



**Royal United Services
Institute
of
South Australia Inc**

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Royal United Services Institute of Australia Inc

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RUSI-SA

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NEWSLETTER

Promoting National Security and Defence

RUSI-SA CYBERLINKS

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Monthly Luncheon Speaker

Monday 7 March 2005

**Rear Admiral Kevin Scarce AO, CSC,
RAN (Rtd)**

**Chairman SA Government Defence
Industry Advisory Board and Chief
Executive Defence Unit**

**Topic: Defence Industry Directions in
South Australia**

PRESIDENT'S MESSAGE

I am sure that I speak for all members or RUSI-SA when I express my sorrow at the events of Boxing Day 2004. The Tsunami was, without doubt, the worst natural disaster in living memory, and we can only imagine the terrible impact it has had on our Indian Ocean neighbours and friends. Indeed, the toll on lives and livelihood is well beyond our understanding and experience, and is numbing in its immensity. Our thoughts are, of course, with the victims and their families, and the survivors.

The Australian reaction to the disaster has been a credit to both the Government and the people involved. Swift and generous as it has been, our contribution will not erase the pain of such horrific loss but, I am sure, it will help to ease the suffering for those who have survived. The obvious and total commitment of the deployed ADF personnel, the civilian volunteers, the aid agencies and the general public is something with which we, as a nation, can be modestly satisfied. As much as we might like to, it would be wrong to take any pride in an activity that we all would wish had not been necessary. With this in mind, some of the triumphal media reporting could be considered to be insensitive and inappropriate.

The ability of the ADF to react in a time of crisis and need is something that we tend to take for granted. It is testimony to their training and leadership that the various units and individuals can contribute to disaster relief in such a timely and effective manner. It is not, of course, a role for which they are trained specifically. However, it is a role for which they receive much scrutiny and publicity – and well earned praise.

There has been commentary suggesting that this disaster, and the subsequent Australian reaction and assistance, represents a turning point in the

Australia-Indonesia relationship that will lead to much closer relations in the future. While there is no doubt that the Indonesian Government recognises the importance of the Australian aid contribution, and the people of Aceh are appreciative and thankful, we need to be cautious of looking at this as bringing a new age in the relationship. Benevolence and generosity are not characteristics that will necessarily gain the respect of the Indonesian people and their government - especially if they are accompanied by hubris and triumphalism. The long term development of personal contacts, trust and understanding has always been, and will continue to be, the key to a stable and mutually beneficial relationship between Australia and Indonesia. Our contribution to the disaster relief in Aceh is a worthwhile activity in itself, and should not be seen as a shortcut to other benefits or interests.

Jeff McCulloch
AIRCDRE (Ret)
President

MONTHLY LUNCHEONS

All members are invited to attend our luncheons. Indeed you are encouraged to invite partners, friends and colleagues to join us and, if they like what they see, to nominate them for membership. Please book in advance. If you are unsure whether or not your name is on the booking list, please check!

Cancellations must be into the RUSI Office by midday of the Friday before the lunch. Late cancellations will attract a fee of \$18.00.

The dress code for the luncheon is neat casual, taking weather conditions into consideration. We assemble in Building 34A, Keswick Barracks, Keswick, at approximately 11.30am for drinks and good fellowship. Members are asked to be seated by 12 noon when our President welcomes members and guests, and lunch is served.

The cost of the buffet is \$18.00. We also conduct a raffle to help cover expenses. Our Caterer has agreed to provide vegetarian meals and sweets for diabetics, but these must be ordered before midday on the Thursday before the lunch.

For those who do not have time to enjoy the lunch, but wish to hear the address, chairs are provided around the perimeter of the hall. Please be seated before 12.55pm, as the guest speaker will be introduced at 1.00pm. The address is of about 30 to 35 minutes duration with 15 minutes for questions, after which coffee or tea is available. We aim to complete the program by 2.00pm.

Members are advised that the parking of cars is now NO longer permitted on the Parade Ground. Please use existing designated parking areas.

