secured, air strikes were made against those targets considered most likely to precipitate the collapse of the enemy regime. Undermining the Taliban and Al Qaeda leadership was the objective, and it would seem that, in the prevailing political, economic, cultural and military circumstances, the need to kill or demoralise large numbers of their armed followers was (properly) identified as the centre of gravity. The issue then became one of finding, tracking and targeting those followers, which in turn led to the most notable operational innovation from *Enduring Freedom*.

This was the vastly improved networking between air and land forces, especially heavy bombers and special operations troops, elements that in the past might have seemed mutually exclusive. Ground-based forward air controllers have been a feature of air/land warfare since World War I but *Enduring Freedom* raised the practice to a new level. Like blitzkrieg in 1939–40, the key was not so much the associated technologies, which already existed (satellite communications, global positioning system, laptop computers, portable laser range finders, digital map displays, and so on), but rather original ideas on how to exploit those technologies. One of the lasting images from Afghanistan is of a special forces soldier leaping off his horse, setting up his communications equipment, and punching coordinates into his laptop computer to relay to a B-52 crew orbiting ten kilometres above, telling them where to drop their bombs onto nearby terrorists. The matchless asset of the man-on-the-ground was being integrated in real-time with the de facto mass of irresistible air-delivered precision firepower.

According to the then-commander of the air war, USAF General Charles F. Wald, the rapid advance of United Front (popularly known as the Northern Alliance) troops in early

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6   For an examination of this proposition see Lieutenant Colonel Charles M. Westenhoff, 'Air Power and Political Culture', *Air Power Studies Centre Working Paper No. 42*, Air Power Studies Centre, Fairbairn, 1996.

November 2001 after weeks of inaction was largely made possible by the targeting provided by 'three or four [special forces] guys' on the ground.[7] Secretary of Defense Donald Rumsfeld took the argument further, stating that the turning point in the war came a month after the start when special operations target-spotters began to call-in 'precise and devastating' B-52 raids on Taliban frontlines. Mazar-i-Sharif fell within ten days, quickly followed by Herat and Kabul. 'Each place [the deployment of ground spotters] happened, the results got very good, very quickly', Rumsfeld noted.[8]

Aerospace power in Afghanistan attacked enemy soldiers individually, in large formations, on foot, in vehicles, inside trenches and caves, and in fortified buildings. Close support was commonly conducted from stand-off ranges, day and night, and in all weather, almost invariably with exemplary precision. Never before has such timely and lethal offensive air support been so possible, so effective and, for all concerned except the enemy, so relatively safe.

Timely and informed targeting nevertheless remained a challenge, as it had in Iraq and the former Yugoslavia. Extreme aversion to unintended consequences within the American high command resulted in a highly-constrained target selection and approval process, one notable consequence being a squandered opportunity to kill Mullah Omar while the man-on-the-spot with his metaphorical cross-hairs on the Taliban leader had to wait too long for approval to press the trigger. Overall, however, the need to balance operational opportunities against international political sensibilities seems to have been reasonably well-managed. It was certainly better managed than was the case during *Allied Force*, where the initial requirement to have every proposed target approved by each of NATO's nineteen foreign ministers made the early stages of that air campaign almost unworkable. It seems no coincidence that during the critical phases of *Enduring Freedom* the Americans signalled their preference to go-it-alone by neither seeking nor waiting for allied participation in the air strikes. There are several strong messages here.

If there is one over-riding lesson to be drawn from targeting in Afghanistan it is that air campaigners (a title that should not be confined to members of air forces) need to think more about how to destroy armies.[9] Air power theory historically has stressed so-called 'strategic' targets such as the industrial infrastructure, war-making potential, power supplies and so on, and has either explicitly or by omission downplayed the significance of fielded forces. But in Afghanistan it was clear that those fielded forces were the enemy's centre of gravity, and that if they were broken then in all probability so too would be the ruling elite. A similar judgement might apply to the regimes in Iraq and North Korea, and possibly to others. The point here is not to emphasise fielded forces at the expense of other targets, but rather to bring them more enthusiastically into the total equation.

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[7] Cited in Thomas E. Ricks, 'Bull's-Eye War: Pinpoint Bombing Shifts Role of GI Joe', in *The Washington Post*, 3 December 2001, p. A01. See also Michael R. Gordon, 'New U.S. War: Commandos, Airstrikes and Allies on the Ground', in *The New York Times*, 29 December 2001.

[8] Cited in Thomas E. Ricks, 'Rumsfeld's Hands-On War', in *The Washington Post*, 9 December 2001, p. A01.

[9] Not a lot has been written about this. One notable exception is Lieutenant Colonel Phil M. Haun, 'Airpower versus a Fielded Army', in *Aerospace Power Journal*, Winter 2001; see also Lieutenant Colonel William F. Andrews, *Airpower against an Army*, Air University Press, Maxwell AFB, 1998. In an argument rejected by many airmen, Robert Pape, *Bombing to Win: Air Power and Coercion in War*, Cornell University Press, Ithaca, 1996, suggested that historically air power has been most effective when applied against armies rather than against the theorists' preferred 'strategic' targets.

Turning to technology, and starting with platforms, two factors prompted an emphasis on heavy bombers at the expense of strike/fighters. The first was the remoteness of the theatre and the political and logistical difficulties of obtaining suitable nearby bases; the second was the desirability of using aircraft with long endurance which could loiter overhead, waiting to be called into action by ground spotters against suddenly-appearing ('flexible') targets. Consequently, by February 2002, the USAF's B-1 and B-52 heavy bombers, while flying only 10 per cent of all strike missions, had dropped 65 per cent of all munitions and 89 per cent of Air Force munitions, and in the process had damaged or destroyed 75 per cent of all planned targets.[10]

As a direct consequence of the forced reliance on distant bases, debate over whether the B-2 production line should be reopened once again flared-up in America.[11] B-2 bombers (or B-1s or B-52s) supported by an armada of air-to-air tankers are not, of course, an option for anyone other than the US. It therefore follows that platform range and/or basing flexibility must be key considerations for any other defence force seeking to acquire a twenty-first century order of battle. In that context, the short-takeoff and vertical-landing (Stovl) F-35 Joint Strike Fighter (JSF) represents an interesting generic capability.

Stovl would provide unequalled operational flexibility for both air combat and strike. Fixed bases have been air power's Achilles' heel since World War I, first because they identify the places from which operations can be mounted and the distances aircraft can penetrate; and second because they are large, easily-found, high-value targets. And the Afghanistan campaign highlighted another troublesome dimension, related to the age of intervention, namely, the sensitivities associated with any requirement to establish large, fixed, highly-visible bases in politically uncertain states. Some thirteen such bases have been constructed to support Operation *Enduring Freedom*, almost all in countries where a Western military presence can cause violent resentment.[12] Air-to-air refuelling provides an answer to part of the first problem but brings with it more expense and complexity and new vulnerabilities. The capacity that Stovl offers for operations from a vast range of localities redefines the notion of flexibility.

The introduction of a Stovl strike/fighter into an order of battle might also encourage greater flexibility in meeting the always-challenging task of logistical support, with perhaps more use being made of short-takeoff and landing fixed-wing airlifters capable of operating from unsealed surfaces (for example, the C-130, C-27, CASA-235), heavy-lift helicopters, and airdrops. Similarly, the Expeditionary Combat Support Squadrons introduced by the RAAF several years ago to sustain deployments in Australia and overseas, from primitive locations if necessary, would complement the concept.

Manned air platforms might have been the decisive capability in Afghanistan but in terms of headlines they were surpassed by their unmanned counterparts. UAVs were the technological

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[10] See 'Afghan War Will Shape Future U.S. Military Structure', Stratfor Strategic Forecasting, http://www.stratfor.com.home/0110232100.htm, viewed 26 October 2001; William Arkin, 'Old-Timers Prove Invaluable In Afghanistan Air Campaign', in the *Los Angeles Times*, February 10, 2002; and Marty Kauchak, 'Focus on OEF's Air Campaign', in *Armed Forces Journal International*, March 2002, p. 20. B-2 bombers may have made a small contribution to those heavy bomber statistics.

[11] James Dao and Eric Schmitt, 'New Pentagon Debate Over Stealth Plane', in *The New York Times*, 11 December 2001.

[12] William M. Arkin, 'U.S. Air Bases Forge Double-Edged Sword', in the *Los Angeles Times*, January 6, 2002. Preliminary research and development has also begun into a proposed quiet supersonic bomber, the 'B-X', which might be fielded in about 2037.

success story of Operation *Enduring Freedom*. In the same way that the Gulf War ten years previously revealed the enormous importance of precision guided munitions (PGMs), Afghanistan has revealed the immense potential of UAVs, both for information operations and strike. Costing less than piloted aircraft to acquire and operate and able to fly into the most hostile environment without placing friendly lives at risk, UAVs are 'tailor-made for the fiscal and military realities of the twenty-first century'.[13] The only problem with UAVs in Afghanistan was that there was never enough of them.

UAVs have been employed to collect information for decades but in Afghanistan their contribution reached new levels. Compared to satellites, UAVs provide higher quality imagery, revisit targets more often, and can be directed to a specific task more quickly. According to General Franks, the Predator UAV has been his 'No. 1 sensor' for tracking down Al Qaeda.[14] Information frequently has been exploited in real-time: for example, during the campaign USAF technicians developed a process for feeding surveillance data direct from a Predator into an AC-130 gunship's fire-control computer for immediate targeting.[15]

But notwithstanding the UAV's enormous intelligence utility, it has been as a weapons system—as an uninhabited combat air vehicle (UCAV)— that the platform has primarily captured attention in Afghanistan.

UAVs were first used offensively in Vietnam, when Ryan Firebee drones dropped bombs and fired rockets, but to little effect. A vastly greater effect has been generated some thirty years later in Afghanistan where Predators hastily modified to carry two laser-guided Hellfire anti-tank missiles have contributed to some notable battlefield successes. Such was the urgency to arm the Predators that initially missiles were jury-rigged to the aircraft's wings and the laser designator was literally taped to the nose.

