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Air Power : Now Dominant in Conventional Warfare

by LTC Chee Vui Chung

Air power is the decisive arm so far, and I expect it will be the decisive arm into the end of the [Gulf War] campaign, even if ground forces and amphibious forces are added to the equation... I expect air power to be even more decisive in the days and weeks ahead.

- General Colin Powell1

The strategic air offensive made little difference to the outcome of the [Gulf] War and almost certainly failed in its objectives ... it is not clear that it was necessary ... [and] it did not create the pure "victory of the air power".

- Norman Friedman2

The spectacular performance and contribution of air power during the Gulf War have sent air power advocates into great exhilaration. Douhet must be glad at the apparent forceful validation of his theory on the supremacy of air power resulting from the Coalition forces' command of the air. Courtesy of the Gulf War, and that war alone, air power seems to have finally shaken off its bridesmaid image. Air power, as distinct from air force, is defined as a "collection of unique capabilities that exploit and control the air and space media to gain a powerful advantage in time, mass, position, and awareness in pursuit of national interest". The 19th and 20th centuries have been dominated by ground and sea forces, but the 21st century looked destined to be dominated by air forces. Is Air Vice Marshall R. A. Mason, RAF, correct when he proclaimed that :[t]he Gulf War marked the apotheosis of twentieth-century air power?"3 Or do the so-called air power sceptics such as Caroline F. Ziemke have a point when she wrote that "air power provides the technological capability ... [but] sooner or later you have to engage the enemy's army on the ground whether with attack aircraft, tanks, artillery, infantry, or bows and arrows?"4 Is it premature to conclude that air power has achieved pre-eminence over sea power or land power?

This essay will present a balanced approach on air power's role and importance in war. Firstly, it will briefly recount salient aspects of the Gulf War to show that air power has some valid claims to prominence. Secondly, the following arguments on air power as the dominant element in conventional war will be discussed:

- *The uniqueness of Gulf War which facilitated air power is unlikely to be duplicated.*
- *Air power has not proven that it alone can win wars.*
- *There are many inherent limitations that will circumscribe the rise of air power.*

Thirdly, it will be argued that most countries do not have the impressive air power possessed by the US. To them, the Gulf War notwithstanding, air power is still perceived in terms of an air force supporting other armed services. Finally, the essay will conclude that the pre-eminence of one or other forms of power tend to be scenario-based. Attention should instead be focused on the greater synergy that can be harnessed through the integration of land, sea and air power in joint operations.

The Potency of Air Power During the Gulf War

Air power during World War II, the Korean and Vietnam Wars were characterised by lack of accuracy and effectiveness. Thus brute-force techniques such as repeated sorties or "carpet bombing" had to be resorted to. In stark contrast was the potency of air power during the Gulf War which was characterised by precision, efficiency and effectiveness. With only about one per cent of the bombs dropped in 11 years in Vietnam, allied air assets shut down Iraqi gasoline production, electricity, transportation, communications, offensive-weapons production and air-defences. Integrated air power reached out to block and incapacitate the enemy forces. F-15s and F-16s flew strike missions while F-14s flew as escorts. EF-111s provided jamming support and tankers increased striking ranges. F-117s took on strategic bombing missions as B-52s delivered close support for front-line troops. Transport planes shared in the action.[illegible] When Israel needed *Patriot*missiles, airlifters delivered the first one to Tel Aviv 11 hours after the order was made.5[illegible] Not surprisingly, modern day Douhets proclaimed that the era of air power has arrived.

As Douhet had predicted, the morale of the Iraqi soldiers showed severe cracks under continuous bombing. It was not as clear, however, whether this effect was found in the Iraqi decision-makers or the population at large. It is also not conclusive that air power has inflicted strategic and operational paralysis on the Iraqi war-machine. What is clear is the technological capabilities of air power. Leading-edge technology has been the main impetus behind the rapid[illegible] transformation of air power.[illegible]

First, the use of stealth technology minimised, if not prevented, the detection of aircraft allowing freedom in the identification and engagement of targets at very low risk. For example, the F-117, dubbed "The Ghost" by the Arabs has returned air war to the pre-radar days. Due to stealth capability, it was the premier strategic bomber, striking more than 30 percent of targets and yet comprised less than 3 percent of the air assets.[illegible] It is not surprising that the F-117s drew the most difficult[illegible] targets because of its near invulnerability and yet not one aircraft was lost or even sustained battle damage.

Second, the integration of various technologies resulted in greater synergy in the utilisation of air power by facilitating functional specialisation and economy of force. To attack one airfield, four A-6Es and four *Tornadoes* striking the airfield were protected by four F-4G Wild Weasels, five EA-6B radar jammers, and twenty-one F/A-18C *Hornets* carrying radar-homing missiles. The ratio of support aircraft to strike aircraft was almost 5:1, and an aircraft to target ratio of 38:1.[illegible] At the same time, twenty-one F-117s were striking 37[illegible] targets, by themselves with no support aircraft and at an approximate 1:2 aircraft to target ratio.6[illegible]

Third, improved munitions such as the precision-guided munitions (PGMs) contributed to the efficiency of the air war by reducing the number of bombs needed to neutralise a target.[illegible] The number of sorties needed were reduced, fewer aircraft were needed and[illegible] fewer air crew lives put at risk. It also meant far less collateral damage and civilian casualties.

Fourth, the usage of space enormously enhanced surveillance, secure communications, weather reporting and navigation.[illegible] The use of the Global Positioning System, (GPS)[illegible] identifield the locations accurately and helped limit the danger of fratricide by increasing greater situation awareness.7[illegible]

There is, therefore, some basis behind the euphoria of the air power advocates following the Persian Gulf crisis.[illegible] Compared to any war before *Desert Storm*, air power has not been as convincing during the Gulf War. However, the post-Gulf War endorsement of air power has been less than unanimous. There are still considerable reservations regarding the dominance of air power.

Argument Against the Dominance of Air Power

The Uniqueness of the Gulf War is Unlikely to be Duplicated in Future Wars

[The] first lesson of the Gulf War is to be very wary about drawing any so-called lessons of the Gulf War.

- William Perry, Joseph Nye, Bobby Inman & Roger Smith8

Conclusions based on a small sampling size, according to statistical theory, are often not very convincing and usually have the opposite effect of drawing sceptism. The distinctiveness of the Gulf War places severe constraints on the ability to draw lessons from it.[illegible] Admittedly, all wars are unique. But the Gulf War, in terms of Iraq as the enemy, the Kuwaiti terrain, and other features made it even more distinctive and unique in[illegible] many ways. Whether any major, long-term lessons can be drawn at all from the Gulf War is in fact questionable.9[illegible]

First, it is unlikely that the US will have such unprecedented world support which permitted the application of air power with such minimal restraints. President Bush did not have to worry about Soviet or Chinese intervention like President Johnson during the Vietnam War. The importance of the Arab cooperation should not be overestimated. The US cannot assume that such unanimity will exist again.

Second, it is unrealistic to assume that there will be in future, wars where there is such a pronounced mismatch of capabilities between the opposing sides. It has been said that Cannae required not only the brilliance of Hannibal, but also the dullness of a Varro. The Gulf War had both.10[illegible] The great disparity in military might and the overwhelming technological advantage of the Coalition, which was most evident in air power, gave the Iraqis faint hope of victory. Saddam had not intended to use his armed forces in the first place for he knew he had little chance of winning.[illegible] But he miscalculated, thinking that the world would ignore his invasion of Kuwait and that the US would never initiate a war. His lack of response during the war reduced what Clausewitz called war's "friction" to minor nuisance levels resulting in a virtual "walkover". The Coalition air power did not have to contend with a "real" and potent adversary. The air war was conducted in an almost sterile environment where the enemy threat was effectively non-existent. The attainment of virtual air supremacy was facilitated by the inability or refusal of the Iraqi Air Force and Air Defence to challenge the Coalition's air onslaught. For most part of the so-called air war, the sorties resembled training flights rather than combat ones where there were negligible risks involved. It would be irresponsible to assume that other military leaderships or armed forces are no more capable than Iraq's. Iraq represented no more than a punching bag that could have been defeated almost as easily by a smaller and less technologically elegant Coalition force.11[illegible]

Thirdly, the terrain in the Gulf War is not a universal model for future wars.[illegible] The Kuwaiti desert was ideal for air attack. Lines of communication were clearly discernible and vulnerable. There was nowhere to hide an army of 300,000 and their equipment. The Iraqis were forced to dig-in resulting in operational and tactical inflexibility and immobility. Had the war been waged in a forest, jungle or built-up area, the adversary would have been able to conceal its forces better.[illegible] And what the air force cannot find, it cannot hit.

Fourthly, the war was supported by extensive support facilities already in-theatre and aided further by large quantities of stockpiles. With nearby bases to launch and replenish fuel and munitions, flying endurance and range, a severe limitation of aircraft, was greatly enhanced. This was possible, in the first instance, due to Saddam Hussein's failure to advance into Saudi Arabia following his invasion of Kuwait. Such a move would have denied the Coalition forces key staging areas and complicated their planning for and support of the air campaign. That this will be a future typical scenario is questionable.

Fifthly, there was a long lead time before the commencement of hostilities. While the US had no time to prepare for its war in Korea, there was a five-month hiatus between Saddam Hussein's invasion of Kuwait and the launching of Desert Storm. This period of time provided extensive time for the Coalition forces to deploy itself in Saudi Arabia and conduct invaluable scenario-specific training, including rehearsals, on the spot.

Non-Lessons of the Gulf War

There are also non-lessons of the Gulf War regarding air power.[illegible] The Gulf War failed to comprehensively test the ability of air power to handle situations involving chemical weapons and effective theatre ballistic missiles. The US forces have had no experience in chemical warfare since World War I, and were ill-prepared to deal with the possibility of Iraqi chemical weapons attacks. There is no guarantee that future adversaries will not employ such means, especially those who seek to invest in nuclear weapons, ballistic missiles and chemical munitions as a short-cut to narrow the capability gap. Besides the partial offsetting of superior conventional air power, these weapons are gaining favour because of the demonstrated gaps in the defences against them.

The other non-lesson is the ability of air power to support tactical-level operations.[illegible] Air power was employed during Desert Storm mainly at the strategic-level and, to a lesser extent, at the operational-level. Whether it will be as effective at the tactical-level is open to question, particularly when fratricide is such a major concern.

Air Power Alone Cannot Win Wars

Air power advocates claim that it was air power that won the Gulf War. However, they are unable to objectively counter the retort that it was the land campaign, however short it may have been, that brought the war to a victorious conclusion. An adversary facing a 400,000-strong allied army on its border would behave differently than one facing only air attacks, no matter how great the pounding.13[illegible] Air control does not equate with surface control as seen in its failure to evict Iraq from Kuwait and the Bosnian conflict. The success of the Berlin airlift in 1948 was due in no small part to the resolve of the US ground, naval[illegible] and nuclear forces poised at a heightened level of attack readiness.14[illegible] It is more balanced and accurate to conclude that it was joint warfare that won the Gulf War. In future, joint warfare will become imperative as each service brings its particular strengths to the battlefield and the integration means that no one side can claim sole credit or blame.

Air and maritime strategies have to interact with the land strategy.15[illegible] Michael Howard described the interdependence when he likened it to be "like two blades of a pair of scissors". Citing the interactions of air operations and surface operations during World War II, he questioned the pre-eminence of air power when he retorted: "It is like asking which blade of scissors does the cutting; they reciprocally interact."16[illegible] For example, during World War II, the German economy was very vulnerable to air attacks as it was stretched and preoccupied with major surface operations. The atomic bombs dropped on Hiroshima and Nagasaki might have sped up the effect of strategic bombing, but it was still necessary to bomb from bases which had to be obtained and defended by land power.17[illegible] While intercontinental ballistic missiles boast of greater reach, they require the security and protection of ground troops for land-based sites and naval forces for ship-based launchers. To be effective, air power cannot operate in isolation.

At the operational level, air-based, sea-based or land-based platforms are used to attack targets effectively.[illegible] There is a need for joint operations in which all three armed services exercise their own skills and specialities.[illegible] But they must all pursue a single and coordinated strategy in which air power will play its appropriate part. Air power is not an end in itself, but an enabler that allows other land and sea missions to operate more effectively. Air power, as such, has neither been able, nor is expected, to win wars by itself.18[illegible]

Inherent Limitations of Air Power

[T]he recurrence in this conflict of obvious limitations to the operational-strategic efficacy of air power - notwithstanding the enormous advances in weaponry since 1918 and the near-ideal conditions in which the Desert Storm campaign was waged - argues that these limitations are neither transitory nor due to technical shortfalls that will soon be overcome.