SOCIAL CALENDAR 2005

Sunday 15 May – BBQ on Keswick Barracks Officers' Mess Patio

Friday 24 June – Dining In Night

Sunday 21 August – Carvery Lunch

Sunday 23 October – Patio Lunch

Saturday 26 November - Sundowner

MEMBERSHIP

The following, who have been nominated for membership, have been duly elected in accordance with the Rules:

Aileen M D Jensen – (FLTLT N Wallbank)

Judith A Harrison – (FLTLT N Wallbank)

Neville J Harrison – (FLTLT N Wallbank)

MEDALS – MEMENTOS & MORE

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Views expressed in this Newsletter are not necessarily those of the RUSI SA inc

LUNCHEON ADDRESS

**7 February 2005,
Mr Bob Major
Nuclear Weapons**

The nuclear fission of heavy elements such as uranium and plutonium releases a large amount of energy (200 million electron volts) because of rupturing of the very strong forces that hold the nucleus together. In the process about 0.1%

of the original mass is converted into heat energy in accordance with Einstein's equation, $E = mc^2$, that is, energy = mass x speed of light x speed of light

The energy released in these nuclear reactions drives nuclear power reactors for electricity production and for nuclear weapons. This large amount of nuclear fission energy is in contrast to the relatively small amount of chemical energy released (1 electron volt) when, say, carbon burns with oxygen to form carbon dioxide (e.g., burning of coal, petrol, etc.). Such burning involves only the outer electrons of carbon and oxygen atoms and only 0.0000001% of the original mass is converted into heat.

Uranium and the Hiroshima bomb

Natural uranium is composed mainly of the isotopes U-238 (99.7%) and U-235 (0.3%) with traces of U-234. However, it is only the U-235 which fissions in nuclear reactors and nuclear weapons, but at a natural abundance of only 0.3% it can be used in specially designed nuclear reactors and will not explode in nuclear weapons. Most reactors require the U-235 to be about 3% in the fuel and nuclear weapons need at least 80% U-235.

Therefore, the U-235 has to be "enriched" to these useful levels. This "enrichment" requires the slightly lighter U-235 to be physically separated from the slightly heavier U-238 in order to bring it up to the required percentage.

The following are the enrichment technologies:

Electro-magnetic technique as used for the Hiroshima bomb

Diffusion technology

Centrifuge technology

The explosion of the Hiroshima uranium bomb was brought about using the simpler "gun" design, whereas for the Nagasaki plutonium bomb the more complicated implosion design was required.

These different techniques used arise from the slightly different behaviour of the U-235 nuclei and the Pu-239 nuclei when they fission after being hit by a neutron. As a consequence of these behaviours the explosive release of energy

in a U-235 bomb is "slower" than in a Pu-239 bomb, and more U-235 is required than Pu-239 for the same yield.

The minimum amount of weapons grade U-235 metal required to maintain a fission reaction (called the critical mass) is 15kg if it is surrounded by a neutron reflector such as beryllium metal. The critical mass of Pu-239 with a neutron reflector is 4.4 kg (about the size of a cricket ball). However, the Hiroshima bomb contained about 42 kg of 80% U-235 and released energy equivalent to about 12,500 tons of TNT. Its efficiency was less than 2%.

Plutonium and the Nagasaki Bomb

Plutonium occurs in nature in uranium ore bodies in only minute trace amounts and so has to be prepared artificially in a weapons nuclear reactor.

In a nuclear reactor the fuel contains U-235 and the more common U-238. Some neutrons from the fissioning of U-235 are absorbed by the U-238 nucleus which then changes radio-actively to plutonium-239. This is fissionable isotope of the plutonium and in a nuclear power reactor the fissioning of Pu-239 provides about one third of the heat in the reactor core.

However, the Pu-239 nuclei can absorb neutrons to form successively Pu-240, Pu-241, etc., which cause problems such as premature ignition in a weapon. Consequently, weapons grade Pu-239 is made in special weapons production reactors where the uranium fuel is left for only 3-4 weeks after which time the plutonium consists of about 93% Pu-239. This contrasts with a nuclear power reactor where the uranium fuel remains for three years and the plutonium comes out with too much Pu-240 to make reliable weapons.