Rapid progress continues to be made. The USAF officially formed its first armed Predator squadron on 11 March 2002. Additionally, an order has been placed for two prototype Predator Bs which, powered by a turbine engine rather than their predecessor's piston engine, will have significantly enhanced performance. Likely features include either optical or synthetic aperture radar sensors, a laser designator, an endurance of 24 hours, a speed of 220 knots, and an operational ceiling of around 50,000 feet.[16] Predator B's external weapons load of 1360 kilograms could include eight Hellfire missiles (compared to its predecessor's two), anti-radiation missiles, or air-to-air missiles.[17] Up to ten miniature cruise missiles with a range of 120 kilometres might also be added to the inventory.[18]

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[13] Nick Cook, 'Out in front', in *Jane's Defence Weekly*, 16 January 2002, pp. 23-7.

[14] Russ Mitchell, 'The Pilot, Gone. The Market, Huge', in the *New York Times*, 31 March 2002.

[15] The success of the AC-130s against mobile and moving targets should not be surprising. Thirty years previously, in Vietnam, AC-130s fitted with low-light television and infra-red sensors which were linked to a targeting computer were highly effective. From January 1968 to April 1969, for instance, AC-130s flew 4 per cent of the total sorties against moving targets and were credited with 29 per cent of the destroyed or damaged trucks. The AC-130's weapons consisted of two 20mm cannons, two 40mm cannons, and a 105mm howitzer.

[16] 'Predator B UAV packs a substantial punch', in *Jane's International Defense Review*, February 2002, p. 21. Predator B's optical sensor will be capable of watching individuals at a distance of 90 kilometres.

[17] Glenn W. Goodman, Jr., 'Missile Firing Drone', in *The ISR Journal* (an Armed Forces Journal Global Publication), 2002/Issue 1, pp. 36-8. Other possible weapons include: high-speed anti-radiation missiles, Maverick air-to-surface missiles; small diameter bombs; and Sidewinder and AMRAAM air-to-air missiles.

[18] David A. Fulghum, 'New Missiles Sought For Upgraded Predator', in *Aviation Week & Space Technology*, February 25, 2002, pp. 30, 35.

In the context of the Australian way of war, special reference should be made to the Boeing X-45 stealthy UCAV, not so much for its particular qualities but rather, like the Stovl JSF, for the generic capability and force structuring trend it represents. Current projections suggest that the X-45, which is expected to enter limited operational service with the USAF in 2008, will cost about one-third the price of a fifth-generation fighter, and that the initial models will be capable of striking fixed, pre-programmed targets at a radius of around 1600 kilometres.[19] Follow-on models should have greater range and be capable of responding inflight to pursue time-critical targets of opportunity. The X-45's internal weapons bay (which, interestingly, will have the same dimensions as the F-35's) will be able to carry either two 450-kilogram joint direct attack munitions (JDAM) or twelve small diameter bombs (SDBs).

Preliminary USAF concepts of operations envisage formations of X-45s undertaking the high-risk mission of clearing a path through hostile air defence systems, enabling trailing piloted aircraft to exploit their superior flexibility to attack key targets.[20] For the Australian Defence Force, deep strike may also be a role worth considering. A modest on-line fleet of twenty X-45s, for example, flying two sorties a day (a reasonable assumption given that aircrew numbers and fatigue would not be limiting factors), with each aircraft carrying twelve SDBs, would be able to drop 3360 bombs in one week, a figure which makes an interesting comparison with the 1026 weapons dropped in total during the three weeks of Operation *Deliberate Force* in 1995.[21]

The combination of capabilities inherent in a fleet of platforms like the X-45 and the Stovl F-35, armed with precise weapons and enabled by knowledge supremacy, should be of intense interest to small- to medium-sized air forces wishing to construct a twenty-first century order of battle.

We should note that a diverse range of UAVs is currently under development around the world, varying from insect-sized models fitted with miniature cameras, to small helicopters that can lift a wounded soldier, to the Global Hawk with its intercontinental range. Given the recent combat successes of unmanned vehicles, it is certain that they will continue to proliferate and increase in importance. It is a message no advanced defence force can afford to ignore.

A platform is, however, only one component of any weapons-system matrix. Regardless of whether an aircraft is manned or unmanned, it must be armed with the right munitions. Precision is the key, and here the trend is unambiguous. Smart munitions comprised about 9 per cent of all bombs dropped in the Gulf, 35 per cent in Kosovo, and 60 per cent in

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[19] Michael Sirak, 'UCAV programme nears first flight', in *Jane's Defence Weekly*, 6 March 2002, p. 9; Robert A. Wall and David A. Fulghum, 'UAVs Spotlighted as Defense Priority', in *Aviation Week & Space Technology*, 11 February, 2002, p. 26; and 'X-45 UCAV pumps iron for its next bout', in *Jane's International Defense Review*, April 2002, p. 11. It has been suggested that the X-45 might be fast-tracked with the objective of deploying 14 aircraft in 2003: see Robert Wall, 'Air Force UCAV Design Reworked', in *Aviation Week & Space Technology*, 25 February 2002, pp. 28-30.

[20] An alternative concept is being developed by French companies Dassault Aviation and Sagem, who envisage an advanced manned strike/fighter such as the Rafale flying into combat accompanied by a formation of miniature UCAVs which the Rafale pilot would despatch on 'search-and-destroy' missions on an opportunity basis. See John Brosky, 'French Flying Fast to Win Share in UCAV Market', in *DefenseNews*, 29 April–5 May 2002, p. 8.

[21] It is also noteworthy that during *Deliberate Force* Nato aircraft prosecuted a total of only 48 targets. Statistics from Robert C. Owen, *Deliberate Force: A Case Study in Effective Air Campaigning*, Air University Press, Maxwell AFB, 2000.

Afghanistan.[22] And we can expect that figure to continue to rise, as today even a few soldiers in a trench are often regarded as a worthwhile target for a PGM.

Increased accuracy is being complemented by increased utility. Eleven years ago in the Gulf War, all precision bombs were laser-guided, a technology which is weather-limited because of the need to see the target and to illuminate it with the laser until weapon impact. By contrast, a large proportion of the bombs dropped so far during *Enduring Freedom* have been all-weather, satellite-guided JDAMs, which means strikes can be conducted in almost any conditions.[23] One such attack took place in March 2002 against some 1000 to 3000 enemy troops who had retreated into the mountains southeast of Kandahar and who expected to be sheltered from air strikes by the extreme winter weather. Instead, they were subjected to an intensive and sustained bombing campaign which enjoyed a 'tremendous' degree of tactical surprise.**[24]**

As of mid-April 2002 more than 22,000 bombs and missiles had been dropped in Afghanistan, about the same number as in the Balkans and about one-tenth those dropped in Iraq. Some 75 per cent reportedly destroyed or disabled their targets, compared to about 45 per cent in the Gulf and the Balkans.[25]

Most of the bombs weighed either 900 or 450 kilograms, dimensions which have been standard for years. But that is likely to change. Because air-delivered munitions have become so accurate, much smaller weapons could be used to generate the same effect. Air commanders consequently are seeking the expedited production of precise 230- and 110-kilogram bombs which will not only reduce collateral damage but will also allow a given platform to carry more weapons and strike more targets each mission. The small diameter bomb for example, a PGM which is expected to enter the USAF's inventory in 2006, will dramatically boost the capacity of small air fleets to prosecute punishing strikes. Typically, a stealthy strike/fighter able to carry two 450-kilogram bombs will take twelve SDBs. Subsequent versions of the SDB may be reduced to 45 kilograms, thus further increasing bomb loads, and may be capable of loitering overhead an area, having been programmed with specific rules of engagement and targeting information.[26]

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[22] Eric Schmitt, 'Improved U.S. Accuracy Claimed in Afghan Air War', in *The New York Times*, April 9, 2002.

[23] 'Fly By Night', in *Aviation Week & Space Technology*, 18 March 2002, p. 23; and Eric Schmitt, 'Improved U.S. Accuracy Claimed in Afghan Air War', in *The New York Times*, 9 April 2002. By April some 6650 Jdams had been reportedly dropped in Afghanistan, with B-2s dropping twice as many as all other aircraft combined.

[24] David A. Fulghum, 'U.S. Troops Confront Al Qaeda In Vicious Mountain Battles', in *Aviation Week & Space Technology*, March 11, 2002, pp. 24-5.

[25] Eric Schmitt, 'Improved U.S. Accuracy Claimed in Afghan Air War', in *The New York Times*, 9 April 2002; and 'U.S. Bomb Campaign Most Accurate Ever', in Aviation Week's www.AviationNow.com, 10 April 2002. Immediate post-operation bomb damage assessments like this one are, however, historically notoriously unreliable.

[26] At least two variants of the SDB are planned, one guided by GPS for use against fixed and stationary targets, and another with a terminal-seeker and an automatic target-recognition system for use against mobile targets. As an illustration of the effect SDB could have on campaign planning and target prosecution, the B-2, which can carry 16 joint direct attack munitions, may carry 324 SDBs. See Nick Cook, 'SDB to expand into WASAAMM (wide area search autonomous attack miniature munition)' in *Jane's Defence Weekly*, 10 April 2002, p. 3. Furthermore, the Israeli Defence Force's experience fighting in dense urban environments has shown that an F-16 strike/fighter armed with a PGM causes less collateral damage than artillery, tanks, or combat engineers with explosives: see David A. Fulghum and Robert Wall, 'Israel Refocuses On Urban Warfare', in *Aviation Week & Space Technology*, 13 May 2002, pp. 24-5.

The war in Afghanistan has hastened the development of a variety of other new weapons. Within three months of the attacks on the World Trade Center and the Pentagon, American scientists were field-testing a bomb designed specifically to penetrate the cave complexes favoured by Al Qaeda as hideouts. Intended to generate massive overpressure and to deplete caves of oxygen, the first of these 'thermobaric' bombs was dropped from an F-15 early in March, only seven months after the requirement was identified. (Incidentally, the use of that prototype weapon once again illustrated the over-riding importance of possessing an indigenous defence research and development organisation.)