-[illegible] Gulf Way Air Power Survey.19

There are inherent limitations of air power that curtail its dominance, even in the future. This does not imply that land or naval powers are void of any limitations or that these limitations are unique to air power.[illegible] But an appreciation of these limitations lend a critical perspective to an analysis of air power pre-eminence.

The first limitation to air power emanates from technology. Technology facilitates "demassification" which is the fractioning of large conventional targets into smaller ones, making them less attractive because they are more numerous, mobile, difficult to locate, and difficult to target. Information technology liberates leadership and command centres from the requirement to remain in fixed sites. It is not inconceivable that leaders of the future could be waging wars from their domiciles, from non-belligerent states, or offshore. As hierarchies yield to network, leadership too will be demassified. Miniaturisation, combined with demassification, will complicate the challenge. A big satellite receiver, measuring three to five metres, will be an easy target for precision-guided or area weapons. But the advancement of technology has reduced that to one-half metre making it more difficult to strike, especially with many employed in a distributed network.[illegible] The concept of dual-use technologies further compound the complexity.[illegible] Fermentation chambers used to brew beer can also be used for the production of biological weapons. Dual-use systems do not fit easily into the targeting template. Information technology is ubiquitous and serve multiple groupings. The consequences of the degradation or destruction of such systems will, without discrimination, be borne by friendly forces, enemy and neutrals alike.20[illegible]

The combination of demassification, miniaturisation and dual-use lead to the use of ninjitsu - the art of invisibility. By distributing important elements of a system, reducing them dramatically in size, and embedding them in "innocent" facilities (such as religious buildings, orphanages, hospitals, university research buildings, libraries), an adversary can make these elements effectively invisible.[illegible] Employing ninjitsu will adversely affect any campaign planner.[illegible] But while the land forces can re-organise itself into small units to search and destroy the targets, air power lacks similar flexibility and fungibility.[illegible] It will have to rely heavily on ground forces for target intelligence and, if necessary, target designation.21[illegible] For what cannot be found cannot be targeted by aircraft.

The second limitation arises from the increasingly high dependency on electronically transmitted information. Compared to ground and naval warfare, it is in the exercise of air power that such information is more pervasive. Thomas Keaney and Eliot Cohen wrote that "Clausewitz's fog of war may now rise not so much from a paucity of good information as a plethora of half-knowledge".22[illegible] The perennial problem of bomb damage assessment, for example, means that the fog of war will persist as more intelligent means must constantly be developed to interpret imagery and cross-checking with other sources of information. Precision warfare has an insatiable requirement for precise information. The advent of personal computing creates user tendency to fiddle with data ceaselessly and to submit them just before deadlines. Similarly, the avalanche of information prompts commanders to change targets or tactics frequently. In the Gulf War, commanders changed one-fifth of all missions during the few hours between the time the staff printed the centralised Air Tasking Orders (ATO) and the time the aircraft took off.[illegible] Changes were effected even after the aircraft had departed their bases. Short decision times created by modern weapons demand quick decisions on the basis of electronically-displayed information whose underlying ambiguity may not appear apparent to those who use it. It is difficult to discriminate among various types and levels of information credibility when the sifting and correlation is done by a distant, anonymous expert, or even a machine.[illegible] Attractive information displays, easily manipulated by computer-literate commanders and their staffs, can create a dangerous sense of omniscience. The heavy dependence on electronic information is especially vulnerable to ingenious hackers.[illegible] The genius of a few individuals may compensate for the overall quantitative and qualitative weakness of a small country.23[illegible]

The third limitation is that air power works best in massive doses applied against the strength of industrial or industrialising states, uniformed armed forces and identifiable leaders. John Keegan and Martin van Creveld suggested that conventional warfare between industrial states is the less likely form of warfare for the future.24[illegible] If they are correct, wars of limited scope will[illegible] be more likely which implies that the massive application of air power will be severely curtailed. The recent Bosnia experience seems to validate this.

The fourth limitation refers to the vulnerability of some technological advances underpinning air power to weather and foliage. Smart bombs are easily degraded by adverse weather as their laser- guidance system

is unable to penetrate cloud and rain. Stringent line-of-sight is a characteristic requirement of satellite reception for both communication and GPS, and for weapons systems dependent on laser technology, including smart-bombs.[illegible] These modern technologies will be severely degraded by the foliage in forest and jungles where line-of-sight is difficult to achieve. This limitation did not affect air power during the Gulf War thanks to the open desert terrain. But as mentioned previously, future wars may be fought in different physical terrains.

Many Countries Are Unlike the USA

Besides overemphasising the Gulf War, the dominance of air power is also essentially premised on a US or US-led model.[illegible] Very few countries possess or can avail of such leading-edge air power technology unless they are part of a US-led coalition force similar to that of the Gulf War.[illegible] It is unlikely that the US will sell these capabilities, even to its allies, in order to maintain its technological edge. And even if it is willing to sell, very few nations can afford it. Besides quantitative inferiority, most countries possess air power capabilities that are a few generations behind that which impressed the world during the Gulf War. It is doubtful that these countries can confidently proclaim that air power is for them a dominant element in their vision of conventional warfare. Their capabilities, doctrine development and operational proficiency in the use of air power put them in a minor league compared with the air power demonstrated during Desert Storm. More likely, the post-Gulf War proclamations about the potency of air power is academic and irrelevant.

Conclusion

It is inappropriate to ascribe pre-eminence to air power by its performance during the Gulf War which was distinct in its brevity and lop-sidedness. Many aspects of the uniqueness of that war have facilitated the impressive performance of air power. And even then, air power has not demonstrated that it can win a war by itself.[illegible] It may pound the adversary into near-submission, but because it cannot capture and hold ground, it will be denied the prize of clinching ultimate victory. More importantly, it is unlikely that the uniqueness of the Persian Gulf crisis will be present in future conflicts.

The dominance of air power is also circumscribed by several operational and technological limitations.[illegible] The most challenging of these is being still able to effectively target an adversary who will be bent on increasing his invisibility and survivability. To remain effective, air power will have to depend on others, particularly land forces, for target intelligence. As Szafranski puts it, "That which cannot be identified, cannot be targeted".25[illegible]

Air power's dominance in war is most doubtful when subjected to the practical assessment and application of countries whose air war capabilities are only a fraction of that of the US. For these nations, their air power capabilities have remained significantly unchanged despite the Gulf War. Any discussion of increased dominance of air power is academic.

On balance, one form of force may be better suited to a particular function than another. However, that does not make it superior and the other inferior, one dominant and the other subordinate. Air power has shown that it is capable of contributing enormously towards victory in war. But it cannot yet convincingly assume prima donna status as it has not demonstrated that it is the dominant element in conventional warfare. And it is unlikely that it ever will. The future of warfare points to "joint" and "integrated" mode where the synergy of the strengths of air, land and sea power are harnessed for greater overall lethality.

ENDNOTES

1.As cited in James A. Winnefeld et al., *A League of Airmen: U.S. Air Power in the Gulf War* (Santa Monica, Calif.: RAND, 1994), p. 279.

2. Ibid., p. 277.

3.As cited in Richard P. Hallion, Storm Over Iraq (Washington D.C.: Smithsonian Institution Press, 1992),p. 1.

4.Winnefeld, op. cit., pp. 279-80.

5. Donald Rice, "Air Power in the New Security Environment" in Richard H. Shultz, Jr. And Robert L. Pfaltzgraff, Jr., eds., *The Future of Air Power in the Aftermath of the Gulf War* (Alabama: Air University Press, July 1992), p. 11.

6. Hallion, op cit., p. 249.

7. In the near future, GATS-GAM (Global positioning system aided targeting system-Global positioning system aided munition) will enable the B-2 to individually target 16 separate points on a single pass and use a precision guided munition on each one. It will change the thinking to how many targets you can attack with a given sortie, rather than how many sorties it takes to attack a given target.

8. As cited in Jeffrey Record, *Hollow Victory: A Contrary View of the Gulf War* (McLean, Virgina: Brassey's Inc, 1993), p. 136.

9.James Blackwell, Michael J. Mazarr, and Don M. Snider, *The Gulf War: Military Lessons Learned* (Washington D.C.: The Centre for Strategic and International Studies, July 1991), p. 1.

10.Meilinger, Philip S, "Airwar and the Future", *Army Quarterly and Defence Journal*, Vol 122 No 2, April 1992, pp. 169-178.

11.Record, op. cit., p. 136.

12.Jeffrey Record, "Why the Air War Worked", *Armed Forces Journal International*, April 1992, p. 44.

13.Richard Szafranski, "Parallel War: Promise, Problems", *Proceedings*, August 1995, pp. 58-59.

14.Philip S. Meilinger, "Ten Propositions Regarding Airpower", *Airpower Journal*, Spring 1996, pp. 73-74.

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16.*Ibid*., p. 10.

17.*Ibid*., p. 11.

18.Howard, *op cit*., p. 11.

19.Eliot A. Cohen, *Gulf War Air Power Survey Vol II* (Washington, D.C.: US Dept of Air Force, 1993).

20.The GPS is a good example. It is a lucrative target, but the constellation of GPS satellites are demassified and distributed, and GPS is used by both civilian and the military.

21. Szafranski, *op cit.*, pp. 58-59.

22.Thomas A. Keaney and Eliot A. Cohen, *Revolution in Warfare? Air Power in the Persian Gulf* (Annapolis, Maryland: Naval Institute Press,19950), p. 216.

23.This point on information vulnerability draws heavily from *Ibid*., pp.216-220.

24.Szafranski, op cit., p. 58. The author was referring to John Keegan, *A History of Warfare* (New York: Alfred A Knopf, 1994) and Martin van Creveld, *The Transformation of War* (New York, The Free Press, 1991).

25.Szafranski, op. cit., p. 60.

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LTC Chee Vui Chung is currently a Branch Head in Defence Policy Office. He graduated from the Philippines Military Academy in 1981 and the Singapore Command and Staff College in 1992. In 1998, he obtained an MA in Strategic Studies from the Australian National University.

Is the Super Carrier Going to be Obsolete?

by MR Tan Puay Seng

The aircraft carrier is undoubtedly the most powerful and impressive surface vessel. Its symbol of naval might rests on its ability to project airpower anytime in the world, demonstrating an immense operational flexibility and capability. Since aircraft carriers can be stationed at sea for a protracted period, they serve as credible forward presence in troubled spots abroad. Furthermore, its offensive and defensive power is formidable, possessing a full spectrum of aircraft capable of supporting surface fleet operations in four dimensions - air, land, sea and underwater. Carriers provided air cover and support for land forces during the Korean War, the Vietnam War, the Falklands Conflict, the 1991 Gulf War and the conflicts in Bosnia from 1992 to 1995.1

Notwithstanding this, the cost of acquiring, maintaining and operating a carrier package is exorbitant. The price tag of an aircraft carrier ranges from a low-end of US$256 million for the UK Royal Navy's helicopter carrier, HMS *Ocean*, to the high-end US$5 billion for the US *Nimitz*-class super carrier. Thus, in view of budgetary constraints, issues regarding the continued reliance on large-deck carriers has been widely debated. Cheaper alternative platforms were sought to provide an equivalent military capability to the carrier in terms of its high explosive payload delivery; one notable instance was the proposal of the Maritime Fire Support Demonstrator (MFSD) - commonly known as the arsenal ship. Other attempts have also been made to downplay the role of sea-based aviation vis-a-vis land-based aviation. This has a direct impact on the size as well as the prospects for the aircraft carrier since the need for naval aviation provides the sine qua non for the carrier's continued viability.