Over Nagasaki on 9 August 1945 the plutonium bomb released energy equivalent to about 20,000 tons of TNT. The implosion technique produces extremely dense plutonium (or uranium) and so today in a well designed bomb less than 2kg of Pu-239 can be used.

Hydrogen Bombs

The fusing together of hydrogen nuclei (i.e.,

very light weight nuclei) release even more energy than the fissioning of the heavy nuclei of U-235 or Pu-239. This is because about 1% of the original mass of hydrogen is converted into energy compared with about 0.1% in the fissioning of U235 and Pu-239.

Consequently much more energy can be released in a hydrogen bomb than can be released by fission from the same mass of uranium or plutonium.

The isotopes of hydrogen used in fusion bombs are hydrogen -2 (called deuterium) and hydrogen -3 (called tritium). The fusing of an H-2 nucleus with an H3 nucleus requires a temperature of about 40 million degrees centigrade, releases about 17.6 million electron volts of energy and very high energy neutrons. The required temperatures and pressures are generated by the explosion of a fission bomb.

The casing of a hydrogen bomb is made of uranium-238. The very high energy released by the hydrogen fusion neutrons cause the U-238 to fission thereby releasing more energy. That is, a hydrogen bomb is actually three bombs in one, viz., fission-fusion-fission.

A neutron bomb is a hydrogen bomb without the surrounding U-235 casing, that is, it is fission-fusion bomb. The very high energy neutrons from the hydrogen fusion go out to the surroundings and can penetrate buildings or armour and kill people more by radiation than by heat and blast.

FROM THE PRESIDENT'S KEYBOARD

SBY – The First 100 Days

In Australia, it would be unusual for a new government to make sweeping promises of what they will do in their first 100 days in power – and even more unusual to be held to account for those promises. But then, in a mature democratic society such as ours, there is rarely any need for rapid, radical change. Party policies are often similar, and conservative, and most people realize that 100 days would be too short a period on which to judge the success or otherwise of a new administration. We have had experience of a newly elected government that tried to change too much too

quickly, with laborious results. In the end, most voters regard election promises with a healthy mix of cynicism and skepticism, regardless of whether the promises are for 100 days or ten years. However, in the developing democracy that is Indonesia, the first direct election of a President has brought with it an expectation of fast, positive action to eliminate all social, political and economic problems; thereby bringing about an immediate improvement in the quality of life for all Indonesians.

Susilo Bambang Yudhoyono, variously referred to as Susilo, Bambang, Doctor Yudhoyono or simply SBY, was inaugurated as President of the Republic of Indonesia on 20 October 2004. Expectations of his administration were very high, particularly in regard to improving the economy and dealing with corruption. These expectations had been fuelled by pre-election promises and speculation, and were amplified by the poor performance of his predecessor, President Megawati Sukarnoputri. Furthermore, the expectation was that the changes would be sweeping and considerable. To some extent, the 100 day deadline for recognizable and measurable change was a product of the media frenzy that accompanied Bambang's election, despite his efforts to portray it as a useful but unrealistic milestone.

Nevertheless, Bambang did make substantial promises that were identified with the 100 day debate, pledging that he would make significant progress during what he called the "100 day breakthrough" period. In essence, he promised to tackle the rampant corruption, reform the bureaucracy, improve the public service and stimulate the economy, particularly with respect to foreign investment.

The 100 days expired on Friday, 28 January, and the Indonesian media has been actively canvassing opinion regarding Bambang's success and evaluating his government's progress against the major promises. The reports have been varied, but generally reflect disappointment. However, like all such assessments, the results have often been influenced by the political viewpoint of the commentators and participants.

SBY is a clever, articulate and charismatic leader. As indicated by his overwhelming defeat of Megawati in the run-off election, he enjoys significant popular support and trust. In particular, he has a mandate to make the changes necessary to reduce corruption and improve the economy – seen

as the two main requirements in any program to improve conditions for the people generally. Unfortunately, he does not have the same level of political support. His Democratic Party holds only 55 seats in the 550 seat parliament. The other parties that make up his support base are outnumbered by an opposition faction that includes Megawati's PDIP party and the Golkar party. His cabinet has ministers from both sides and his Vice-President is the leader of the opposition Golkar. Confusing and complex, it is a challenging environment in which to try to govern.