The USAF has also announced its intention to install a high-powered microwave weapon on a stealthy UCAV by 2012.[27] A feature of high energy microwave and laser weapons is their so-called 'infinite precision', a quality that should minimise collateral damage to people and structures, thereby alleviating many of the restrictions imposed on high-explosive weapons by existing rules of engagement. The physics of these weapons suggests that microwaves will be especially useful against hardened and dug-in targets, and lasers against heat-sensitive targets.

Other priority weapons research has focused on foliage-penetrating radars, micro-UAVs, and non-lethal anti-personnel stun guns.

Information, Surveillance, Reconnaissance

If air platforms are incomplete without the right munitions, then in turn the right munitions are incomplete without precise information. A 'smart' bomb that falls on the wrong target is in fact a dumb bomb. As the aphorism has it, 'air power is targeting, [and] targeting is intelligence …'[28]

Some analysts have argued that *Enduring Freedom* is the first conflict in which ISR—intelligence, surveillance and reconnaissance—has been the primary weapon. Their reasons for reaching that conclusion include the Americans' highly systematic approach to data collection, their ability to sustain around-the-clock surveillance, and their integration of intelligence at most levels. Above all, however, it has been the change in the *sequence* of the information collection and distribution process made possible by real-time ISR that, it is claimed, signifies a fundamental shift in the *control* of warfighting.[29]

Operational commanders traditionally have provided their intelligence collection sources (agents, aircraft, submarines, satellites, electronic emission interceptors, cavalry, forward scouts, and so on) with a list of targets about which they need information. Once that information has been collected it can be analysed and targeting decisions made. In *Enduring Freedom*, for the first time on a sustained basis, that sequence was reversed. This time it was the *capture* of intelligence that initiated the operational sequence. Because the theatre was watched continuously ('persistently' in the military jargon) by a system of networked aerospace surveillance sensors which frequently were able quickly to detect enemy forces that moved or broke cover, and because information was being transmitted in real- or near-real-

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[27] David A. Fulghum, 'Directed Energy Weapons To Arm Unmanned Craft', in *Aviation Week & Space Technology*, 25 February 2002, pp. 28-9.

[28] Colonel Phillip S. Meilinger, 'Ten Propositions Regarding Air Power', *Aerospace Centre Paper No. 36*, Fairbairn, 1995.

[29] David A. Fulghum, 'Intel Emerging as Key Weapon in Afghanistan', in *Aviation Week & Space Technology*, 11 March 2002, pp. 24-5.

time to analysts, command post staff could respond to (possibly unforeseen) events as they started to unfold. Depending on the nature of those events, airborne shooters might be called in, ground forces might be manoeuvred into position, and so on.

The complexity of implementing that inverted sequence of events should not be underestimated. As many as five separate agencies (any combination of satellites, high-altitude reconnaissance aircraft, signals intelligence aircraft, JSTARS, AWACS, an operations centre, and UAVs) might be involved before authorised targeting data could be transmitted to a shooter. Nevertheless, the process worked, and the technology is improving.

While the prospect of acquiring a full suite of that kind of technology might seem daunting, we should note that Australia has already established the foundations of an excellent regional surveillance and reconnaissance (that is, knowledge) system in the form of very long-range over-the-horizon radar, micro-wave radars, on-order AEW&C systems, advanced electronic intelligence aircraft, submarines, access to satellite data and, most importantly, a sophisticated command and control system to pull everything together. Global Hawk surveillance UAVs may also be acquired.[30] And there is always room for innovation using existing assets. For example, in land-locked Afghanistan, US Navy maritime patrol Orions were pressed into the ISR role and made a valuable contribution to ground operations. The P-3's infrared sensor, for instance, was apparently sufficiently sensitive to detect single soldiers, or body-heat emanating from the entrances of occupied caves. On occasions a P-3 would spend its entire four hours on task transmitting intelligence to a single ground party via either email or radio; on others it would pass intelligence to senior commanders on the other side of the world.[31]

Special mention should be made of what appears to be a new form of ISR, measurement and signals intelligence (Masint). Masint technologies apparently cover a wide range and include foliage-penetrating radar, hyperspectral imaging, and the ability to measure change over time.[32] In Afghanistan Masint was used among other things to determine which tracks were being used and whether caves were occupied.

It is the extant effectiveness and enormous potential of ISR that is driving current efforts to reduce the time between sensor and shooter—to minimise the time needed to 'find, fix, track, target, engage and assess' enemy forces. The experience of *Enduring Freedom* indicates that ten minutes from initial detection to prosecution and assessment is a realistic short-term goal for this so-called 'kill chain'. It is a warfighting development of the first order.

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[30] A more developed example of the emerging Australian aerospace-power model can be seen in Israel, a country which views military defence with a life-or-death seriousness. In response to the new security calculus the Israelis are emphasising asymmetric air and space systems across the board. Those systems will (or already) include: the Arrow anti-ballistic missile defence system; the Python 5 enhanced short-range air-to-air missile; a beyond-visual-range air-to-air missile; a very long-range, precise, high-speed air-to-surface missile; a long-endurance, high altitude UAV armed with those missiles and which can loiter over a threat area for about sixty hours; a second long-endurance, high-altitude UAV, this time low observable and with an information gathering function; AWACS systems; manned JSTARS and Sigint systems; and a space program including Israeli-owned and -operated satellites. David A. Fulghum and John D. Morrocco, 'Israel Air Force to Grow in Size, Power and Range', in *Aviation Week & Space Technology*, 10 April 2000, pp. 62-5; and Barbara Opall-Rome, 'IAI Completes Ofeq Spy Satellite, Begins Launcher Work', in *DefenseNews*, 17-23 December 2001, p. 18.

[31] David A. Fulghum, 'Navy Exploits P-3 In Overland Recce Role', in *Aviation Week & Space Technology*, 4 March 2002, p. 61.

[32] Robert Wall, 'Military Assesses War Strengths, Shortfalls', in *Aviation Week & Space Technology*, April 15, 2002; and Andrew Koch, 'USA appraises lessons learned in Afghanistan', in *Jane's Defense Weekly*, 24 April 2002, p. 6.

Command and Control

The effective exploitation of real-time ISR is wholly reliant on the command and control system. *Enduring Freedom* has highlighted four important points.

First, the operation validated the practice of appointing a Joint Force Air Component Commander (JFACC) with the authority to task all air assets. This should not be surprising given that the concept has repeatedly demonstrated its merit since the Gulf War.

Second, and again unsurprisingly, the transmission of real-time battlefield intelligence to rear-echelon headquarters can tempt remotely-located senior officials to interfere. Some front-line American soldiers involved in Operation *Anaconda* in March 2002, for instance, were reportedly frustrated by the way in which Predator UAVs were used. Things were bad enough when information from Predators was beamed back to headquarters instead of to them; and matters became even worse when senior staff sitting in front of video screens at those headquarters tried to micro-manage the fighting.[33] Still, given the small number of reported incidents, this potential problem, which is well-understood, may be more apparent than real.

The third command and control issue concerns that topical military catch-phrase, 'network-centric warfare'. Here, the challenge is to translate into practice the theory of linking in real-time the information generated by a vast and varied host of individuals, organisations, systems and sensors. Given the involvement of so many services, so many players, and so many resources, bounding the challenge and defining responsibilities will not be easy. The recent establishment by the US Navy of a Naval Network Warfare Command might represent one way forward. This new organisation will incorporate specialists in information warfare, space, communications, command and control, and effects-based planning, and among other things will be responsible for the USN's contribution to information operations and space technologies.[34] When the command opened its doors for business a degree of uncertainty remained regarding overlapping responsibilities with existing agencies, but this was only to be expected. What matters is that the initiative has given tangible form to a somewhat elusive concept.

The final point regarding networked ISR once again relates to technological innovation. In an era when aerial platforms of all kinds invariably are in short supply, more must be done with those that are available, especially by small- and medium-sized defence forces. One of the most thoughtful proposals has come from USAF chief of staff General John Jumper, who has directed his service to investigate the possibility of transforming single-role platforms such as tankers and airlifters into multi-role platforms by adding extensive communications suites and/or information-gathering sensors. The proposed multi-sensor command and control aircraft (MC2A) represents a different response to the same challenge.

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[33] Thomas E. Ricks, 'Keeping an eye on combat', in *The Washington Post*, March 26, 2002, p. 1. A megabyte-sized jpeg image could be sent via email in five to six minutes.

[34] Randy Woods, '[Navy Secretary Gordon] England Approves Naval Network Warfare Command', in *Inside the Navy*, 18 March, 2002. The command was officially formed in May 2002. See also 'World News Roundup' in *Aviation Week & Space Technology*, 25 March 2002, p. 24, which reports moves by the USAF to acquire 'sophisticated new radios that will start linking everyone in the air over a future battlefield'; George Leopold, 'Pentagon brass calls for better interoperability', CMP Media Inc., 30 April 2002; and David Hughes, 'USAF Aims to Forge C2ISR Into a "Weapon"', in *Aviation Week & Space Technology*, 6 May 2002, pp. 54-6.

LAND FORCES

If one superseding lesson for twenty-first century warfare can be drawn from *Enduring Freedom* it is that traditional land-force mass on the battlefield is obsolescent. Armies which mass—that is, which form-up in numbers and seek to close—against a modernised opponent are likely to be decimated by aerospace power, which in all likelihood they will neither see nor be able to threaten. In the opinion of respected army strategist Major General Robert L. Scales, the customary land-force mission of 'closing with and destroying the enemy' is no longer sustainable. Instead, Scales argues, armies should now be regarded primarily as 'finding and fixing force[s] whose purpose is to verify the exact composition and location of the enemy and hold him in place long enough for precision fires to do the killing with efficiency, discretion, and despatch—from a distance'.[35] Should the enemy disperse to try to avoid that fate, then, again according to Scales, a twenty-first century army should be capable of maneouvring rapidly, preferably by air, to deal with their 'distributed' (dispersed) opponents with 'the same kind of standoff killing power and pinpoint-precision weapons capabilities now enjoyed by air forces'.