The 'large versus small or medium-sized' carrier debate has been argued in the US since the 1970s because shrinking defence resources at that time placed a premium on new and less expensive ways of projecting sea-based airpower.2 However, two considerations prevailed to retain large-deck carriers. First, there was the concern that only small monetary savings would be realised from substituting medium-sized carriers for large ones.3Medium-sized carriers may not save a great deal, since hull steel is one of the least expensive items in the overall cost of a vessel. Furthermore, less power per ton is needed for a super carrier to cruise through the sea than a smaller vessel. Grove argued that "the lower tendency to pitch and roll of larger ships and their greater sea-worthiness means lower rates of operational accidents and narrower bands of conditions in which aircraft cannot be operated for safety or physical conditions.4Moreover, to a large extent, the cost of the carrier also depends on the equipment and weaponry that it carries. Significant amounts of costs are associated with the catapults and the arresting gear needed for conventional flight operations, which are accrued regardless of the vessel's size.5

In addition, the size of the aircraft carrier gives economies of scale *vis-a-vis* the aircraft it carries. The bigger the carrier, the more aircraft it can carry per ton of displacement.6With four catapults and large lifts and parking area, a super carrier can generate a very high sortie rate, crucial in early stages of operations in a high threat environment.7

There was also a concern that there would be a significant decline in effectiveness because smaller carriers would be unable to carry a wide spectrum of aircraft. Only large-deck carriers have the space and capability to carry a comprehensive range of aircraft to cater for a variety of roles. To illustrate, current air wings on board US super carriers perform a vast array of roles: long-range interception, medium- and long-range strike missions, anti-submarine warfare, electronic warfare, and airborne early warning. On the other hand, small-sized carriers carry a complement of aircraft and helicopters that cater for limited support roles. During the Falklands Conflict, the British destroyers HMS *Sheffield* and HMS *Coventry*, the frigates HMS *Ardent* and HMS *Antelope*, the landing ship HMS *Sir Galahad* and the merchant ship *Atlantic Conveyor* fell victim to Argentine Air Force and Navy air attacks.8This costly toll was due to the fact that the British Task Force lacked an in-depth defence, which was inadequately provided by the fleet of *Harriers* from HMS *Hermes*and HMS *Invincible*. It required the type of tactical air support a large-deck

aircraft carrier could have provided with its tactical reconnaissance and airborne early warning aircraft.9Leopold suggests that had the British had one of these super carriers with its embarked air wing of 90 aircraft, the Falklands conflict 'might have been over in days with little casualties to Royal Navy ships.'10

The aircraft carrier is a potential source of vulnerability, the obvious reason being it is a much bigger target than other surface vessels. Thus, the aircraft carrier, with its high cost and operational prominence in most ambitious sea control activities, is a high-value target to air, sea or underwater attacks. The chance of a US$5 billion super carrier being disabled or sunk by a US$1,000-sea mine questions the cost effectiveness of aircraft carriers. One notable incident was during the 1991 Gulf War when the US amphibious helicopter carrier USS Tripoli was struck by contact mines.11

However, an aircraft carrier suffers the same nature of vulnerability as any other surface vessels. Sea mines and anti-ship missiles pose a potent threat not only to the aircraft carrier but to any surface vessel. Several recent incidents can be cited: during the allied naval operations in the Iran-Iraq War, the frigate USS *Stark* was hit by two *Exocet* missiles fired by an Iraqi *Mirage* F1EQ; on 13 April 1988, the frigate USS *Samuel B Roberts* struck a mine,12in the recent 1991 Gulf War, the AEGIS cruiser USS *Princeton* triggered a ground mine while travelling at a very low speed.13Thus, it would be inaccurate to pinpoint the aircraft carrier as the most vulnerable due to her size as other smaller surface vessels are equally vulnerable. Since 1945, no aircraft carrier has been damaged operationally or sunk, despite operating in hazardous environments. Furthermore, modern carriers are equipped with electronic countermeasure features, making them less vulnerable to launching platforms and anti-ship missiles.14

Moreover, its large size increases the prospect for such feature designs as the armouring of the flight and lower decks, and the protection of magazines and crew areas, making the super carrier more adaptable to absorbing damage than a smaller vessel.15For instance, on 6 January 1969, the premature ignition of a *Zuni* rocket caused an explosion on board the USS *Enterprise*, which created an inferno in which 27 died, 344 were injured and 15 aircraft were lost.16Notwithstanding this, the damage below deck was limited by the armoured flight deck, and the aircraft carrier was repaired and ready for operations in barely two months17, a testament*inter alia*, to a carrier's robust design features. Moreover, aircraft carriers are mobile bases making them more difficult to be hit by surface-to-surface missiles compared to static land bases. For instance, during the 1991 Gulf War, the carrier battle groups were safe from the threat of *Scud*attacks, an advantage which could not be applied to fixed airbases especially after Dhahran was hit.18

Another proposed alternative to the aircraft carrier, the MFSD, or the arsenal ship, was once dubbed the 'Battleship of the 21st Century'.19Manned by a small crew of 50, equipped with 750 vertical missile launch tubes, the arsenal ship was designed as a low budget, stealthy forward-deployable system, capable of delivering massive amounts of precision-guided ordnance to distant land targets.20In such aspects, the arsenal ship is seen as a much more cost-effective weapons system platform *vis-a-vis* carriers, not only in terms of its small manning crew21, but also discounting the need for carrier-based aviation to deliver an equivalent high-explosive (HE) payload.

Although the arsenal ship packs an awesome offensive power, its utility is constrained to certain narrowly defined missions. Unlike carrier air wings, these ships cannot perform the full panoply of prospective missions that the US Navy might have to undertake.22For instance, the role of cruise missiles can be inappropriate in certain situations, such as the enforcement of no-fly zones, a task which thus could not be undertaken by arsenal ships. Nor can the latter conduct aerial interception or escort missions or operations such as the one that forced down the *Achille Lauro* hijackers in 1985.23Operation *Deny Flight* saw the extensive support of carrier-based aircraft to reinforce 'a ban on military flights in the airspace of Bosnia-Hezergovina'.24

The arsenal ship is no less vulnerable than the aircraft carrier. Its defensive capability relies entirely on its stealth characteristics; it has minimal self-defence against missile threats and has no sonar system to detect submarines.25Furthermore, in the event the arsenal ship is hit by a missile strike, it is doubtful whether its crew of 50 will be able to control the extent of damage on board. With the highly concentrated ordnance

on board the arsenal ship, the risk of an accidental fire turning into an inferno may be beyond the ability of a small crew to control. Furthermore, a simple malfunction in the elaborate, highly-automated control system on board the arsenal ship would render useless the majority of the strike missiles lying idle beneath deck, turning the ship into a sitting duck. Thus, not only does the arsenal ship have the offensive firepower to deliver a knockout blow, ironically it is also easily knocked out of action.

The cost-effectiveness of the arsenal ship as a means of delivering high-explosive (HE) payload is dubious.26[illegible]The arsenal ship per se, because of the lack of any active defensive capability, would have to be escorted - and the costs of these escorts also have not been considered in the $500 million-budget for the arsenal ship.27[illegible]In addition, the targeted cost for the arsenal ship excludes the cost of the missiles. Adding the cost of 750 missiles, a fully loaded arsenal ship's price tag may skyrocket to a hefty $2 billion dollars. Therefore, the assertion that the arsenal ship would offer a 'bigger bang for a buck' can be easily refuted.

In addition, there is greater flexibility associated with the modern carrier aircraft with appropriate precision-guided munitions. Even though missiles and unmanned systems are assuming more prominence, they cannot match the flexibility and adaptability of manned aviation, which is able to perform a wide range of offensive and defensive missions.28[illegible] In addition, the use of precision-guided munitions delivered by manned strike aircraft may be more effective and accurate in destroying a low- value 'soft' target than cruise missiles. The use of cruise missiles to neutralize the enemy may not be the most cost-effective approach. Each cruise missile costs approximately US$1.2 million to deliver a 1,000-pound warhead against 'soft' targets. In contrast, a 2,000-pound laser-guided bomb costs approximately $73,000.29[illegible]Although cruise missiles have commendable accuracy, they lack 'the fine precision of a laser-guided bomb dropped with a craftman's eye.'30[illegible]Even if missiles launched from surface combatants obviate the need for carrier-based strike aircraft in attacks against fixed targets, attacking mobile targets are much more complex requiring the presence of a pilot to make crucial judgements.31[illegible]Furthermore, manned aviation can also provide an instant and more accurate Battle Damage Assessment.32[illegible]One can also note that the *Nimitz*-class carrier has the HE payload equivalent of approximately 4,000 cruise missiles.33[illegible]

Thus the US Navy decided to cancel the arsenal ship programme in October 1997, after the US Congress approved only $35 million of the $150 million for the programme in fiscal year 1998.34[illegible]This has indeed eliminated a serious contender to replace the aircraft carrier.

In March 1996, two US carrier battle groups were deployed in the vicinity of Taiwan in response to China's pressure to disrupt the presidential elections on the island. This was perhaps one of the clearest indications of the use of carrier groups as a forward but unobtrusive military presence. On the other hand, it was argued that 'presence' forces based in the US[illegible] can reach[illegible] the scene of crisis quickly - like an air wing of long-range bombers -could deter as well. The United States Air Force's new strategy, Global Reach - Global Power35[illegible]was a reiteration that 'visibility does not always require forces on the scene..., long-range bombers could reach any crisis in a day'.36[illegible]

Although the help of in-flight refueling, long-range bombers operating from the US can maintain a degree of presence in airspace over the conflict zone, the constancy and cost-effectiveness of such a presence is in question. In the absence of a full-scale conflict, long-range bombers per se, a one-dimensional instrument of offensive power, may be regarded as an act of provocation, and they could maintain their 'presence' in the airspace at best for a few minutes by performing a fly-over. On the contrary, aircraft carriers, moving freely in international waters and uninhibited by base restrictions, could maintain their presence for days, weeks or even months. Therefore, launching a bomber air wing from the US to keep a 'visible' presence in the airspace above Iraq or Bosnia for years on end would be a waste of resource allocation, much less a viable operational plan.37[illegible]

Land-based aviation cannot escape the constraints that accrue to land- basing *per se*. Land bases are generally permanent, or at least, difficult to move about. With this geographical limitation, they reflect particular strategic assumptions,38[illegible] thus dictating a degree of operational inflexibility. Moreover, land-based air facilities are often either unavailable, or access is limited for geographic, climatic or political factors.39[illegible]During the Korean War, the limited land-basing facilities in the Far East required carrier-based

aircraft to be used extensively to support operations on shore and to maintain air superiority.40 The British Task Force had to sail 8,000 miles to respond to the Argentina's occupation of the Falklands, without the comfort of logistical or land-based aviation support from nearby land-basing facilities. During Operation *Deliberate Force* (bombing of Bosnia) in 1995, the Italian government refused to allow the US to deploy F-117s to its air base.41 The US carrier air wings can respond in a more timely fashion. In June 1992, as part of NATO's Operation Sharp Guard to police sanctions against the former Yugoslavia, carriers were stationed in the Adriatic Sea within ten days of the decision to deploy forces; on the other hand, Alliance*Jaguar* aircraft bases took three months to become operational.42

Hallion argues that 'since an aircraft carrier has to essentially bring its own mini airforce with it, the amount of aircraft it has for any particular mission is small'.43 With the emphasis on fleet air defence, the availability of aircraft for theatre-strike duties would be small. However, during the 1991 Gulf War, four carriers in the Gulf were closer to Iraq than any shore-based aircraft,44 increasing the relative ability of sea-based aircraft to achieve very high sortie rates. Furthermore, the current aircraft delivers a much more lethal punch when equipped with current and projected precision-guided munitions which is able to compensate for any lack in numbers.

With the development of the Joint Strike Fighter (JTF), fleet air defence and also support of shore operations would be incorporated into a single strike-fighter airframe, demonstrating a high degree of interoperability. The JTF is also highly affordable: a family of such aircraft can be produced to cater for the various armed services from a common production line.45 This reduces the unit cost significantly, thus reducing any commercial penalties from designing a single airframe for specific missions. It is also argued that with the introduction of a common fighter to the United States Navy/United States Air Force/United States Marine Corps, deploying non-naval/marine units to augment fighter numbers on board carriers when needed may be a feasible option in future. In this aspect, the carrier *per se* has presented itself as an even more mobile, sovereign, floating airfield wherein its real merit lies.46

Aircraft carriers, particularly super carriers, have always been very expensive, but they possess a unique set of capabilities which not only outshine their contending substitutes, their 'existence' also serves as an important foreign policy tool in both peacetime and war. A carrier battle group is the most visible means to 'show the flag around': it poses as a credible deterrence to any would-be aggressor, and when that fails, it is tasked to conduct combat operations promptly during a crisis response. Furthermore, in the early days of a fast-breaking conflict, land-based tactical aircraft were not able to arrive in sufficient numbers, thus the leading air-support role had to be provided by sea-based aviation. Therefore, land-based aviation can only complement but not substitute sea-based aviation. Super carriers can provide US forces a forward presence without being entangled in bases on foreign territory. Aircraft carriers, regardless of their size, have always been regarded as symbols of prestige, thus providing a strong impetus for medium-sized navies to acquire them.47However, a small capacity carrier may not be able to conduct effective combat operations. The recent *Strategic Defence Review* released by the British government, which highlighted the preference for medium-sized carriers as a substitute for its light carriers, reiterates the practicalities of a bigger embarked air wing provided by larger deck carriers. On the other hand, whether the US will maintain a 12-super carrier force level in future will depend on the role it intends to play in the international arena, rather than on the debate on the super carrier's merits and demerits.