The challenges began even before the inauguration. Megawati refused to consult regarding the transfer of power and tried to pre-empt the appointment of the commander of the armed forces by promoting the Chief of Army to the position. Bambang managed the situation and retained the incumbent commander, General Endriartono Sutarto, exhibiting a level of political maneuvering that caught his opponents a little off guard.

Predictions and estimates aside, however, circumstances changed quickly. Several unforeseen events have had a significant effect on the political and economic environment in Indonesia, not the least of which was the Boxing Day earthquake and tsunami disaster. The devastation caused by the tsunami in Aceh and Western Sumatra has had a considerable impact on government economic planning, and will continue to be a factor for some time to come. The election of the Vice-President, Jusuf Kalla, to be leader of the Golkar Party has changed the political landscape, although that could be seen to be a two-edged sword. It does place Kalla firmly in the opposition camp but, on the other hand, could provide an avenue for Bambang to enlist Golkar support in parliament. However, Kalla's recent tendency to go his own way and compete with, even contradict the President, probably indicates that this development is not going to be all that helpful to Bambang in his efforts to govern. Indeed, the growing rivalry between President and Vice-President is becoming a major distraction – particularly for the media.

A review of the Indonesian media and commentary leaves the overwhelming impression that the people are disappointed with Bambang's first 100 days in power. Most reports maintain that there has been little, if any, progress in the fight against corruption, highlighted by the apparent lack of vigour in the prosecution of high profile corruptors. Similarly, the failure to resolve several outstanding

disputes with foreign investors over the sanctity of contracts has delayed any likely return of investor confidence. And investor confidence, particularly with foreign investors, is a key element in any program of economic recovery or development. Overall, the consensus appears to be that there has been little change for the good, and the new administration is as unimaginative and lack-lustre as the previous Megawati-led government.

But is all this a fair assessment? Furthermore, is 100 days a reasonable milestone for reporting progress or change? Apart from some sections of the Indonesian media, most commentators would agree that it is neither a valid assessment nor a realistic deadline or milestone. Interestingly, this same Indonesian media admits to a new 'freedom of the press' under Bambang's administration. Indeed, it could be said that they are reveling in the freedom to make pronouncements that may well have seen them shut down and subject to legal sanctions in previous governments.

Indonesia's problems are huge. Corruption is institutionalized and has been a way of life for so many for so long that it is difficult to see how Bambang and his government will make any noticeable progress towards its elimination within the full five year term, let alone the first 100 days. This is despite the pre-election rhetoric and its position at the top of Bambang's priority list. The economic situation has been exacerbated by the tsunami disaster and the need to reconstruct Aceh. As well meaning and welcome as the international offers to help rebuild the devastated region through aid and soft loans may be, the last thing Indonesia needs is more debt to repay.

Unfortunately, little or no progress is evident in efforts to repair the country's poor business environment and improving its attractiveness to foreign investment. Indonesia is especially in need of foreign financing for its massive infrastructure program, essential for its continued economic growth. Thus far, Bambang's ministers have been long on plans and projections, but short on concrete and positive policy.

On the other hand, Bambang's supporters are saying that the situation they inherited is so bad that it is impossible to make significant change in only 100 days. Bambang, they say, has given clear direction to his cabinet ministers to develop and establish the basis for further considered action. They add that drastic change cannot be expected in such a short time (despite pre-election rhetoric)

and, indeed, drastic change would only create anxiety among the people.

All in all it is not a particularly meaningful debate. The 100 days have passed, the media have had their say, the government has answered (sparingly), and the people are still waiting for their expectations to be addressed and satisfied. And that is probably what most people really expected. The important thing is that Bambang still seems to enjoy the confidence of the people and, despite the difficulties presented by the economic and political environment, will continue to strive to make a difference and improve the lot of the ordinary Indonesian. Even more important is the fact that the debate itself provides an encouraging indication that Indonesian democracy is legitimate, robust and continuing to develop.