General Scales is right to assert that there is no reason why effects-based planning and execution, information operations, network-centric approaches, rapid manoeuvre, and precision engagement should be the exclusive purview of any one of the military services. Special forces operating behind enemy lines in Afghanistan have demonstrated precisely those kinds of characteristics, and in doing so have provided a prototype for twenty-first century land forces.

Reportedly 'given an unrestricted license to kill' during the crucial stages of the war, somewhere between 800 and 3000 American and allied marines, commandos and Special Air Service soldiers have displayed all of the characteristics associated with contemporary air power—knowledge dominance, speed, precision, deadly force, a fleeting footprint (stealth), and high mobility—as they have appeared unexpectedly to create havoc amongst the Taliban and their Al Qaeda accomplices.[36] They apparently have ambushed and killed 'hundreds' of enemy soldiers, cleaned-up pockets of resistance, destroyed scores of vehicles, cut-off retreats, found hideouts, designated targets, and called-in air strikes. Materialising suddenly out of the night in fast, light combat vehicles, these special forces either do the job themselves or, depending on the circumstances, summon a precision strike from nearby missile-armed helicopters or orbiting bombers.

A text-book illustration of the technique involving flexible targets was provided on 18 November 2001 near the regional centre of Tarin Kot, a place regarded by the leader of Afghanistan's interim government, Hamid Karzai, as 'the heart of the Taliban', and therefore as the alliance's primary military target.[37] In what Karzai apparently believed was 'the decisive battle in the … war', US fighter jets guided by special forces decimated a convoy of about 1000 Taliban soldiers travelling in some 100 vehicles. Devastated by their helplessness,

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[35] Major General Robert L. Scales, 'Checkmate By Operational Maneuver', in *Armed Forces Journal International*, October 2001, pp. 38-42. For a similar argument, see also Colonel Douglas A. Macgregor, 'Resurrecting Transformation for the Post-Industrial Era', in *Defense Horizons*, September 2001, pp. 2, 8.

[36] 'Special forces act on orders to kill', in *The Australian*, 26 November 2001, p. 9.

[37] 'In a Desert Outpost, Afghan War Was Won: U.S. Firepower Decimated Taliban at Tarin Kot', in *The Washington Post*, 31 December 2001, p. 1. For detail on the evolution of 'flex targeting' during the Kosovo air campaign, see Benjamin S. Lambeth, *Nato's Air War for Kosovo*, Rand, Santa Monica, 2001, pp. 120-136.

those Taliban who survived simply 'fled' the battlefield, having reportedly come to realise that they 'should not fight with America', a message they presumably later relayed to their colleagues.

Afghanistan has also provided examples of General Scales' contention that land forces must be capable of dealing rapidly with distributed enemies. Having been routed by precision air strikes, Taliban and Al Qaeda troops withdrew to remote, ungoverned regions along Afghanistan's eastern border, notably the Tora Bora mountains, the Shah-i-Kot valley, and the province of Khost. The battle in the Shah-i-Kot valley in March 2002 was the largest ground fight of the war to that stage. Some 2000 American, allied and Afghan troops sought to clean-up an estimated 800 to 1000 Taliban and Al Qaeda fighters. If the enemy dispersed they were attacked by numerically superior allied ground forces; if they concentrated (massed), air strikes were called-in. During the engagement more than 2500 bombs were dropped, that is, as many as three for each terrorist, a statistic which indicates a preference for bombing even small groups wherever possible.[38]

Notwithstanding those kinds of experiences, it would be ingenuous to suggest that there is not or never would be a place for old-style mass on the modern battlefield. On the contrary, traditionally-structured land forces have been an integral part of all of the West's recent major campaigns. However, those massed forces have not been provided by the advanced nations which in each case intervened for the greater good, but which at the same time would not accept the risk of high casualties in circumstances that did not threaten their national survival. Thus, in Bosnia in 1995 NATO air power was supplemented by Bosnian Croat and Muslim armies, and in Kosovo in 1999 by the Kosovo Liberation Army; while in Afghanistan in 2001–2 American air power has been supplemented by numerous local armies, notably the Northern Alliance in the north and a number of predominantly Pashtun tribes in the south.

While the indigenous armies played a minor, albeit necessary, role in the Balkans, they were critical in Afghanistan. The question was one of how to kill or force the surrender of substantial numbers of seemingly intractable Taliban and Al Qaeda terrorists. Periodically the Americans were confronted by besieged fortress-cities (Mazar-i-Sharif, Herat, Kabul, Kunduz, Kandahar) whose enemy garrisons could have been destroyed either by bombing, which would have caused the death of non-combatants at the hands of Western air power, or by massed warfare between the local armies, which was likely to involve heavy casualties, massacres and war crimes. In the event precision bombing was more effective against urban targets than perhaps ever before, but on most occasions indigenous ground forces were required to clean-up pockets of resistance.

The subject is nothing if not sensitive, raising the dreadful moral question of the relative weighting placed on indigenous and Western (in this case predominantly American) lives. On the other hand, the moral question would be no less challenging if a society which possessed the means to fight with an overwhelming advantage chose not to do so and therefore placed the lives of its young men and women needlessly in harm's way. And at the risk of being politically incorrect, it is noteworthy that in many of the world's most volatile regions (Iraq,

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[38] Dexter Filkins with James Dao, 'Afghan Battle Declared Over and Successful', in *The New York Times*, 19 March 2002.

Korea, Israel, Taiwan, the Sudan, Pakistan) large indigenous land forces would be ready and willing to facilitate the application of externally-provided incontestable air power.[39]

Terrorists will continue to 'fight with America' and the other nations that actively oppose them. What they are unlikely to do in future is to fight in mass, seeking instead to resume the classic guerilla tactic of operating in small groups that make high-cost, high-publicity, hit-and-run attacks, against civilian as much as military targets. As noted above, those kinds of threats cannot be allowed to breed uncontested in secure redoubts: they must be dealt with at their sources, wherever they may be.

Land forces will have a critical role to play in that task, but they will be land forces of a different shape and outlook from those that characterised twentieth century armies. In the Australian setting the most useful soldiers are likely to be those who are capable, first, of exploiting information derived from sensors such as AEW&C aircraft, surveillance UAVs, and perhaps satellites; and second, of complementing the operational flexibility and precise stand-off firepower of weapons systems such as strike/fighters, UCAVs, AC-130 gunships, and attack helicopters.

LEADERSHIP

It is a truism that the best technology in the world will not assure victory by itself. Without high-quality commanders no defence force is likely to be effective. Recent history offers some fascinating insights into military leadership for the twenty-first century

In the past eleven years American-led alliances have fought four theatre-level campaigns, in Iraq, twice in the Former Republic of Yugoslavia, and in Afghanistan.[40] In terms of relative effort and generating effects each of those campaigns was predominantly an air war. Yet three were commanded by soldiers and only one (*Deliberate Force* in 1995) by an airman.

Two leadership issues arise from that observation. First, it is clear that the military leadership group that needs to understand aerospace power must become more eclectic; that is, it must be extended beyond the air force pilots who currently dominate the field. This important conclusion seems to have been grasped within the British Army, at least in theory. Addressing a symposium on indirect battlefield effects in January 2002, the assistant chief of the general staff, Major General Richard Dannatt, told delegates, 'One must always be wary of absolutes, but perhaps air maneuver really does offer the most exciting development in emerging military capability since 1945 … The land component must therefore move swiftly to understand how the entire battlespace—not just the ground environment—can be exploited; it must become second nature'.[41] This may sound encouraging; on the other hand, it remains the case that even at a time when aerospace activities increasingly account for army budgets,

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[39] For a critical assessment of this approach on practical rather than moral grounds (because local 'proxy' armies are 'undependable'), see Michael E. O'Hanlon, 'A Flawed Masterpiece', in *Foreign Affairs*, May/June 2002.

[40] Operation *Desert Storm* in 1991 was commanded by General Norman Schwarzkopf; *Allied Force* in 1999 by General Wesley Clark; and *Enduring Freedom* in 2001/2 by General Tommy Franks. The exception was *Deliberate Force* in 1995, in which the air campaign was commanded by USAF General Michael E. Ryan.

[41] Quoted in 'Apache underbid threatens Air Maneuver', in *Jane's International Defense Review*, 1 March 2002.

membership of the aviation corps has rarely been a pathway to senior office within land forces.[42]

The second leadership issue concerns the three American Army officers who have commanded major air campaigns in the past decade, generals Norman Schwarzkopf in the Gulf in 1991, Wesley Clark in Kosovo in 1999, and Tommy Franks in Afghanistan in 2001–02. The question is: what did Schwarzkopf, Clark and Franks know, and how did they perform?

Operation *Desert Storm* was dominated by the Coalition's application of aerospace power (delivered by navy, army, marine and air force weapons systems), which makes General Schwarzkopf's competence as an aerospace commander a matter of considerable interest. My reading of the popular sources is that Schwarzkopf's knowledge of the subject was limited, but his military experience and shrewd intuition enabled him to perceive the essential merit of the USAF plan developed initially by Colonel John Warden's team.[43] Having decided that in the prevailing circumstances aerospace power represented his best option, Schwarzkopf was then sensible enough to leave most of the detailed campaign planning and execution to a highly capable air staff.[44]

But a couple of important points need to be made. First, General Schwarzkopf never regarded the air campaign as the main game. In his view it was always going to be the precursor to a massive land invasion which ultimately would decide the outcome of the war.[45] It might therefore be reasonably assumed that he was predisposed to leave the planning and conduct of the air war to his specialist air staff, an approach which was validated for him when it quickly became apparent that the air campaign was going to be an extraordinarily one-sided affair.