ENDNOTES

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Mr Tan Puay Seng graduated with a BSc degree in Mathematics from the National University of Singapore. He also obtained an MA (War Studies) from King's College, University of London, in 1998.

Corvettes : The Choice Platform for Regional Navies

by CPT Cheng Ching Siang

The abrupt end of the Cold War has ushered in a period of fairly rapid power reshuffle in many regions. Traditional 'Large Navy' maritime powers, such as the United States Navy and the Royal Navy1, have scaled down 40 to 50 percent of what they were some years ago. Concurrently, emergent navies in the Middle East, the Persian Gulf and Southeast Asia, already conversant in small-boat warfare with their accumulated fleets of Fast Attack Crafts (FACs) and Fast Patrol Boats (FPBs), are looking towards modernising their fleet. The dynamic shifts in the climate of international security, coupled with a myriad of technological, political and economic reasons, have led to the re-emergence of the corvette.

Recent international laws such as the 1982 United Nations Convention on the Law of the Sea (UNCLOS) have been instrumental in defining the roles of today's regional navies. New roles such as the patrolling of the Exclusive Economic Zones (EEZ), protection of their vast merchant fleet and protection of natural resources demand that these countries, most in possession of extensive coastlines, develop more than just a coastguard- type navy. The pace and manoeuvrability of modern operations in the environment of littoral warfare poses problems for the commander trying to identify legitimate targets among the huge volume of neutral or unknown targets. Such urgency in detection is pressed further with the development of highly effective and long-range missiles, some air-launched or shore-based, designed to sink enemy ships. These missiles act in conjunction with torpedoes, mines, gunfire and bombs from aircraft, adding to the complexity of warfighting. A lurking coastal submarine would add to the quagmire.

The burden of these roles in small-and medium-sized navies has to fall on a platform capable of projecting sea power in such a difficult and complex environment. The tasks today in advancing navies extend beyond anti-invasion and similar operations, missions being longer in duration and sometimes requiring out-of-region presence. The corvette, with its flexibility and three-dimensional warfare capabilities, is fast becoming a common denominator in regional navies. Like their other stablemates, the Patrol Crafts (PCs) of the 1960s and FACs of the 1970s, they quite simply represent the state. Their presence near the coast or area of economic interest means something like this: ' I represent the state and its interests. To overcome these you must first commit an act of hostility towards me, and if you do, I will resist you to the best of my abilities.'Or quite simply: 'If you fire upon me, ram me or make a run for it, I will make sure there is hell to pay for it!' This article examines the reasons why the corvette is the popular choice today.

THE EVOLUTION OF THE CORVETTE

The use of small strike craft in both the World Wars2 in the periods 1914-1918 and 1939-1945 proved disappointing. So much for the legendary exploits of the German *Schnellboote* (or S-Boats), the American PT-Boats and the British Motor Torpedo Boats (MTBs), the truth was that only one warship was torpedoed at sea during that period. These small combatants were incredibly vulnerable to air strikes as the loud engine noise at high speeds alerted the enemy (erasing the stealth their small size provided). They had limited fire control abilities. Interest in such craft waned after the war.

Advances in naval engineering rectified some of the problems faced by the early MTBs. Previously, the machinery used to achieve the high speed in the old Torpedo Boats occupied most of the space onboard and left little room for crew accommodation and other purposes. Such ships were limited to short sorties as the crew had to rest at the base. New lightweight diesels developed had increased speed, endurance and efficiency of fuel consumption. The much improved accommodation and addition of air-conditioning meant that it could be used even in the tropics.

THE ADVENT OF THE GUIDED MISSILE

Despite the clear potential of guided rocketry during World War II, little was done after the war to expand its use as a tactical offensive weapon, except for some developments in Sweden.

In the late 1950s, the (then) Soviet Union took a step ahead to piece together a fleet of crude missile armed boats, which NATO codenamed, *Komar* and *Osa*. They were fitted with tactical SSMs onboard - the P-15, better known as the SS-N-2A or B Styx (The later P-20 and P-21 were jointly coded SS-N-2C *Styx*). As they were considered highly vulnerable to air attack, little note was made of their existence. Such craft made up the Soviet defence fabric. They were nonetheless supplied to the (then) Soviet Allies and other client states, including Egypt.

After a humiliating defeat by Israel in the Six-Day War of 1967, an opportunity for a little Egyptian revenge presented itself in the form of a vintage WWII destroyer on 21 October 1967.[illegible] The Israeli Destroyer Eilat was rather unwisely patrolling in the proximity of Port Said. Now it is appropriate to mention that a number of vintage Israeli Destroyers were awaiting refit with the then newly developed SSM - the *Gabriel.* This is worthy of mention because Israel had really no excuse for not understanding the SSM threat. They paid for this oversight. A salvo of missiles fired by Egyptian *Komars*, subsequently sank the *Eilat*. For the first time in history, a naval vessel was destroyed by Surface-to-Surface missiles fired from a small, high-speed vessel (although the*Komars* never left harbour), by crewmen viewing their targets from a radar screen. Three out of four missiles hit their target, the fourth missile missed because there was not enough of the *Eilat*left above the surface.

The subsequent panic caused by military analysts led to the rapid development of SSMs and their countermeasures, which could be carried on craft as small as 30 meters in length. The missile armed FAC represented a quantum leap over the torpedo boat, given the long-range strike capability. This also boosted the quality of electronic warfare. With a range of 20 nautical miles3 (nm) to the Israeli *Gabriel's* 13nm, none of the 54 *Styx* missiles fired by Egypt and Syria during the Yom Kippur War in 1973, against superior Israeli electronic counter measures (ECM) found their target. In contrast, Israel sank some three Syrian FACs and five Egyptian FACs in the same period.

Rapidly, many countries caught up fast in their own SSM developments. France quickly developed the popular and proven *Exocet.* Other important developments include the USA-built McDonnell Douglas RGM-84 *Harpoon* and the Italian *OTOMAT*, a turbojet and rocket-powered hybrid developed by Oto Melara in collaboration with France's Matra. Norway meanwhile made an adaptation to the American *Bullpup* SAM and developed its own little *Penguin*[illegible] SSM, originally developed by Kongsberg Vapenfabrikk, now known as Norsk Forvarstekuologi. Navies with FAC fleets have used this miniature weapon since, including Sweden (before she developed her own*Saab* Missiles RBS15).

Missiles today have reached varying degrees of sophistication, notably in their improved ECCM characteristics. The French *Exocet* MM-40 Block II is said to be able to do a corkscrew-avoiding manoeuvre to bypass a ship's defences and is also capable of doglegging, switching directions by up to 90 degrees - all this at the same time while maintaining a sea-skimming profile up to sea state 7! The block ID *Harpoon* in contrast is said to be capable of flying in 'clover-leaf''-pattern missions in which targets missed on the first attempt can be attacked on the second pass.

With such powerful fittings available, combined with relatively nearby shore support, it became almost *de rigeur* in the 1970s and the 1980s for small navies devoid of blue water pretensions to acquire small flotillas of these FACs. Examples in this region include the Royal Malaysian Navy's*Handalan*-class (Swedish *'Spica M'*) and *Perdana*- class (French Combattante II) FAC, both armed with French *Exocet* missiles, and the RSN, which acquired *Sea Wolf*-class (Luerssen-45) FAC armed with Israeli Gabriel missiles.

The might of these missile-armed lightweights remained untested until 1991 during the Gulf War. The naval war proved to be one-sided, when the Iraqi Navy's Osa-class FACs were mauled by US A-6Es and the *Sea Skua* armed British *Lynx* Helicopters. There was relatively little that could be done to the aircraft, which stayed just outside of the Iraqi FAC's anti-air defensive battery. Of course, it must be noted that the Iraqi Navy was up against a vastly superior opponent in an exposed environment not particularly favoured for

FAC operations. Nevertheless, these events showed that the day of the rudimentary FAC was over and marked the end of an era that began with the sinking of the *Eilat*.

Developments to the FAC since 1991 had discernible changes. Such craft can take on at least an ASM-armed helicopter at standoff ranges up to 13km. The type, termed the corvette, is generally defined as a heavily-armed small surface combatant measuring 60 to 95 metres in length and displacing up to 500 to 2,000 tonnes. A distinguishing feature of the corvette is her capability for limited independent deployment, typically between 10 to 20 days, and usually equipped with self-defence capability against air and submarine threats. It is often also helicopter-capable - sometimes even affording her own hangar. The result can be seen, for instance, in Vosper Thornycroft's 83-metre corvette design, of which two have been sold to Oman. Besides the eight*Exocet* MM-40s and the ubiquitous 76mm main gun, these vessels carry, *inter alia,* an octuple Thomson-CSF *Crotale* SAM launcher able to tackle air threats, including sea-skimming missiles. The attractiveness of the heavily-armed corvette has sparked numerous replacement p programs for FACs.

THE CORVETTE TODAY

Following the destruction of Iraqi FACs and small navy ships by the coalition air strikes during the Gulf War, there has been great concern over how to counter air threats. New lightweight and compact air detection and defence systems were rapidly developed. The *Sea Sparrow* ship-launched, point-defence missile has semi-automatic/automatic modes with vertical-launch options.[illegible] Vertical launch systems reduce the space taken up. Fully containerised Israeli IAI *Barak*vertical-launch AA missile launchers are available with particular attractiveness, as they require no deck penetration for fitting. Matra has also developed the *Mistral* launcher, designed for use on small vessels against aircraft and helicopters within the 4 to 6km range. The ubiquitous 76mm OTO*Melara* also has an upgraded super rapid-fire version to cope with air threats. Close-in weapon systems (CIWS), once thought of as suitable for major surface combatants now also have versions, like the *Breda Twin* 30mm guns, suitable for corvettes.[illegible]

The addition of varieties of shipboard systems draws us inevitably to the question of space. The larger build of the corvette comes along with the advantages of longer range and better seakeeping. This extra range is a consideration in view of the tighter defence budgets with the recent economic downturn. The new corvette would be expected to fulfil a multi-role function that goes beyond her current[illegible] limit for strike operations.

With the miniaturisation of today's electronic systems, vessels of corvette-size are able to pack in more technology than previously thought possible. The development of space-saving multi-purpose devices from video-displays to missile launchers allow more by the way of weaponry, electronics and computing equipment. Already able to fit in a variety of SSMs like the *Exocet* and*Harpoon,* these fittings extend to SAMs and torpedoes.

The increased stability of the platform is crucial as the shock of high speeds creates undesirable operation conditions for weapon systems. Weapon and sensor systems may be stabilised physically or electronically. The modern weapon systems utilise stabilisation systems to counter pitch and roll in less than ideal conditions, retaining the warfighting capacity of the corvette.

The corvette has some degree of autonomous mission endurance, compared to her predecessors. This would mean engineering reconfigurations to allow not only for quick accelerations (as required in the FACs), but also for efficient loitering at low speeds to enable surveillance of shipping. Sweden's Karlskronavaret YS2000 corvette4[illegible], for example, has CODAG and water jets that can give not only a maximum speed of 35 knots but also provide excellent loiter performance.

The small size of the corvettes compared to the larger combatants is an asset as it reduces the likelihood of detection. Again the Swedish YS2000 represents the state-of-art technology in this field. This vessel is a 72-metre monohull 'Stealth' design with low infra-red and radar signature. The vessel is primarily made of reinforced plastic and there is substantial carbon fibre content. These evaluations stemmed from extensive research on Karlskronavaret's experimental 34-metre*'Smyge*' ('Sneaker') surface effect vessel. The

reduction in radar signature also increases the effectiveness of decoys. The 'stealthier' the craft launching the decoy, the more attractive the decoy becomes to the sensors of the incoming missile.