LIBRARY NON FICTION

AMBLING INTO HISTORY

By Frank Bruni

Ambling into history is a pen portrait of George

W Bush during his first term of presidency written by the celebrated journalist with the New York Time, Frank Bruni.

GENERATION KILL

By Evan Wright

Evan Wright spent two months living with a platoon of US Marine reconnaissance soldiers during the Iraq war – the platoon was part of the spearhead that raced ahead of the main coalition forces to flush out possible enemy ambushes.

AMPHIBIOUS WARFARE: STRATEGY AND TACTICS

By Ian Speller and Christopher Tuck

An amphibious operation involves the projection of a military force from the sea onto a hostile, or potentially hostile, shore. There are four key types of operation: assault, raid, withdrawal and demonstration. Indeed, amphibious forces have been used to good effect for as long as mankind as ventured onto the sea; for example, historical evidence shows that as early as 1200 BC the Egyptian Empire was subjected to attacks by seaborne raiders. And, in situations short of war, an amphibious task force can provide disaster relief, humanitarian support and non-combatant evacuations, as was recently powerfully demonstrated.

Donated by Malcolm Orchard

HUMANE WARFARE: THE PRACTICE OF MILITARY ETHICS

By G M Pender

An essential element in a military organisation's competence is professionalism. And an essential element to military professionalism is the understanding of military ethics and the ability to reflect on their relationship with societal values and expectations.

A recent (2004) publication from the RAAF's Air Power Development Centre, Tuggeranong, ACT

OTHER PEOPLE'S WARS: A HISTORY OF AUSTRALIAN PEACEKEEPING

By Peter Londey

Peter Londey is a senior historian at the

Australian War Memorial and has been its authority on peacekeeping for the past decade. His book covers the complete story of peace keeping activities by Australia from 1947, when four military observers were sent to Java, to the present deployment in the Solomons.

NO PLEASURE CRUISE: THE STORY OF THE ROYAL AUSTRALIAN NAVY

By Tom Frame

In nearly twenty years Tom Frame has written about many aspects of Australian naval history. This new book of his, first published last year, brings his disparate writings together, and show that, as Frame writes, "Australia has produced officers and sailors every bit the equal of those lauded in naval histories of Britain and America".

SEXING IT UP: IRAQ, INTELLIGENCE AND AUSTRALIA

By Geoffrey Barker

Geoffrey Barker is a senior foreign affairs and defence policy columnist, and a research associate with the Institute for Social Research, Swinburne University of Technology. Here he reminds us that "the long-run global consequences of the Iraq war, are, ofcourse, unpredictable".

FUTURE ARMIES, FUTURE CHALLENGES

Edited by Michael Evans, Russell Parkin and Alan Ryan

This book analyses the impact of the information age on future land warfare. It covers issues such as urban warfare; coalition operations; the revolution in military affairs; asymmetric warfare; close combat; peacekeeping; military training and recruiting; and the challenges posed by terrorism. And, as the Chief of Army notes, is a collection of essays that is a reaffirmation of Liddell Hart's famous advice: "if you wish for peace, understand war...."

WAR AT SEA 1914-45

By Bernard Ireland

The period between the two largest and most destructive wars in history saw a revolution at

sea. In 1914 international naval power was measured in dreadnought battleships - yet, within a generation the mighty battleships were rendered redundant, and submarines and aircraft dominated the seas. Battles began to take place at extreme ranges, with rival fleets not always in sight of one another.....

DONT WORRY ABOUT ME

Edited by Robyn Arvier

The idea for this book came from Robyn Arvier's family's collection of letters, a collection kept for many years in an old shoebox, a collection that spanned nearly five years. Letters that had been written by her father, a member of the ill-fated 8th Division AIF...

Suspecting that there could be similarly hundreds of letters written during the war years still being kept in boxes and bottom drawers by other Australian families, Robyn Arvier, with a book in mind, advertised widely for war time mail written by 8th Division AIF members. Max Venables, author of the very impressive "From Wayville to Changi", was one who responded....

Donated by Max Venables.

LIBRARY FICTION