And second, a fundamental difference can be seen between Schwarzkopf's perception of the purpose of the air campaign, which was to 'prepare' the battlefield, and that of General Buster Glosson and Lieutenant Colonel Dave Deptula (the key USAF figures in the day-to-day conduct of the campaign) that Coalition air power was in fact 'destroying' the battlefield.[46] In the context of 'who' needs to know 'what' about aerospace power, those contrasting perspectives are instructive.

Eight years later in Kosovo, as NATO sought to stop the shocking ethnic cleansing being carried out by the Serbian Army and its affiliated gangs, General Wesley Clark did not have the option of a ground offensive. Once US President Bill Clinton had publicly proscribed any substantial commitment of land forces, Clark's only choice was an air campaign.

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[42]   Daniel G. Dupont, 'Skeptics and Believers: Aviation has little visibility in the new Army vision', in *Armed Forces Journal International*, March 2000, pp. 28-34.

[43]   Colonel Warden was the head of a USAF planning team in the Pentagon known as 'Checkmate'. The plan he developed for a strategic air campaign against Iraq was accepted in principle by General Schwarzkopf and served as the template for Operation *Desert Storm*. See: Michael R. Gordon and Bernard E. Trainor, *The Generals' War*, Little Brown, Boston, 1995, pp. 77-90; Richard T. Reynolds, *Heart of the Storm*, Air University Press, Maxwell Air Force Base, 1995, pp. 103-10; and Williamson Murray with Wayne N. Thompson, *Air War in the Persian Gulf*, The Nautical and Aviation Publishing Company of America, Baltimore, 1996, pp. 16-20.

[44]   See H. Norman Schwarzkopf, *It Doesn't Take a Hero*, Bantam, New York, 1992; Richard P. Hallion, *Storm Over Iraq*, Smithsonian Institution, Washington, 1992; Gordon and Trainor, *The Generals' War*; Reynolds, *Heart of the Storm*; and Tom Clancy with General Chuck Horner, *Every Man a Tiger*, Putnam's, New York, 1999.

[45]   Schwarzkopf, pp. 318-20, 326-7, 413-78; Gordon and Trainor, pp. 124-41.

[46]   Hallion, p. 209, Gordon and Trainor, p. 136.

Consequently, and unlike Schwarzkopf, he applied himself fully to all aspects of the air war. The results revealed a disturbing ignorance of air warfare and of the things air commanders need to know (noting that in the prevailing circumstances Clark's warfighting responsibilities were above all else those of an airman).

According to the most authoritative account of the campaign yet published, General Clark demonstrated little understanding of his task.[47] Apparently unable or unwilling to think outside his background as an infantry officer, he was a parochial micro-manager who insisted on personally selecting tactics, weapons, targets and aim points. Targets were hit simply because they were on the approved list or because they could be prosecuted with little risk to aircrews or civilians. Worse still, Clark seemed to lack a strategic vision as he directed a campaign that on occasions reportedly was little more than a series of 'random bombing' strikes.

Because the campaign in Afghanistan is still being waged it is more difficult to comment confidently on General Franks. On the one hand, it is clear that the air war has been remarkably successful. On the other hand, an apparently credible article published in the *Los Angeles Times* early in May stated that should Franks next have to turn his attention towards Iraq, his preference will be for a massive land invasion by the US Army's heavy divisions, preceded by only a brief air assault.[48] If true, this might suggest that General Franks has learned little from the past decade.

There is an unambiguous message here for all members of the profession of arms whose aspirations include a vision of twenty-first century competency.[49]

TRANSFORMATION — OR ENDURING OBSOLESCENCE?

The fact is that the way in which combat power is generated and applied by advanced defence forces is undergoing major, perhaps even radical, transformation, with the Gulf War providing the prototype and Afghanistan the latest iteration. Technology may be the enabler, but the real agents of change and indicators of success will be organisational arrangements, concepts of operations, and leadership.

The difficulty of presenting new ideas that challenge rigid mindsets should never be underestimated. Opposition to the new is much stronger when it is not just traditional

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[47] Lambeth, pp. 192-202. For a more favourable but still judgmental assessment of Clark as an air commander, see David Halberstam, *War in a Time of Peace: Bush, Clinton and the Generals*, Scribner, New York, 2001, pp. 444-480.

[48] William M. Arkin, 'Planning an Iraqi War but Not an Outcome', in the *Los Angeles Times*, May 5, 2002. The article outlines a draft campaign plan prepared by Franks' staff for ousting Saddam Hussein based primarily on the employment of 'heavy tank and mechanized infantry divisions … As initially presented, the Iraq attack plan … excluded initial bombing to soften Iraqi defenses'. According to Arkin one senior officer 'not in the Army' described the plan as a 'lead-with-your-chin, ground-only war' which ignored the successful elements of the Americans' recent campaigns. It may of course be the case that Franks' plan is part of a disinformation operation designed to confuse Saddam Hussein, but the tone of Arkin's article indicates otherwise.

[49] In the opinion of the USAF's first director of air operations in Afghanistan, Lieutenant General Charles F. Wald, US regional commanders-in-chief do not 'understand exactly' how technologies used in operations 'actually work'. Those senior officers 'must be educated' he told a symposium. Richard Tuttle, 'Ignorance of Technology Prolongs Afghan War, USAF Official Says', in *Aerospace Daily*, 24 May 2002.

weapons but institutions that are endangered. Horse cavalry disappeared from the armies of the great powers only after the Germans' successful blitzkrieg campaigns through Poland and France. The British and French armies grossly misused their tanks in 1940 because they insisted on absorbing them into the infantry and cavalry, instead of creating new tank-centred formations as had the Germans. Edward Luttwak summed up the problem when he observed that equipment does not innovate, men do, which is why the successive military revolutions that have changed the course of warfare over the centuries have always resulted from major institutional reforms imposed by determined leaders, rather than from the spontaneous effect of new weapons or new circumstances.[50]

American Secretary of Defence Donald Rumsfeld has been aggressively promoting the idea of a 'transformed' military, in which all components and weapons systems must contribute to twenty-first century (as opposed to legacy) warfighting concepts. Systems that do not satisfy Rumsfeld's 'transformation criteria' will be 'eliminated'. At least that is the theory. In the meantime it has been suggested that the military system has already mastered the 'sly art' of coopting every reformist tendency, repackaging every item on their budget wish list as 'transformational'. 'You wait', one commentator remarked, 'they're going to come up with a way to claim [tanks are] transformational'.[51]

This practice is not confined to any particular service. When USAF chief of staff General John Jumper first raised the idea of arming Predator UAVs with Hellfire missiles, some Defence officials objected strenuously, asserting that it would cost 'tens of millions of dollars'. Instead, according to Jumper, it cost $6 million.[52] Elaborating more generally on the concept of transformation and his ambition to 'revolutionise' his service, Jumper stated that, 'Not everybody gets it'.[53] He continued, 'We have to first admit that we are in ruts. We are in stovepipes. We have been taught to think one way. We have been taught to defend our prerogatives … We love our platforms … [We believe that] If you can't do it with a bomber or a fighter or a satellite, then by God, it can't be done. We've got to break out of that'. Jumper's perception is shared by Air Force Secretary James Roche, who believes the biggest impediment to the USAF's progress may be its culture.[54] Jumper and Roche suspect that new technology has delivered 'so much capability so quickly' that many people are finding it difficult to assimilate; consequently, they have made cultural change central to the USAF's transformation program.

Secretary Rumsfeld is already vigorously challenging the broader Defence culture by planning to make 'widespread changes' at the top levels of the military leadership. Transformation is more likely to be implemented, Rumsfeld reportedly believes, if he installs 'a new generation of relatively non-conformist officers' who will be prepared to support radical change.[55]

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[50] Edward N. Luttwak, Book Review, 'Lifting the Fog of War by Bill Owens with Ed Offley', *New York Times Book Review*, 21 January 2001, p. 21.

[51] Quoted in Bill Keller, 'The Fighting Next Time', in the *Sunday New York Times*, 10 March 2002.

[52] Quoted in 'Air Force Stands Up First Armed Predator UAV Squadron', in *Defense Daily*, 11 March 2002; and 'Air Force's Jumper Catches a Tailwind', in *National Journal*, 16 March 2002.

[53] Quoted in 'Air Force's Jumper Catches a Tailwind', in *National Journal*, 16 March 2002.

[54] Loren B. Thompson, 'Air Force Transformation Redefines Modern Warfare', in *Defense Week*, 8 April 2002, p. 1.

[55] Thomas E. Ricks, 'Bush Backs Overhaul of Military's Top Ranks', in *The Washington Post*, 11 April 2002, p. A01.

Rumsfeld has also established an office of Force Transformation, headed by noted thinker Vice-Admiral Arthur Cebrowski. Cebrowski's first objective is to achieve force-wide information interoperability. Any organisation or system that is 'not interoperable … not on the net … not part of the information age' will be a 'candidate for divestment'.[56] Cebrowski elaborated on his approach with a series of questions for senior officials to answer: Does a proposed or existing capability enable a new concept of operations? Does a new system or idea facilitate a 'difference in kind, not degree? Is it robust in the face of a wide range of threats? Does it broaden the base of capabilities for the future? Will it profoundly alter the competition more than legacy approaches?'[57]

Admiral Cebrowski's questions should resonate far beyond the borders of the US. Operation *Enduring Freedom* demonstrated yet again that, through a combination of strategic irresponsibility, fiscal meanness, and operational ignorance, most developed nations are failing both to meet their defence responsibilities and to grasp a rare opportunity. For the fourth time in the past decade the US's allies have been shown to be militarily deficient, with their shortcomings this time including ISR systems, advanced strike aircraft, airlift, communications, and precision guided munitions.

The real failure, however, is not so much of weapons systems as of doctrine. The basic problem in many Western nations has not necessarily been inadequate defence funding but rather the way in which the available funds have been spent. Poorly informed and/or opportunistic politicians decide how defence budgets will be disbursed, too often shaping force structures and capabilities for the worse; and insular single-services continue to cleave to legacy systems and obsolescent concepts of operations at the expense of twenty-first century capabilities.