The corvette can even carry out littoral and land attack roles. This has already been pioneered by Iraq which used its Aerospatiale *Exocet* SSMs to attack Iranian oil storage installations ashore during the 1980-88 Gulf war. The *Harpoon Block II* developed by Boeing is said to be equally capable against land-based and seagoing targets, blurring the traditional definition of anti-ship missiles.

Examples of ships with such complete suites is the *Sa'ar 5* of the Israeli Navy, which is said to be the among the most heavily armed ship in the world, tonne for tonne. Offensive weapons include eight *Harpoon* and up to eight IAI MBT *Gabriel* anti-ship missiles, which in future might be fitted with a land attack capability. There is also an *OTO Breda* 76mm main gun and a *Raytheon Phalanx*20mm close-in weapon system. The main self-defence capability is provided by the *IAI Barak*-1 point-defence system with 64 vertically-launched 10-km-range anti-missile missiles. The Elbit operational software in the Combat Information Centre (CIC) provides elaborate C3 facilities, which includes the ability ability to track up to 600 tracks of air, surface and sub-surface targets. These craft are reputed to be (as a result of such a packed array of weaponry) extremely 'top-heavy', hence do not exhibit excellent seakeeping qualities.5

The Turkish Navy also appears to be sold on the corvette concept, and has begun acquiring the new *Kilic*-class of 'mini-corvettes' to replace its FACs6. These ships are described as being 1,300 to 1,400 tonnes in size with a full surface-to-surface armament (either *Harpoons* or *Penguins*), anti-air warfare capability for self-defence (Point defence or CIWS) and a limited Anti-submarine Warfare (ASW) capability. There was also a requirement to carry a naval helicopter in the 5-tonne category. This would meet the need for the Turkish Navy to strengthen its Aegean Sea naval presence.

FRIGATE OR CORVETTE?

The first notable effect of a smaller hull is seakeeping. Much of the miniaturised electronics is placed in a cramped CIC. Already, there are problems placing new additions to technology because of the space limited by small hulls. To compound matters, all these get much harder in a rolling and pitching CIC. Crew fatigue occurs more quickly. Rough weather also reduces the effectiveness of sensors.

These problems provide reason for the FACs continual increase in size. The Royal Swedish Navy, for example, pioneered the 43.5-metre steel-hulled *Spica*-class FAC design in the 1960s, then moved on to the 50-metre *Stockholm* and 57-metre *Goteborg*-class corvettes. To date, there is the 72-metre YS2000-corvette designated for service.

A conventional argument would be that an increase in size would turn the 'hunter into the hunted'. That statement is not valid today, as explained earlier, because the smaller FAC is already outclassed. Senior Israeli officers stated in the 1970s that the corvettes or frigates would have no role in the future of naval conflict. Being the first Navy to engage in a missile-to-missile fight in the Yom Kippur War in 1973, their views on the value of small combatants have always commanded great respect. Looking at the Israeli Navy today, we note a different picture, for they have in construction three *Lahav*-class corvettes displacing as much as some navies' light frigates.

The naval helicopter, previously only utilised for naval surveillance, now has combat systems which can greatly add to a small vessel's offensive capability. As airborne early warning develops, corvettes could be tasked for fleet 'picket duty', feeding information via datalink. A helicopter-capable platform implies a stable platform. For a helicopter to operate efficiently away from base support for some time, there must be provision of a hangar. Such requirements could only be met previously by at least frigate-sized ships. However with the advent of fin stabilisers and better, beamier hull designs, the corvette can also house an organic naval helicopter. A completely helicopter-capable corvette must also feature a helicopter hangar for maintenance and protection from the harsh marine environment

The economics involved in frigate-building does not favour small-to medium-sized regional navies. Corvette requirements are also more politically acceptable to governments than requests for frigate procurement - a typical example would be South Africa, where ships required are sized as frigates but designated corvettes. Also, in a strive for minimum manned ships, complex automation replacing human processes are now available, reducing the need for additional living spaces and facilities. Thus when a corvette meets the bare minimum necessary in today's theater of war, such as having a modern air defence system, a CIWS for missile defence, provision for sufficient ASM, ECM and ECCM, and preferably, ASW capabilities, the frigate is no longer consider

THE REGIONAL NAVIES AND THE CORVETTE

The media has always tuned their attention towards savvy areas of conflicts, with their associated atrocities, like the civil war in Yugoslavia, that other areas near ignition points tend to be given scarce attention. One such area is the South China Sea. The seabed is suspected to be oil and mineral rich, and the water support marine life crucial to the survival of local fisheries. Also, most of the region's trade routes (and indeed all of Japan's) ply the area. It is no wonder that the two tiny archipelagic strips that trickle down the South China Sea are keenly contested by many claimants. The possible presence of oil provides justification for the efforts, spiced with issues of national pride and sovereignty.

Despite the venues of contention being little more than barren rocks, attempts have been made to inhabit them to validify them with UNCLOS ruling and thus make them eligible claimants of their surrounding Exclusive Economic Zone (EEZ). Two armed clashes in the past 30 years have provided regional navies reason to review their build-up plan. However, with the steady headway made, by working groups such as the South China Sea Workshops, a violent settlement in the South China Sea over the Spratly Islands is becoming more and more unlikely.

The justification for corvette build-up must then be sustained by another vein. This revolution parallels the increase in the commercial maritime power. Shipbuilding, seaborne trade, fishing and shipping has been a major contributor to the region's economy. Naval power is in its nature encompassed by maritime power. Maritime power is described by the former Chief of the Republic of Singapore Navy, Cdre (NS) Teo Chee Hean, as 'the aggregate of a country's ability to make use of the sea in order to fulfil its economic, security and other goals'.7 The corvette's improved fighting capabilities makes her a major constituent of the country's naval power. A strong naval power in turn can confer assurance to the country's commercial and fishing fleet of protection at sea. This process is symbiotic as the subsequent economic inputs from seaborne trade would enlarge defence budgets.

CONCLUSION

Until 1997, vigorous corvette acquisition seemed to be a progressive situation in many regional navies in the West Pacific. Cdre Sam Bateman, Executive Director of the Center for Maritime Policy at the University of Wollongong, noted in April 1997, that 'they can cast their plans confident that resources will be made available to realise their capacity aspirations' .8 The financial downturn that hit the region has put a check to this expansion. Many are cancelling or postponing payment for their acquisitions. This may force a slowdown in the aspirations of many navies. Pursuit of less material alternatives such as regional maritime security arrangements focusing on mutual understanding and collective co-operation might feature in the meanwhile. The material backdrop to regional maritime politics -the corvette, would still beckon.

ENDNOTES

1.Capt Richard Sharpe, ed *Jane's Fighting Ships*. 1997-98

2.Adapted from: Paloczi-Horvath, George. *From Monitor to Missle Boat: Coastal Defence Ships and Coastal Defence Since 1860*, Conway Maritime Press, 1996.

3.1 nautical mile (nm) is 1,825m

4.Figures from: 'YS2000: *The Most Versatile Man-of-War.*' Naval Forces Special Issue. Feb 1996, pp.18-21.

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CPT Cheng Ching Siang is currently the Anti-Submarine Warfare Officer onboard the Anti-Submarine Patrol Vessel RSS Courageous. He obtained a Bachelor of Science degree in Biology in 1995 from the National

University of Singapore (NUS) and is currently pursing an MA in Southeast Asian Studies on a part-time basis at NUS.

The Economic Crisis in Asia and its Implications on Defence and Security in the Region

by LTC Yeo See Peng

Before the economic crisis in Asia in July 1997, two trends were prominent in the regional security scene. *The first, the rapid rate of military modernisation in the Asian countries and the second, the development of multilateral arrangements such as ASEAN and the ASEAN Regional Forum (ARF), which have served to enhance regional security.* *Since then, the strategic landscape of the region has remained dynamic, and has in some ways, become more uncertain.* *The prolonged economic turmoil has brought with it political and social upheaval in many of the affected economies which could have repercussions on regional security.* *Bilateral and multilateral cooperation, which have underpinned the region's peace and security, might also be unraveled if countries become distracted by the more pressing domestic problems.*

This paper1 intends to put forth the thesis that the economic crisis in Asia has effectively slowed down the rate of military modernisation of the participating countries and it is more imperative than ever for the participating countries and ASEAN to continue to enhance bilateral and multilateral cooperation to maintain regional security. The paper is structured into five parts. *First, it will outline the military modernisation of the participating countries, highlighting the reasons for its occurrence.* *Second, it will describe ASEAN's security role to date,* *its evolution and performance.* *The current economic crisis in Asia will be discussed in some depth, emphasising its cause and status.* *The fourth part will analyse the implications of the economic crisis on the defence and security policy of the region. Finally, the paper will conclude with the security challenges of the region.*

MILITARY MODERNISATION

Prior to the economic crisis in 1997, most Asian countries had elaborate military modernisation programs.* During this period, almost all the countries in Southeast Asia, with the notable exception of Vietnam, had modernised their military.* The region had acquired an array of modern systems, including F-16s, F-18s, Mig-29s, and *Tornados* which provide air defence, maritime, and ground-attack capabilities. In 1995 for example, the region bought over US$9 billion worth of weaponry - even more than the troubled Middle East*.2* Similarly, in Northeast Asia, most countries had also invested much resources toward this end.*

In short, while most of the world had cut back on military modernisation in the post-Cold War period, the Asian countries had pumped big money into modernising their armaments.* This increase in regional defence expenditure should be viewed from a proper, broad historical perspective.* In the past for instance, ASEAN nations were relatively undeveloped and had limited resources to spend on defence. Economic growth and infrastructural development were pressing needs and took precedence over defence expenditure.* As a result, ASEAN nations had to put off modernising their armed forces.* The sustained economic growth, prior to the currency crisis in 1997, has allowed regional countries to upgrade and modernise their armed forces.* The acquisition of new equipment was a normal process of replacing ageing and outdated equipment.

ASEAN'S SECURITY ROLE

ASEAN is a small but influential political organisation, especially in the Asia-Pacific region.* Its greatest achievement so far has been its initiative at the United Nations in the resolution of the Indochina conflict.* In addition, ASEAN has shown how much can be achieved through cooperation, for the benefit of its members as well as the region as a whole. ASEAN provides a forum for member countries to discuss issues, including security.* The evolution of a tradition of consultation and consensus has helped develop a higher

level of understanding and trust among the member states.[illegible] Cooperation in such matters as the ASEAN Free Trade Area has brought about economic benefits to its member states, and is in itself a confidence-building measure.[illegible] A[illegible] notable effort by ASEAN to promote regional stability is the 'Southeast Asia Nuclear Weapons Free Zone' initiative.[illegible] This treaty is now in force.[illegible] It represents the contribution of the ASEAN states to nuclear non-proliferation, and is consistent with ASEAN's goal of making Southeast Asia a 'Zone of Peace, Freedom and Neutrality'.[illegible]3

Another security role played by ASEAN is in the establishment of the ARF.[illegible] The latter is the most comprehensive security forum in the world with 22 members which includes the ASEAN states and its dialogue partners eg. the United States, China, Japan, Russia.[illegible] It has elicited a significant level of interest because it is a forum for both regional and extra-regional countries to discuss security issues of common concern and interests.[illegible] The ARF helps to build trust and foster greater confidence among its members, so that[illegible] differences can be resolved in the spirit[illegible] of cooperation, without the use of force. The ARF thus adds an important layer to the regional security framework.

Although only in its fifth year, the comfort level among member countries of the ARF has increased significantly.[illegible] Discussions have become more substantive.[illegible] For example, maritime issues have been formally introduced as an agenda in the inter-sessional meetings.[illegible] At the recent 5th ARF Ministerial Meeting held in July 1998, a set of new confidence-building measures were agreed upon for implementation.[illegible] The same meeting also issued a statement that strongly deplored the recent nuclear tests in South Asia, and emphasised the importance of non-proliferation of nuclear weapons in promoting regional peace and stability.

A useful development is the increasing participation of defence officials in the ARF.[illegible] Defence officials now participate in the ARF inter-sessional meetings as well as the ARF Senior Officials Meetings.[illegible] The interaction among the defence officials at these meetings is a useful confidence-building measure in itself.[illegible] As the ARF progressively deals with more substantive security matters, the formal involvement of the defence establishments will greatly facilitate the implementation of the various confidence-building measures, in a practical and effective way.[illegible] This will 'level-up' the participation and contribution of defence officials in the ARF process.