NATO secretary-general Lord Robertson got it right immediately after the Taliban had been broken by American aerospace power when he told his organisation's member states that their choice was straightforward: 'modernisation or marginalisation'.[58] French president Jacques Chirac was even more forthright during a debate over the European Union's proposed Galileo satellite navigation system. (Galileo will provide the battlespace and weapons precision now available only from the American Global Positioning System, and is being promoted largely to reduce the dependency of EU member nations on the US.) According Chirac, European countries risk becoming American 'vassals' if Galileo does not proceed. Similar sentiments have emanated from Spain regarding initiatives to re-energise the European space exploration program.[59]

As one European diplomat put it, the military capability gap between NATO and the US 'is no longer an embarrassment, it's a crisis'. Defence analyst Julian Lindley-French made the same point more pungently with his observation that unless there is major reform, NATO will

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[56] 'Pentagon Develops New Transformation Criteria', in *Defense News*, 11-17 March 2002, p. 4. See also Bill Keller, 'The Fighting Next Time', in the *Sunday New York Times*, 10 March 2002; and Thomas E. Ricks, 'Bush Backs Overhaul of Military's Top Ranks', in *The Washington Post*, 11 April 2002, p. A01.

[57] Vice Admiral Arthur Cebrowski, quoted in 'Pentagon Develops New Transformation Criteria', in *Defense News*, 11-17 March 2002, p. 4.

[58] Lee Gaillard, 'Stubborn Technology Gap: Nato Must Resolve Widening Capability Drift', in *DefenseNews*, 18-24 March 2002, p. 17; and Erik Yesson, 'Nato Reinvention', in *DefenseNews*, 8-14 April 2002, p. 13.

[59] Quoted in Daniel Dombey, 'EU's satellite project gets funding green light', in *The Financial Times*, 28 February 2002 (Galileo is to comprise 38 satellites and cost about $750 million); and 'Spanish daily hails advent of European spaceship', in the *Financial Times*, 11 April 2002.

become a 'two-tiered alliance' in which 'the US does the fighting and the Europeans pickup the garbage'.[60] The common themes here are self-reliance and sovereignty.

From an Australian perspective, we have never had a better ally than the US, but by definition excessive dependency will leave any nation vulnerable, more so one that asserts a policy of defence self-reliance but fails to construct the necessary architecture.

There are suggestions that NATO may address this most serious challenge by transforming itself from a collection of traditional 'do-it-all' generalist military organisations into a carefully structured collection of 'niche' forces, with each nation contributing one or more specialised elements of the alliance's total military capability.[61] In other words, access to a twenty-first century military capability would be paid for in part by ceding a measure of sovereignty to the collective defence organisation. Australia's unique and favourable geography, which at one and the same time provides a vast natural corridor for protective ISR activities while making substantial surface intrusions extremely hazardous, may lessen the need for such measures here. Regional politics, too, may militate against such a degree of defence cooperation. Nevertheless, the concept is worth considering, with shared non-threatening assets such as NATO's AWACS fleet perhaps representing an acceptable start point.

CONCLUSION

For the past half-century the Western way of war has been defined by the increasingly dominant application of air power. And in particular, for the past decade, asymmetric aerospace power has been the key to victory in a succession of theatre-level campaigns which, when measured against the sweep of history, have been extraordinarily quick, decisive, and low-casualty. Those victories have been achieved against apparently powerful conventionally-arrayed armies (Saddam Hussein), ruthless war criminals (Milosevic), and allegedly insuperable guerillas (the Taliban); and they have been fought day and night, in all weather, in deserts, mountains, dense forests, caves and cities.

Presently only the US can fully apply the form of advanced military power demonstrated in Afghanistan, and very few countries possess the skills, qualities and resources to develop the necessary capabilities within the next twenty years. But for those that do—an exclusive category that includes Australia—the goal is now more achievable than ever before. Operation *Enduring Freedom* has again demonstrated that the technologies are available and affordable. The issue, therefore, is one of priorities and doctrine. Twenty-first century warfare will be accessible only to a handful of nations. It is a strategically rare opportunity.

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[60] 'Military Gap Grows Between US, NATO Allies', in *The Washington Post*, 19 May 2002, p. 22. Lindley-French works at the European Institute for Security Studies in Paris.

[61] Colin Clark and Amy Svitak, 'Transformation, Nato Style', in *DefenseNews*, 29 April-5 May 2002, pp. 1, 4.

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DISCUSSION

Squadron Leader Jaren Lovett, Aerospace Development: Sir, you've talked about UCAVs, I was just wondering what your view of the future use of UCAVs could be in a possible AIR 6000 solution.

Dr Alan Stephens: No question at all in my mind. The rapid development of the predator in Afghanistan, which in some respects was quite ad hoc—for example, you know, I believe the initial laser designator was literally taped to the nose of the aircraft - the rapid evolution of it there provides, you know, a tremendous sign that the technology is, if not right here today, only just over the horizon. The X45 is supposed to be entering operation, limited operational service with USAF in 2008/2010. So without question the technology is there and I've got no doubt whatsoever that it will increase at a rapid rate certainly. I probably, like most people, I think, would favour a mix at this stage and with UCAVs initially looked at in the deep strike SEAD and ISR role. But certainly within the life, say, of an acquisition associated with AIR 6000 I would think air to air combat would be entirely feasible. So, absolutely.

Air Marshal Ray Funnell, retired: Still on UAVs, they've been around for a hell of a long time. I reflect on their very successful use by the Israeli Defence Force in the Bekar Valley in 1982. Now, you say, 'We can really pick up and run with these now'. Could you reflect on why we didn't pick up and run with them in the last 20 years if not the last 40 years?

Dr Alan Stephens: Just to elaborate quickly. The Israelis, I think, are perhaps the ideal model for the use of UAVs and it's noteworthy that they have got their own UAV industry and they place huge reliance on them and, of course, the Israelis are deadly serious about defence, so there's no second prizes for them. It's extremely interesting to see how they're using them in urban warfare today. A field that five years ago some commentators were suggesting there's no place for aerospace power, on the contrary, today in the densely populated areas of the occupied territories UAVs are one of the IDFs key systems tied, as it happens, with strike fighters. It's fascinating stuff. The Bekar Valley in '82, it just goes on and on. Why hasn't the ADF got them? All I can say is the ADF should have them. The ADF is one of the best defence organisations in the world, without a question, and yet it remains a mystery why we don't have operational UAVs today. But that relates to one of a number of themes I was trying to promote in my presentation. We still don't have a full tanking capability. We still don't have AEW&C. One of the last flights I did in the RAAF over 20 years ago was leading a formation of Canberras in a simulated strike in an air defence exercise. It was pointless taking off. That was the first time we'd come up against American AWACS and we got shot down as we passed the airfield perimeter. Twenty years later we still don't have AEW&C. I assume you're making a point rather than having me explain why.

David Graham, DSTO: We've nearly come to the end of an aerospace conference and we've only had two speakers who have actually mentioned space—I think it was Professor Bellamy and yourself. Yet, one USAF general has commented that those who control space will control the war. I'm wondering whether people have actually been downplaying the use of space in GPS and communication. You've made a comment that Australia should become self-sufficient. We've to the opportunities if we put our priorities in the right place. Maybe you would comment on how Australia may, in fact, become self-sufficient in space?

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Dr Alan Stephens: Defence owned satellites have appeal in some senses. In others perhaps I would suspect we can cover them with a poor man's answer to the capabilities that space provides us. Obviously things like global hawk are one option there. Satellites, like a number of other technologies, are becoming more affordable as miniaturisation pushes down costs and payloads, etc. Without doubt the ADF would benefit from owning one or two of its own satellites. Perhaps geostationary although, as you know, you run into perhaps difficulties with those. I would like to have said more about space. I felt in the time I had there were other issues I needed to emphasise, but I'm pleased you picked up on it. It's without doubt an area that the ADF could become a significant player in. At no great expense, by the way. I mean, space is not as terribly expensive as a lot of people might think if it's done sensibly.

Unidentified: Alan, you made some comments about army, and if I could speak as Commander of the 1st Division on this occasion. Without doubt what you're saying about the development of armies is quite correct. Australia has short circuited this by having an army that doesn't have much mass at all. So I guess once again we're well ahead of the rest of the world. But the ability to manoeuvre the tactical effects of air delivered weapons as part of a land centric commander has always been phenomenally important to armies and I think will remain phenomenally important, from the Western Desert, as we saw in the previous presentation, through to Vietnam and through to the more modern battles since. I don't think you will get anyone who will back off from that. The precision fires that armies have, the aim is never to close with the bayonet length, it's always to stand off and defeat by fire initially. At an aerospace conference the one thing that I don't think we have spoken about until very late in your conference, and you mentioned it, was the effect of the ground and the nature of the cover on the ground to the effectiveness of air forces used in the way that's implied by this conference. Particularly in our part of the world where a lot of the ground is heavily forested and the ground is tough, it's mountainous and it's lattoral and the problems that people may have faced in Vietnam finding the enemy may apply again. I know there are certain technological advances that have occurred. Can you tell us something about your views on how effectively can you apply air power in terrain that doesn't suit air power and the implications of jointery and the balance of the other forces in relation to this, particularly in a situation like Somalia, for example, and Mogadishu?

Dr Alan Stephens: If I can just make an indirect approach before my full frontal assault. I think it's important to look at what happened after the Gulf War with the American Army, taking them as a model. I appreciate this doesn't translate directly across to the Australian Army in terms of thinking. I think there was a great deal of self-delusion in the American Army after the Gulf War that after the 40-odd day air campaign the armies won the war in four days. A conclusion that I would maintain enabled—or a **delusion**, I should say—that enabled army to ignore the realities of that campaign and so not really confront the very important lessons that came out of the Gulf about speed, distance, lethality. As a result of which the American Army sat on its hands and did nothing and consequently hasn't been invited to the last three wars. You know, of course, they're well aware of that now and they're working hard.

I should add, by the way, that's been a huge operational problem, I think, for the coalitions and NATO. I think we can see with hindsight it would have been enormously advantageous to have had NATO ground forces to go in in the serious parts of *Allied Force* to try to stop the depraved ethnic cleansing. I think it appears to be emerging that it would have been very, very helpful to have had Western forces on the ground much earlier in Afghanistan to try to

prevent the escape of leading Taliban and Al-Quada leaders. I think the reluctance to put those Western land forces in related to other people drawing the right lessons from the Gulf and the army ignoring them. I know they're picked up now.

The issue of terrain or various circumstances, I'm arguing that's pretty much a matter of the past. I mean, the job's been done in all kinds of terrain and all kinds of circumstances over the past 11 years. That's not to say it couldn't be done a lot better. It could certainly have been a lot better, a I said, if allied commanders had been less reluctant to use their own high quality land forces much sooner. But in the circumstances you describe I don't see that as a major issue any longer.

Squadron Leader Joel Varsi, Aerospace Development: I'm glad you talked about platforms because that's what I'm comfortable with, so I'll talk about platforms. You mentioned the JSF and the generic capability that's going to bring to the table. I guess a word of caution or understanding what the intention of the JSF is going to be. You mentioned the capability of the JSF in terms of an air controlled type of platform. USAF is actually introducing JSF to replace A10 and F16. UK is introducing JSF to replace the Harrier. They've got a defined air combat capability, either F22 or Typhoon, to deliver that specific air combat capability. From previous speakers we all know, from reading D2000, that air combat capability is our number one priority. Currently we have doing air combat in the RAAF the F18, which was purchased as a multi-role, joint strike fighter, if you like, but we're using it as predominantly in the air control role. I'd like your comments then on what we should be looking at in terms of an air combat capability, if we had an unlimited budget. Obviously F22 is probably going to be one of the pick of the bunch there. But we really need to look beyond and we really need to concentrate hard on the platforms being offered, what they're actually originally designed to do and what we're actually looking at as part of a requirement for air combat in our unique environment.

Dr Alan Stephens: Yes. I mean, I must say I was reluctant to identify specific platform types for precisely the reason you raise. What I did want to do was raise the idea of an alternative approach to generating twenty-first century air power from the one we've traditionally followed. The thinking here is defensive Australia is still properly the priority for the ADF and we need to do those kinds of jobs that that demands. I'm also arguing that we should be able to contribute at a first order on the first day of alliance operations against other threats perhaps in remote places. In my opinion the RAAF's capabilities have degraded absolutely—absolute being the measurement against the USAF—and relatively—relative being to what we had previously—over the past 30 years for a variety of operational and technological reasons. I think we can regain that first order standard but we may need to move outside the kind of approach we've used previously, which was why I spoke about specific Stovel and UCAV capabilities. As to the nuts and bolts of whether we should have X or Y, I really don't want to go any further than that, other than to say I would have thought in 10 or 50 years time stealth plus the most advance systems would mean more than manoeuvrability and conventional kinds of perceptions of what makes a good air combat platform.

Squadron Leader Shaun Jenkins, ADF Warfare Centre: You mentioned towards the latter part of your presentation, it seemed that you hinted at doctrine leading procurement. General Fred Franks in *Into the Storm* and General Chuck Horner in *Every Man a Tiger* described how in the US context their getting doctrine right in the late seventies led to procurement for the systems for that joint effect that resulted in the M1, the A10, the Apache, things like that.

With your knowledge of the ADF, where are we in realising that sort of a paradigm and, if we're not, how does that need to be changed?

Dr Alan Stephens: I think I should confine myself to the RAAF. I think RAAF doctrine is extremely good. It's being rewritten and I understand will be even better when the new edition of the air power manual comes out. Concepts of operations, I think, are clearly articulated. Whether that then gets translated into the right kinds of capabilities to give effect to the doctrine is, of course, another matter. But I think as far as intellectual process goes the RAAF is well served.

OBSERVATIONS ON THE CONFERENCE

AIR VICE-MARSHAL CHRIS SPENCE

In his opening remarks, Air Marshal Angus Houston made two observations that were key to setting the scene for this most informative conference on 'Conflict, the State and Aerospace Power'. The first was that not only is the nature of conflict changing dramatically but also so are the players involved. Consequently, in meeting our responsibilities to government to be able to respond effectively to future conflict, a key enabler is to have a comprehensive understanding of the state and non-state players involved. As is clear from challenges evident in responding to the events of September last year, this is no simple endeavour. The second point is the recognition that aerospace power is very much an integral part of the Australian Defence Force combat effect. As the strategic manager of ADF aviation, the Chief of Air Force has a remit to ensure that ADF aerospace power evolves in a manner that provides effective options to meet the challenges in the evolution of future conflict. Those two themes were, in my view, most effectively addressed and discussed in what was a most thought provoking conference. Air Marshal Houston also encouraged the younger members of the Air Force—a reservoir of intellectual horsepower—to ask the challenging 'why' questions and it was particularly pleasing to see them respond.

In opening the Conference, the Minister for Defence, Senator Robert Hill, reinforced those notions by observing that air combat capability is an essential element of ADF combat power and has recently been demonstrated supporting Operation *Enduring Freedom* and the Commonwealth Heads of Government Meeting (CHOGM) in Queensland. In developing aerospace power to meet the changing nature of conflict, he reinforced the need to have a capability focus that canvases all options. The objective is to provide a balanced suite of capabilities at least comparable to any in the Region, meeting our domestic requirements and enabling us to contribute to coalition operations in future conflict.

Group Captain Ian MacFarling is to be commended for bringing together a truly eclectic group of presenters who have provided a most stimulating and thought provoking two days. I doubt we could have had a better scene setter or thought starter than William Arkin. William stepped smartly away from his topic and played to his audience by addressing aerospace power directly. While it was refreshing to listen to an independent champion of aerospace power, he cautioned that we misunderstand aerospace power at our peril. While noting that transformational warfare in the twenty-first Century is about aerospace power, he made the telling observation that the use of aerospace power breeds antagonism. Our challenge in refining the use of aerospace power in future conflict is to create a new image of warfare that recognises that due to precision every weapon can be audited, that aerospace power has the potential to be ever so less damaging than 'ground' power and that it is far more attuned to effects based operations than other forms of combat power. A most astute comment given current world events, and much of the subsequent discussion throughout the conference, was that unfortunately warfare still demands absolute results and incomplete warfare equals continuous conflict. Finally, the comment that we need to educate our political leaders on what can be achieved by aerospace power struck a chord. We clearly need to have greater consensus within the ADF on what aerospace power brings to the table in terms of national power. We have a clear remit to engage with our political owners and, to use army

terminology, 'situate the appreciation'. As William said, aerospace power is a way of thinking.

In his address on refocussing concepts of security, Ian Wing also highlighted the need for the ADF to better understand its potential as an element of national power. This is particularly critical given the shift from geo-politics to geo-economics. He also posited that Australia is in transition from state-based old security to the more conceptual notions of new security thinking. In meeting the challenges of new security, Ian highlighted two key constraints we are all experiencing—the overlap between military and non-military tasks and the over-stretch experienced by the requirement for new, but un-resourced, roles. While some might also agree that a reduction in the number of headquarters might be useful, Ian's views on discarding the operational level of war and replacing the ADF with a force modelled on the US Marine Corps sparked the beginning of what would undoubtedly have been an interesting debate had we not been constrained by time. What we in Air Force would certainly agree with was the sentiment expressed in the quote that Ian provided from Kofi Annan—'put people at the centre of everything we do'.

In addressing the airman and the state, Air Vice-Marshal Professor Tony Mason built on this notion that people are the key to capability. In doing so, as he said he would, he provided more questions than answers. But they are questions that again we avoid answering at our peril. Just how clear is the role of the military in future conflict and how developed and unified, are our views? Should the military mirror society (if in fact it can avoid it) or should it be a repository of values based on the military ethos. These are key issues and ones that challenge the hierarchically structured military as we know it and are fundamental to our ability to attract, retain and provide recognition for the men and women of our future force. The Air Vice-Marshal mentioned in passing the growing expectations on military personnel, and in particular the importance of commercial management principles. This sparked a lively and most interesting debate with one of our junior officers, and I commend his courage under fire! In my view, the key to that discussion was that the last decade has served to emphasise that there is a clear requirement for military leadership to balance their operational experience and knowledge with sound business skills. This is essential in order to enable the leaders of today and the future to manage the business of defence in order to deliver the output required by government—that is, combat capability. I do not believe that we presently prepare our leadership well in this regard. And importantly, as Air Marshal Funnell noted, leadership in the Air Force of today is exercised at all levels.

In focusing on the enduring human propensity for conflict, Doctor Chris Reus-Smit made some telling comments on interstate war, the violence often associated with state making and the particularly challenging notion of anti-systemic violence. While noting that the concept of sovereign states is relatively new, for trading states war has always been bad for business and indeed the business case for war is poor. Further, strong laws and international mechanisms tend to control the violence associated with state making. Unfortunately, we are quite unprepared for anti-systemic violence and have no clear idea of how to engage the protagonists. And while the revolution in military affairs might increase public confidence in the ability to resolve security issues, it also encourages other than hard political solutions. In providing a note of caution in forming coalitions rather than posses, Dr Reus-Smit suggested that we should recognise the dangerous asymmetry between the problems we face and the seductive solutions that aerospace power, for example, might provide.

This question of understanding was discussed frankly and entertainingly by Professor Doctor Subrata Kumar Mitra. In addressing the challenges that have and continue to face India in coming to terms with the concept of national power, he reinforced the view that we must understand that there is no 'standard' state. Not all nation states are the same or share similar views. Consequently we need to be able to understand the differences—and key to that is communication. In my view the military is well placed to transmit information but far less skilled in the art of communication—that is, the two-way sharing of ideas in a dialogue. We tend to have a propensity for constant transmit but no receive. Conflict resolution is simply not possible without a shared lexicon to allow the essential facts to be determined, understood and presented to decision-makers. This need for communication and understanding is probably the key enabler in dealing with the anti-systemic violence we currently face.