For the 1990s, the ARF is the new structure for coping with the Asia-Pacific political-security relationships.[illegible] While its expansive membership risks political fragmentation and decisional stalemate, in so far as it facilitates communication, provides military information, increases transparency, and reduces uncertainty, the forum might be able in the long-run to create a partial security community in the region.4[illegible]

ECONOMIC CRISIS IN ASIA

The Southeast Asian countries have been at the epicenter of the Asian economic crisis.[illegible] In July 1997, after months of trying to resist market pressures, major currencies in the region devalued. The pressure on currency values then spread to Northeast Asia, eventually wreaking havoc in South Korea in December. What started as a seemingly innocuous balance-of-payment problem degenerated into a full-scale economic, political, and social crisis that continues today.5[illegible] In its wake have come political change, economic recession, unprecedented unemployment, surging inflation, and collapsing imports throughout Southeast Asia.[illegible] The rapid spread of the crisis from its core in Southeast Asia to the rest of East Asia and then to world markets emphasises the world-wide integration of financial markets.[illegible] It also reflects the inability of international and regional mechanisms to monitor and contain the contagion effects of mistakes by governments and the private sector.

At the heart of the crisis is a fundamental tension for governments: how to harness the commercial windfall of globalism while managing the domestic, economic, political, and social stresses caused by increased influences from abroad.[illegible] As Southeast Asia moves toward modern, liberalised financial systems and open international capital markets, its domestic, political and economic environment remains characterised by government preferences and weak government regulation of banks and private foreign borrowing.[illegible] The combination has made the region far more vulnerable to exchange rate risks and balance-of-payment pressures.6[illegible]

DEFENCE AND SECURITY IMPLICATIONS OF THE ECONOMIC CRISIS

The economic crisis in Asia has brought about a number of repercussions in the regional defence and security arena.[illegible] Firstly, the economic woes besetting Asia's developing countries may provoke internal political and social instability that could spill over into the international arena. The economic crisis has meant toppling the main pillar of political legitimacy-successful economic development-of many of the regimes in the region.7[illegible] These governments now have to walk the tightrope between restoring social order and pursuing economic and political reforms.[illegible] The very process of political liberalisation, however, might unleash ethnic conflicts and separatist movements that will challenge the government's ability to preserve national cohesion.[illegible] Much depends on how soon the economic situation can be turned around. If unemployment continues to rise sharply and food shortage worsens, social unrest will severely test these still fragile political systems.

The financial crisis has led the affected countries to enforce austerity measures.[illegible] This means the regional armed forces have to cope with smaller budgets.[illegible] This may or may not affect their capability to maintain the same level of deterrence.[illegible] But it may create a sense of insecurity.[illegible] The cut in defence budgets will also affect the conduct of regional combined military exercises among friendly nations in the region, which is an effective way of fostering bilateral defence cooperation and mutual understanding.[illegible] It is therefore necessary to think of alternate ways to build trust and enhance confidence in the region.[illegible]

The ARF can play a useful role here.[illegible] Unfortunately, the economic turmoil in East Asia also threatens to halt multilateral security dialogues; it threatens ARF's momentum.[illegible] With East Asian governments devoting most of their human resources to economic issues, multilateral security dialogues now get scant attention.[illegible] Some countries lack the funds to field strong delegations to ARF-related gatherings and to do the spadework on behalf of this fledgling institution.[illegible] The same financial shortfall may also derail the so-called Track-II dialogues - those involving non-government regional security experts-that have been critical in nurturing consensus on security matters in the diverse and geographically expansive Asia-Pacific.8

SECURITY CHALLENGES AND CONCLUSION

Regardless of the economic condition, the regional countries must try to achieve two fundamental security imperatives.[illegible] First, they must be resilient: they must be able to defend themselves militarily, remain politically stable and economically viable, and evolve culturally.[illegible] They should continue to modernise their military in tandem with their economic growth.

Second, they must continue to build bilateral and multilateral relations in the region so as to reinforce regional security. It is important for the countries in the region to work together as partners in an effort to maintain and enhance a peaceful environment which is conducive to economic reconstruction. Regional leaders must recognise that the recent economic upheavals make it more imperative than ever that they continue to cooperate to maintain regional security. ASEAN's primary challenge today is to lift Southeast Asia out of the current economic doldrums. It is important for ASEAN countries to ensure that the unfolding economic and political crisis does not affect ASEAN's solidarity and effectiveness.[illegible] It must emerge stronger from the crisis.[illegible] The ARF, with the involvement of regional and extra-regional countries should also continue to develop at a pace comfortable to all to ensure regional security and stability is maintained despite the economic crisis.

All said, if we premise that the current regional uncertainty in security is a result of the economic crisis, then the situation is unlikely to improve drastically unless the regional economy shows signs of recovery.[illegible] Here, the recent announcement of a package by Japan to help ASEAN recover economically is a step in the right direction. Developed countries such as the United States, Japan, and those in Europe[illegible] should voluntarily come forward to assist the region to pull itself out of the economic crisis.[illegible] After all, the prosperity and stablity of the Asia-Pacific region is ultimately in everyone's interest.

ENDNOTES

1.This paper is based on personal research and writing, and it does not necessarily reflect the official views of the Singapore Armed Forces.

2.'Asia's Arm-Trade Boom,' *Foreign Report*, 7 Mar 1996, London, pp.3.

3.Note that ASEAN does not have a collective military pact or formal defence community. The variations in threat perceptions and strategic orientations have excluded the existence of such entities.

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LTC Yeo See Peng is currently Head of General Staff Branch at HQ Commando. He attended the Japan-ASEAN Fellowship Exchange Programme held in Tokyo in 1998 and the United States Marine Corps Command and Staff College, Quantico from 1995 to 1996. LTC Yeo graduated with a BA and an MA from the University of Oxford in 1988 and 1994 respectively. He obtained a Master of Military Studies from the Marine Corps University in 1996.

Asia-Pacific at Sea

by MAJ Lee Choong Min

"Mahan may not be dead. Indeed he may be alive and well, and living in Bangkok, Beijing, Jakarta, Kuala Lumpur, New Delhi, Seoul, Taipei, or Tokyo."

Commodore Sam Bateman

Article in Proceedings 1995

The past decade has seen significant economic growth in the Asia- Pacific region. Correspondingly, the region has also seen a step-up in modernisation and expansion of naval capabilities in most states. Indeed, the region is one of the last few in the world where aggregate defence budgets continue to expand in the post-Cold War era.1 The South China Sea and the key straits in Southeast Asia contain the economic lifelines for many nations in the region. It is also an area where there are numerous contentious claims on territories. Further north, tensions over the developments in Taiwan and the Korean peninsula continue to prevail. The end of the Cold War has led to the United States (US) being the sole superpower in the region. While it has reiterated its commitment to remain in the region, it has also been drawing down its forces. This paper discusses the resulting security uncertainties, and how regional naval powers can contribute to maintaining peace in the region, in their peacetime roles, and their participation in various confidence-building processes.

KEY GEOGRAPHICAL DIMENSIONS OF THE ASIA-PACIFIC REGION

The two key geographical locations in the Asia-Pacific region are the key straits connecting the South China Sea to the Indian Ocean, and the South China Sea itself.

The Southeast Asia region can be viewed as one large archipelago with many small islands and ports linked to each other by expanses of sea. There are only five major sea routes through these chains of island, namely the Straits of Malacca, Lombok, Ombai-Wetar, and Makassar. Collectively, the volume of maritime trade using these straits is predicted to grow by seven percent annually. Dr Henry Kissinger remarked that he expected APEC to account for 70 percent of world trade by year 2020.2 These straits are the gateway between the South China Sea (and the Pacific Ocean) and the Indian Ocean (including the Middle East). Any conflict leading to the closure of the straits will affect the trade between countries in the region, including Korea, Japan, and even Australia.

The South China Sea, stretching 1,800 miles from Sumatra to Taiwan, also has Sea Lines of Communications (SLOC) that are critical to many countries. In addition, there are existing and potential natural resources which can be tapped. There are five zones of potential conflict:

- The Paracel Islands. There is an airstrip here belonging to the Chinese Peoples' Liberation Army (PLA) from which aircraft can reconnoiter or attack as far south as the Spratly Islands. The islands can thus be used as a base for southward power projection.3 Vietnam and Taiwan also have conflicting claims on these island chains.
- The Gulf of Tonkin. Although Vietnam claims jurisdiction based on an 1887 Sino-French convention, the Chinese have oil rigs operating there. However, the petroleum yield is quite meager, and the chances of conflicts relatively low.
- Vietnam's continental shelf. Foreign firms, which have contracts with either Vietnam or China, are working in zones claimed by both nations.

- Continental shelf off the Indonesian coast. The area has gas reserves estimated at over 45,000,000 cubic feet (the largest in the world).[4] Although there has been no direct conflict to date, the Chinese demands for joint development of petroleum resources may create problems in the future.[4]
- Spratly Islands. This consist of a small group of islets, coral reefs, and sandbars, located about 280 miles east of Cam Ranh Bay. The[5] situation here is the most contentious in the South China Sea as there is a myriad of claims by regional states includingChina, Taiwan, Vietnam, the Philippines, and Malaysia. Besides nationalism and security concerns, the assertion over the Spratly Islands is economic: the islets are rich fishing grounds and known to have reserves of minerals. China estimates the oil reserves in the area to be worth US$1 trillion.[5]

US - STABILISING AND UNCERTAINTY FACTOR

The end of the Cold War has brought about significant changes to the security environment in the region. Firstly, it has left the US as the sole maritime superpower.[6] However, the reduced need to maintain a strong presence to counter the Soviet Navy stationed previously in Cam Ranh Bay, 'the increasing preoccupation with its internal affairs', and "its 'Eurocentric' foreign policy"[7] has led to a perception that the US is not focused in the region.

The end of the superpower confrontation, and hence, their dominance in the region also created a vacuum from which 'the larger Asian states, with growing affluence and self-confidence', may be encouraged to 'pursue their goals unilaterally'.[8] The smaller states believe that continued US presence would provide an indispensable stabilising influence in the region. Besides economic reasons, the region remains important strategically for the US military planners. 'Freedom of unimpeded transit through' the straits mentioned, is 'central to[9] American strategic interest in Southeast[9] Asia'.[9] The expanding mission requirements have made shorter routes critical to reduced US forces' ability to respond, in a timely fashion, to an overseas crisis in Asia or the Persian Gulf without being deployed forward.[9] The alternative route via Torres Straits (between Australia and Papua New Guinea), or circumnavigating Australia, entails considerably longer transit time. This makes Southeast Asia the crucial bridge or barrier through which US forces from continental US, the Pacific and Japan can be sent to the Indian ocean, the Persian Gulf, and the Red Sea (and vice versa).[9] A significant conflict in the South China Sea or the straits in Southeast Asia would not only damage US economic interests, it would threaten merchant shipping, potentially lead to the blockage of key sea lanes and straits, and ultimately destabilise some of the nations in the region.[10]

Given US strategic interests in the region, it is relevant to examine how it has reacted to potentially destabilising events that have occurred here. In 1995, China began marking islands in the South China Sea, and constructing barracks for fishermen on Mischief Reef. The Philippines identified the Chinese ships as naval vessels, and the platforms as military garrisons that the Chinese had constructed elsewhere on the Spratlys. It reacted by destroying the markers and apprehending Chinese fishermen west of Palawan. As events threatened to escalate, the Philippine spokesperson evoked the Mutual Defence Treaty with United States. The US did not publicly support Manila's position,[11] and the reef remains occupied by China. It has been suggested that the most viable approach for the US is to maintain a low profile on the Spratly issue, urging the peaceful resolution of the dispute through regional (not US) mediation.[12] Its primary concern would be to[9] focus on ensuring freedom of navigation through the waters in the region.[13]

In marked contrast, the US reacted to the Taiwan Straits situation in 1996 by sending two carrier battlegroups into the area. It can be argued that this was a demonstration of its security commitment to the Asia-Pacific region.[14] What can regional analysts infer from these two episodes? Breemer suggests that it would be prudent for military planners to recognise that the forward deployment (or presence) of US military forces is a political choice, and not an immutable principle of war that will bring disaster if not observed. It reflects the present administration's view that it is the way that 'US forces can best underwrite alliances, deter war, defuse local crisis, and generally bolster mutual confidence and understanding'. Breemer further concludes that naval planning in the region would need to be dominated by a sense of 'uncertainty, and insecurity', with emphasis on 'contingency planning'.[15]

CHINA - MEDIUM POWER WITH MAJOR INFLUENCE

The PLA-Navy (PLA-N) has made halting steps toward acquiring a modern effective navy. Its budget is reported to have increased to 30 percent of the PLA budget. Manpower for the PLA-N has increased by three percent (to 11 percent) of the PLA, whereas the PLA army has reduced by six percent.16 The PLA-N itself has formulated a three-stage maritime strategy that calls for China to become a global naval power, complete with aircraft carrier battlegroups by 2050.17 While it currently lacks the instruments of regional maritime dominance, its major surface combatants still outnumber those of any other Asia-Pacific nation, besides Japan.