Air Commodore John Blackburn and his team epitomise the intellectual horsepower that we are fortunate to have residing in Air Force. 'Back to the Future' took us to the year 2020 and addressed the transformational (to borrow a current American term) challenges faced by the Air Force in the coming decades to transition from the 'air' medium to that more fully encompassing 'space'—thus becoming a credible aerospace force. Three elements form the core of our way ahead—a focus on joint force integration, an emphasis on the value of experimentation and therefore better understanding our options, and an enduring recognition of Air Force culture and the value of our people. I think that it says much for the maturity of the ADF to have Major General Jim Molan endorse what is in effect a way ahead for ADF aviation.

Today we were unashamedly given the view from the top of the ziggurat. Lieutenant Colonel John Blumentritt convincingly demonstrated that the US, as the only remaining superpower, is unmatched in military and economic might. His trip through the history of US aerospace power touched some chords from previous speakers—the antagonism aerospace power engendered in Somalia, the focus on aerospace power as quick resolution, non-attrition warfare and, perhaps most importantly, the need to understand what aerospace power brings to the table and what consequences may follow. In dealing with the way ahead for the expeditionary aerospace force, one question remained unanswered. As Air Marshal Funnell highlighted, in this high end, high technology warfare, where does a coalition member fit in? It is important to all of us that, for future conflict, we understand what the required enablers are to enter a coalition activity and how those enablers might be provided. And perhaps most importantly, there needs to be understanding and alignment between what the political expectations of interoperability and coalition operations might be and what the military is capable of, or chooses to, deliver.

Providing a British perspective on the relevance of air forces into the future, Group Captain Peter Gray presented the view that through control of the air, aerospace power provides an asymmetric edge in conflict resolution. In doing so he took the broad view of the asymmetric edge providing military advantage and delivered by aerospace power. Again the common theme of aerospace power providing rapid, offensive combat effect over long distances and through independent action was highlighted. Perhaps most importantly the notion of aerospace power being the weapon of political first choice again begged the question whether we, as military professionals, and our political leaders as the national decision makers, have an adequate understanding of the consequences of its application in future conflict.

It is difficult to go beyond Major General Mike Smith's characterisation of Professor Chris Bellamy's presentation today as a seminal work. Certainly the presentation broadened our

understanding of the complexity of peace operations. It also confirmed that all roles of aerospace power are as relevant to peace operations as they are to war and, like war, peace operations require a clearly defined end state. The latter undoubtedly presents us with a challenge when dealing with the anti-systemic conflict we presently face. Similarly, the characterisation of peace building as a complex integrated activity is also relevant in our management of future conflict. Finally, the discussion period brought a link to previous threads in reaching an agreed understanding of the definition of peace—revenge as an accepted form of peace is a challenging spectre.

As we have come to expect over the years, Professor Paul Dibb brought to the discussion something of a wakeup call, strong support for ADF aerospace power, and some considered advice. Quite clearly Australia has its own unique strategic environment and we have entered an era of unpredictable change. That said, Professor Dibb forcefully put the view that the war on terror is not a new phenomenon nor should it be a key determinant for ADF force structure. While noting that Australia's response to the war on terror had been measured and appropriate, the defence capability plan, informed by the white paper, should remain on track. He also noted that the ADF continues to meet current demands, albeit with some stress, particularly in the area of logistics. In my view, we ignore the considerable challenges facing our logistics system at our peril. Two key pieces of advice were proffered—first, AIR 6000 requires a considered, defendable decision process that will withstand the contestability test of government and, second, that the lessons of the F/A-18 acquisition are applied particularly in the areas of Australian industry involvement, through life support costs and releasability. Message received and understood.

Information operations were the subject of a very interesting presentation by Professor John Ferris and one in which a number of common themes reappeared. He made the point that uncertainty doesn't necessarily go away with more information and the speed that information might enable is not always desirable. Most pertinent was the term 'opticise'—to learn when you know enough to act. The notion of knowledge and understanding your adversary was again flagged, so as to ensure that when combat power is employed, it is employed effectively.

Dr Christina Goulter drew the link between information and battlespace management in the context of aerospace power. While acknowledging that the concept was as old as war itself, the goal was a faster action-reaction cycle. Battlespace management will also be a key enabler for interoperability and coalition operations and will bring with it considerable challenges for partners such as ourselves. Dr Goulter also again highlighted the critical requirement of control of the air but acknowledged the need to manage expectations of low cost or no cost wars utilising aerospace power. Finally, as the last of the overseas presenters, CAF could not have asked for a more overt supporter of jointery and advocate of aerospace power.

The final presentation was delivered by that most consistent contributor to RAAF air power conferences and champion of aerospace power, Dr Alan Stephens. Alan gave a compelling analysis of the air war over Afghanistan and its relevance to the defence of Australia. In particular he made the point that Australia is one of the few nations capable of fully exploiting aerospace power. The challenge is to re-engage and re-establish Australia as a first order aerospace power.

In conclusion, I believe that we have addressed what we set out to address. We now have a greater understanding of the pressures on traditional states from globalisation and non-state

actors, and an increased awareness of current security issues and concerns. We have also been treated to the full gamut of the modern military lexicon—the revolution in military affairs, information operations, asymmetric warfare, peace support operations, the aerospace transformation, intelligence, surveillance and reconnaissance and battlespace management. Lastly, it is clear that aerospace power will remain a significant contributor to Australia's national security irrespective of the changing nature of conflict and the developing role the state.

I will now hand over to the Chief of Air Force, Air Marshal Angus Houston, who will formally close the Conference.

CLOSURE

AIR MARSHAL ANGUS HOUSTON, AM AFC

Distinguished guests, ladies and gentlemen. I think Air Vice-Marshal Spence has given us a very comprehensive summary of what happened at the Conference over the last two days. It's been a great couple of days, and I don't intend to go over the ground that he's covered.

Air Marshal Ray Funnell said to me a little earlier this afternoon that he thought that this was the best air conference ever. I'm deeply gratified by that because, as you all know, it was Ray Funnell that started this series of conferences back about twelve years ago. So thank you for that comment Ray, and thank you very very much to all the presenters for stimulating us, for enthusing us, and for really doing us proud.

Would you join with me just to thank all the presenters for an outstanding performance. Thank you.

I must also thank the people that put all of this together, and that of course was the Aerospace Centre team under Group Captain Ian MacFarling. He was very ably assisted by Mrs Sandra Di Guglielmo. Sandra, I think you've done us very very proud. The whole thing went like clockwork, and I know without your tireless efforts that wouldn't have been possible.

Sandra was ably assisted by a number of other people and I'd like to just mention them: Roz Bourke, who did all the admin support; Jason Lyons, he was the IT manager and put all of the slides and everything else together and did it very well. He also runs the Aerospace Centre web which I'll be talking about in a little while; Group Captain Graham Bond looked after our international guests. I shouldn't forget also Keith Brent who was ever present sorting out problems as they arose. 28 Squadron also provided Flight Sergeant Therese Sallway and Aircraftswoman Cheryl Fulverton. Thank you very much to both of them.

We also had a number of Officer Cadets from ADFA who acted as ushers during question time and I'd like to thank them: Officer Cadets Chris McGuinnus, Brett York, Hannah Jude-Smith all from ADFA.

So would you join me in thanking Ian and his Aerospace Centre team for an outstanding job in putting a great conference together.

I must not forget our very generous sponsors, and I'll just mention them one more time. It is particularly important that I mention BAe Systems. They have been a regular supporter of these conferences over many many years and they've been very generous to us over many years.

Rolls Royce, Qantas, Smartcover, Defence Health and Defence Credit—thank you all for your great support to the RAAF. Deeply appreciated.

I must also thank the moderators: Air Commodores Julie Hammer, Phil Byrne, Graham Bentley and John Harvey.

I'd like to also thank our international guests for coming to the conference and enriching the conference by your presence. Its always good to bounce ideas off of friends and new friends. Thank you very much for coming.

And to you the audience, thank you very much. I was particularly pleased also that so many of our young people got involved in the debate. I thought it was very encouraging.

I mentioned last night that we would announce the Heritage Awards this afternoon. Thanks to Maxine Dahl for organising that, and we will now parade the artwork. First of all this is 'The Keeper of the Flame' which is the winner of the art award and that's won by Drew Harrison. These are the People's Choice Awards by the way. Then there's also the photographic item which is 'Three of the Best' and that's been won by Darren McNamara, and you can see them both before you now.

Flying Officer Kate Dickson also receives a signed copy of 'The Royal Australian Air Force' of course authored by Alan Stephens.

I was very pleased to see the very robust discussion that we had with Alan Stephens about doctrine, and particularly about Australian air power doctrine. It gives me great pleasure this afternoon to launch the current draft of the 4th Edition of the Air Power Manual. It's a completely new format, and it's being developed after some fairly extensive feedback from some of our younger people. You will note that it is completely different from the previous three editions. It's on the web at the moment, and I'll give you the details of where you can find it in a moment.

What's important is that we want your input between now and 30 August, because on 30 August I want to launch it officially at the RAAF History Conference.

As you've heard, doctrine is most important. Its important that we get it 100 per cent right, and the more people we have looking at it, giving us constructive comments on its contents, the better it will be. At the moment it's about a 90 per cent document—I'd like to have a 100 per cent document by 30 August. So I will ask each and every one of you to have a good read of it and give us your comments. They will be deeply appreciated and they'll give us a much higher quality document.

So where you need to go to find it is that website, and you can read it there and you can also give us your comments on that same website.

I'd also like to endorse what Air Commodore John Blackburn asked you to do last night, and that was to give us comments on 'Back to the Future'. We need to know what you young people think about where we're going to be in 2020 or 2022. Its imperative that we get a clear vision of what things are going to be like in the Air Force in 2022. So again, I seek your enthusiastic input on that subject as well.

That's all I've got say. It's been a great couple of days, and again thank you all for making this a very memorable occasion. I've enjoyed it immensely—I hope you have. Thank you very much.