Of greater concern to other nations in the region is China's dual-track policy of 'diplomacy and a unilateral aggressive assertion of its claims' of the Spratly Islands as China's territory.18 You Ji offers two possible angles on this issue. 'The first is the establishment of a permanent headquarters in the area: the Spratly Maritime Surveillance Command' that is 'formally incorporated into the Navy's South Sea Fleet'. The force has a command structure with four commodores, despite having only a force level of a few hundred officers and men. Besides military responsibilities, its other responsibilities include politics and diplomacy. This points to an anticipated long lasting commitment.

Secondly, the creation of a regimental command at Woody Island (in the Paracels), where deployments include marine (tank) units, anti-aircraft batteries, missiles, and patrol boats. The C3I capabilities build-up there include a centre that can process satellite-transferred information. A runway for fixed-wing aircraft has also been constructed.19 This has reduced the burden for air coverage for a Spratly operation and raised PLA-N's rapid response capability for any Spratly incident.20

You Ji opines that the forward deployment will still be 'characterised by visible weaknesses which prevents the PLA-N from taking drastic action'. Besides the long distance and the small force that can be stationed, any surface combatants operating there will be vulnerable to land-based air assault by other nearby claimants. More importantly, political constraints will prevent the PLA-N from asserting itself in the Spratlys. Swift ASEAN reaction to the Mischief Reef incident convinced China that it cannot act unilaterally. It has no option but to seek a peaceful settlement. This was evident in the major concession made in the recent ASEAN Regional Forum (ARF).21

JAPAN - MAJOR ECONOMIC POWER WITH MAJOR MILITARY POTENTIAL

'If China possesses the ambition but not the resources, Japan has the latter without clearly demonstrating the former'.22 Although a major economic power, Japan is resource-poor, and completely surrounded by sea. Its survival and prosperity depends on the 'protein supply' from the sea, and unobstructed sea routes for its import of energy resources and trade. Japan is the biggest fishing nation in the world with catches contributing 41.6 percent of the animal protein consumed by the Japanese. Japan imports more than 80 percent of its energy resources, the majority of which comes from the Middle East (16.6 percent of world crude oil transportation, in terms of volume). The volume of Japan's ocean-going trade amounted to 769.5 million tones in 1990, occupying 19.4 percent of the world total.23

Japan's primary security concerns thus focus on the following:

a. Stability of its immediate neighbours (Korea, Russia, China, and Taiwan) in Northeast AAsia.

b. Freedom of the SLOCs (including the key straits in Southeast Asia and the South China Sea) for its energy import and trade.

c. Access to fishing areas.

The post-World War II Japanese constitution had been interpreted as forbidding Japan from entering into collective security arrangements.[illegible] It was restricted to possessing defensive weapons only, and prevented[illegible] from dispatching Japanese military personnel overseas for any purpose. This left its defences under the 'umbrella' of the US. In 1976, after the US withdrawal from Vietnam, the National Defence Program Outline was implemented to improve its ability to provide for its own defence, and outline target force levels aimed at holding any adversary until US forces arrive.

In 1981, the Japanese Prime Minister, Zenko Suzuki, extended the defence commitment to defending its own territory, the seas and skies surrounding Japan, and its SLOCs out to a distance of 1,000 miles.[illegible] Over the past decade, Japan has been placing decreasing reliance on the defence 'umbrella' of US, and is planning for greater self-reliance in maritime security. Bateman suggests that Japan 'must inevitably aspire to naval capabilities able to conduct shipping protection operations beyond the current limit of 1,000 nautical miles'.24[illegible] Despite economic problems, qualitative improvements have continued with the commissioning of large Aegis cruisers, new destroyers with Sea Sparrow and ASROC (anti-submarine rocket) missiles, the acquisition of large amphibious-landing vessels (with full-length flight deck), and the on-going construction of diesel-electric submarines.

Japan can contribute significantly to the security of the Asia-Pacific region. Kondo argues that such contributions will remain indirect, because of the prevailing sense of pacifism, brought about by the WWII experience; concerns over neighbouring suspicions of any increased military involvement; and an assumption that the US will continue its forward deployment.25[illegible] It sees its security role as that of preventing a regional power vacuum by maintaining appropriate self-defence capabilities, supporting US forward presence in the region, and contributing to the region's prosperity and peace by promoting[illegible] economic cooperation.26

INDIA - INFLUENCE FROM THE WESTERN FLANK

Mahan wrote in 1890 that 'whoever controls the Indian Ocean will dominate Asia. This ocean is the key to the seven seas. In the 21st century, the destiny of the world would be decided on its waters'.27[illegible] Tandon states that despite the 'emergence of a unipolar world...the Indian Ocean [is] unlikely to become free of outside power involvement in the future'.28[illegible] In this light, the Indian Navy has developed to become one with blue water capabilities. During the 1980s, there were concerns over its build- up, and about its development of strategic resources at the Andaman and Nicobar Islands. Gordon suggests that India's engagement in Asia in the 1990s has evolved to one of economic, technology, capital and trade interests.29

Gordon further concludes that India is unlikely 'to be in a position to act independently as a power in - the Straits of Malacca or adjacent waters during the next 15 years'.[illegible] However, its 'pattern of greater engagement... offers leavening of the Asian power equation. It potentially allows for the evolution of a more 'multipolar equation, one in which smaller regional nations have greater manoeuvrability between Asian giants.'

AUSTRALIA - MAJOR REGIONAL PLAYER

Australia has one of the largest coastlines on the globe, the second largest continental shelf, and the fourth largest Economic Exclusive Zone (EEZ) in the world. It has off-shore interests in the Indian, Southern and Pacific Oceans.30 Its key maritime interests are in protecting its substantial marine resources, ensuring security of SLOCs, and ensuring the sovereignty of its offshore territories. Its substantial seapower will see the Collins-class submarines operational in 1999. It maintains capabilities to patrol its maritime approaches, and aims to respond quickly and decisively with a mixture of aircraft, ships and submarines to any emerging threat. Without any direct threat, Australia appreciates that any potential enemy will need to secure a base nearby to threaten its security directly.[illegible] It continues to play one of the most active roles in promoting regional confidence-building measures (to be elaborated later) through its regional engagement and development policy.

ASEAN - LEAN AND MEAN NAVIES

Despite starting from a smaller base, the maritime capabilities of the navies of the ASEAN31 are improving significantly, both qualitatively and quantitatively. The platforms and weapons being acquired are capable of operating over wider areas and longer ranges than the previous generation of systems. The most imposing manifestation of naval development in ASEAN is perhaps the Royal Thai Navy's carrier, added to its already potent capabilities which includes six Chinese-built missile-armed frigates, two *Harpoon*-armed *Knox*-class frigates, and two other*Harpoon*-armed corvettes.

The Republic of Singapore Navy's acquisition of submarines supplements the already technologically advanced defence force. It has a coordinated air and maritime defence establishment, with modern radars, E-2C aircraft, Maritime Patrol Aircraft, patrol vessels, and Harpoon-armed corvettes and gunboats.

The Royal Malaysian Navy's procurement of offshore patrol combatants, makes the greatest contribution to naval power in the region, in terms of major hulls in the water. The navy, which already boasts two missile-armed frigates, eight missile boats, and numerous smaller craft (including *Lerici*-class minehunters), is in the midst of a modernisation and expansion program. In the pipeline are previously approved, but postponed (due to the economic crisis) submarine purchases, and two *Exocet*-armed frigates.

Indonesia launched a large naval build-up in 1996, adding 16 ex-East German corvettes to a navy that already comprises two modern conventionally powered submarines, 17 major surface combatants (many armed with Surface-to-Surface missiles (SSM)), and a huge patrol and coastal force. Even the smallest, but richest ASEAN partner, Brunei, is adding three 1,500-tonne corvettes with vertical launch Surface to Air Missiles (SAM) and SSM.

The exceptions to naval modernisation among the ASEAN countries are the Philippines and Vietnam. Manila does not have the resources for a naval build-up. Vietnam, despite having fought China twice at sea, has not made any obvious effort to improve its navy.

The increased focus on the build-up of maritime forces is associated with a maturing national outlook and an increasing need for, and a capacity to deal with external security issues, summarised as follows:

- Internally, ASEAN nations' were generally successful in defeating and containing armed communist and separatist insurgencies.
- The absence of land-based threats.
- The prospect of a diminishing US presence, and the uncertain strategic interest or assertion of its remaining forces against an unclear threat.
- The importance of the straits and SLOCs for which most nations are highly dependent on trade.
- The creation of new maritime regimes and frontiers as a result of UNCLOS. The most significant for ASEAN being the 200-nautical mile EEZ and the archipelagic state regimes. This results in the need for protection of marine resources in expanded maritime areas. However, the convention does not provide any specific procedure for resolution when the EEZ delineation is in dispute. In the case of ASEAN the extended maritime boundaries has led to ASEAN states sharing common boundaries with China. This has contributed directly to the disputed maritime claims at the Spratlys.
- Cheaper and more potent platforms and weapons, coupled with increased economic well-being, has made the naval build-up within the reach of most nations, although the build-up may be curtailed with the onset of the economic crisis.

MAINTAINING PEACE AND RESOLVING CONFLICTS

Given the diverse and disparate views of nations in the Asia- Pacific, the task of constructing a regional security community, along the line of NATO, is a formidable one. Nevertheless, there are regional institutions for which security issues are tackled. The earliest and largest forum for multilateral security discussion is the Asia-Pacific Roundtable now organised by the ASEAN Institute of Strategic and

International Studies (ISIS). In 1993, the Council for Security Cooperation in the Asia-Pacific (CSCAP) was formed.[illegible] It comprises non-governmental institutions ('think-tanks') and its primary function is to promote region-wide security co-operation, and to formulate proposals for consideration by governments. The ASEAN Regional Forum (ARF) had also been established to enhance regional dialogue among countries in the Asia-Pacific.

Other existing means of developing and maintaining a regional security environment that fosters peace are confidence-building measures (CBM) and multilateral mechanisms for security co-operation. The regional navies can play an important role in these areas through wide-ranging naval co-operation activities.[illegible] At the lower end, there are activities such as ship visits, fleet reviews, personnel exchanges, navy-to-navy talks, and multilateral naval conferences.[illegible] Other more ambitious activities in existence are bilateral and multilateral exercises, joint doctrine development, information and intelligence exchanges, avoidance of incidents at sea (INCSEA) agreements, and co-operation on tasks such as anti-piracy, and marine scientific research. On the higher end, the navies' contribution to regional CBM can be through co-operative maritime surveillance, standing regional naval forces, co-operative SLOC protection, and mine countermeasures.

At present, multilateral naval exercises in the Asia-Pacific waters is limited to the annual exercises conducted under the auspices of the Five Power Defence Arrangements (FPDA). Commentators, such as Cloughley, have argued for ASEAN to present a more robust and united front since FPDA is irrelevant in the present context.32[illegible] The counter argument is that the relevancy of FPDA lies in the close political and economic ties between the five countries concerned. A disruption to one of the busiest international waterway in the world - the Malacca Straits - would have serious repercussions in many countries. Besides Australia, New Zealand, and Britain, who have vested interests in maintaining peace and stability in the Southeast Asia region, the US can become involved, through the ANZUS pact. This multi-layered interest of powers outside Southeast Asia would complicate plans of any would-be aggressor, and thus provide a psychological deterrent.33

A close alternative to the FPDA are the biennial exercises conducted by Australia in its waters, designated 'Fleet Concentration Periods', which involve most ASEAN navies. These exercises have been limited to specific training activities, such as weapons firing and Anti-Submarine Warfare (ASW) training, without higher order strategic and operational concepts. In addition, there are multiple bilateral activities within navies of ASEAN, and between ASEAN navies and the USN, and the RAN.

The Western Pacific Naval Symposium (WPNS) offers potential as a region-wide forum that develops concepts of naval co-operation.34[illegible] Initiated by the RAN in 1988, it brings together representatives from navies in the region for frank exchanges on wide-ranging issues, including SLOC protection, and the law of the sea. Its main thrust has been to harmonise existing procedures and 'increase the understanding of navies at the working level'.35[illegible] Examples of notable outcomes from this forum are the development of *Maritime Information Exchange Directory*, a *WPNS Tactical Signals Handbook, a WPNS Replenishment at Sea Handbook,* and planning for the conduct of a Command Post Exercise (CPX) to help in the development of common publications and doctrine.

More structured maritime surveillance regimes are possible in particular circumstances, such as sub-regions, where commonality of interest is high or where situations are best addressed multilaterally. Examples of such regimes are:

- In 1991, the establishment Zone of Co-operation in the Timor Sea, between Australia and Indonesia.
- In 1992, the agreement between Singapore, Malaysia and Indonesia for co-operative efforts to combat piracy in the Straits of Malacca, and the Phillip Channel (south-west of Singapore). This has led to the sharing of information on the areas where piracy is most rampant, establishment of communication links, and coordinated patrols and joint sweeps against pirates.36
- In 1991, the establishment of a Regional Maritime Surveillance Communication Network in the South Pacific 'designed to collect, collate, and disseminate maritime surveillance information' throughout the region.

CONCLUSION

The changing geostrategic environment in the Asia-Pacific paints a mixed picture. The cessation of superpower confrontation in the region leading to the withdrawal of Soviet forces, and the removal of associated naval tactical nuclear weapons are welcome changes. So is the general economic growth and increasing economic inter-dependence in the region. Achievement of self-reliance and acquisition of modern and high-technology platforms and weapon systems have led to greater self-confidence, and can also promote regional confidence and co-operation.

However, there is a down side to these changes. The disappearance of the superpower standoff has also created a more complex and uncertain environment, posing more challenges for security management. The regional economic dynamism is dependent on fuel and raw materials from outside the region, and the SLOCs are long and vulnerable.[illegible] Adding to the uncertainties are the possibilities of further US withdrawal in the future, and the possible assertion of emerging navies from China, Japan and India. In the medium term at least, most analysts do not see them contributing directly to any instability in the region.

The UNCLOS has introduced new uncertainties in the region, particularly in connection with the EEZ and archipelagic state regimes. Of the two dozen or so conflict points, about a third involve disputes over islands, continental shelf claims, EEZ boundaries, and offshore issues.37[illegible] Of particular concern are the conflicting claim over the Spratlys.

Other emerging security concerns such as piracy, pollution, SLOCs, and fishing, are essentially maritime. These concerns, together with the requirements for defence self-reliance and force modernisation, are reflected in the significant regional build-up in the maritime dimension. The risk of local misunderstanding, and miscalculation will become increasing higher.

CBM will necessarily be slanted towards the maritime dimensions. The navies have significant roles to play in these processes. Navies have a clear advantage over the other military services in promoting regional security and co-operation.[illegible] Forming part of both the defence and maritime communities, navies have less political 'baggage'. Besides their fundamental war-time roles, they have important constabulary and diplomatic roles in peacetime, through wide-ranging naval activities, from low-key bilateral ones to the top-end multilateral regional co-operation and multi-national peacekeeping forces.

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MAJ Lee Choong Min joined the Navy in 1983 as a Naval Engineering Artificer. In 1988, he won the Sword-of-Honour while attending the Midshipman Course. He has served several appointments and is currently a branch head in NLD.

Clausewitz and His Impact on Strategy

by LTC Goh Teck Seng

To assess Clausewitz's impact on strategy, is to establish the relevance of Clausewitzian thinking to strategic thought and policy. *Relevance defines impact, for only that which is relevant endures as a legacy, and a legacy expresses an impact.*

Based upon the strategy-impact framework outlined, this essay will first give an overview of *Clausewitz's theory of war and then evaluate its impact on strategy.*

CLAUSEWITZ'S THEORY OF WAR

Karl von Clausewitz (1780 -1831) premised his work on answering the twin questions of the nature of war and how war might be studied.1 His magnum opus, *vom Kriege (On War)*2, which crystallises the philosophical nature of war and its universal dynamics, is a reflective study on Napoleonic warfare.

Clausewitz defined war as "an act of violence to compel our opponent to fufill our will".3 Yet war is not senseless violence; its essence lies in its being "the continuation of policy with the admixture of other means".4

War, thus rationalised, becomes an instrument of policy: politics then exerts a primacy over its conduct since war is but "the means [*Mittel*] to achieve a predetermined (political) end [*Zweck*]".5 As the "guiding intelligence", politics should shape the nature of war and the preferred strategy in terms of determining the focus and proportion of force to be employed.6

If war is violence based on rationality, it is also "an act of force ...(the application of which knows) ... no logical limit".7 Therefore, "absolute war", or total war, can theoretically result from the unconstrained interaction between the offence and defence - "the collision of two living forces"8 - by virtue of its escalatory dynamics.

Clausewitz's "absolute war" is a Platonic ideal, to which "real war" only approximates.9 "Real war" is always limited, never reaching its absoluteness because of extraneous constraints and the "friction" of war.10 "Friction" derives from the unpredictability of combat performance as combatants are subject to the toil and life-threatening dangers of war; and from uncertainty, or the "fog of war" due to imperfect intelligence.11

In the Clausewitzian perspective, the character of war is shaped by the "trinity" of "primodial violence, hatred and enmity; political purpose and effect; as well as the play of chance and probability" (or otherwise termed the irrational, rational and non-rational forces).12 How each leg of the trinity interacts with one or both of the other would shape the outcome of war, implying that any disequilibrium in the "trinitarian" balance would be adverse.

Clausewitz consequently suggested the need for political and military leaders to work co-operatively; for public opinion to be managed; for military commanders, because of the need to overcome "friction" and chance in war, to display "genius"13; and for the army to possess a strong will because while combat tests moral and physical forces, "the physical (is but only) the wooden hilt, whereas the moral factor is the ... finely-honed blade".14 Moral and psychological factors were central to Clausewitz's analysis of war.15

Clausewitz further propounded the ideal strategy as being to identify the enemy's centre of gravity and concentrate all efforts on destroying it through the decisive battle. A "centre of gravity" is that part of an

enemy which, if destroyed, will cause his collapse, since it is "the hub of all power and movement, on which everything depends".16 As Clausewitz advocated,

"... aim for the great object to achieve the utmost concentration of force ... in order to annihilate the enemy in a major *decisive battle* and to destroy the ability of the enemy state to resist".17

IMPACT ON STRATEGY

If strategy is defined in strictly military terms as "the art of distributing and providing military means to fulfill the ends of policy"18, what may be assessed of Clausewitz's impact? Impact may be distinguished between "influencing" and "direct". Where the impact is "influencing", it has provided a paradigm for evaluating strategy. Where it is "direct", it has resulted in elements of Clausewitz's thinking being operationalised in specific approaches to war.

The first word on Clausewitz's impact is that he has been an immeasurable influence on strategy. Clausewitz provided a theory on war asserting that war is a social phenomenon, being neither a science nor an art with its compound of "rational, irrational and non-rational forces". His theory thus formulated serves not as a model, but a guide, for strategy formulation, which suggests *not what*, but *how*, to think about strategy. As Clausewitz emphasised,

"Theory does not mean a "scaffolding" supporting man in action or a "positive direction for action... It should educate the mind of the future leader in war, or rather guide him in his self-instruction, but not accompany him to the field of battle; just as a sensible tutor forms and enlightens the opening mind of a youth without keeping him in leading strings all his life".19

The timelessness of Clausewitz's theory is his most durable influence; for it constitutes a frame of reference and a point of departure for any analysis of strategy. Clausewitz accordingly exerted strong intellectual influence on Prussian, French and British military thought before World War I.20

Moltke and Schlieffen were self-confessed Clausewitzians21, with *On War* being the "Bible" for the German officer corps22 ; the French, reeling from their defeat in the Franco-Prussian War (1870-71), turned to Clausewitz for intellectual guidance through officers such as Foch23; and the British underwent a "renaissance of Clausewitz studies" after the Boer War with his ideas strongly influencing military teaching at Camberley, the writings of men like Murray and Wilkinson and General Haig's edition of the *Field Service Regulations* which used explicitly Clausewitzian terminology like "centre of gravity".24

Clausewitz's influence has extended wider to naval and air warfare. Naval strategists like Corbett and airpower theorists like Douhet owed their theorising to Clausewitz.25 Corbett had based his analysis of seapower on Clausewitz's concepts of limited war and war as a continuation of policy26; whereas airpower theorists had invoked the ideas of "centre of gravity" and the "decisive blow" in their propositions.27

As for Clausewitz's *direct* impact, his thinking was selectively implemented in turn-of-the-century German and French armies. Clausewitz's point about seeking out the enemy's centre of gravity resulted in these armies "idolising" the decisive battle and developing the cult of the offence. The French doctrine of the "offensive *a outrance*" and the German plans for invading France in 1870 and 1914 (founded on Clausewitz's *"Plan of a War Designed to Lead to the Total Defeat of an Enemy*") exemplify his direct impact on strategy.28

More recently, the rediscovery of Clausewitz in the US following its Vietnam War defeat inspired a strategic rethinking "on the highest levels of the military and political leadership".29 With it came a codification of lessons learnt into the Weinberger Doctrine of 1984.30

Indeed, so dominant was Clausewitz on the US military-strategic scene from the 1970s to the 1980s that: *On War* was adopted by the Naval War College in 1976; the Air War College in 1978; and the Army

War College in 1981.31[illegible] Clausewitzian thinking has also found its way into the Army's manual FM 100-5: *Operations* (1982) and the Marine Corps' FMFM 1: *Warfighting* (1989).32

The Gulf War, drawing upon the Weinberger Doctrine, with its clear definition of political purpose and consolidation of popular and allied support was waged in classic Clausewitzian style.[illegible] For at the heart of it was an adherence to the "trinitarian" balance.33

But is Clausewitz still relevant in the nuclear age?[illegible] Nuclear weapons have both invalidated and reaffirmed Clausewitz's thinking.[illegible] The absolute war that Clausewitz considered an abstraction has become real with nuclear weapons.[illegible] Consequently, no nuclear war may be fought for any meaningful ends, if war is the continuation of policy by other means.

Nevertheless, Clausewitz's theory has provided a framework for evaluating strategy for the nuclear age.[illegible] The concepts of nuclear deterrence and limited war (particularly Robert Osgood's treatment of the subject in his book *Limited War*) are grounded in Clausewitzian theorising about the rationality of war.34

There are however, critics of Clausewitz, the leading contemporary ones being John Keegan and Martin van Creveld.[illegible] Both base their arguments on the irrelevance of the Clausewitzian "trinity", since wars before the Treaty of Westphalia were fought without nation-states (van Creveld)35[illegible]; and war, in general, is not fought for political purposes (Keegan).36[illegible] The rebuttal is that both critics have based their criticisms on a faulty construct of[illegible] the "trinity" as simply "people, army and government".37[illegible] Their flawed premise has undermined their criticisms of Clausewitz.

CONCLUSION

The last word on Clausewitz's impact on strategy is expressed in a question, "Has it been revolutionary?".

If the term "revolutionary" implies a distinct break from a previous pattern of approach to strategy, Clausewitz's ideas can hardly be described as such.[illegible] After all, Clausewitz was an interpreter, not the originator, of Napoleonic warfare; he was able to distill the essence of Napoleon's art of war in its wider socio-political context and formulate a succint theory of war.

But Clausewitz's monumental contribution must nevertheless be recognised.[illegible] He has bequeathed to later generations a framework for effective strategy formulation, if strategy concerns employing "military means to achieve policy ends".[illegible] Clausewitz's legacy is rooted in a singular fact: *On War*primarily describes and analyses war; it does not essentially prescribe or proscribe; therefore whatever the interpretation, something of enduring value persists.

Yet Clausewitz's impact on strategy has been principally "influencing" rather than "direct". To the extent that it is "influencing", his ideas have been adopted, adapted and propagated by strategists dealing in nearly all spheres of warfare.[illegible] The cumulative effect of this is that Clausewitzian thinking presently "run(s) like a subterranean river through all of military thought".38[illegible] Against this, criticisms of Clausewitz exist only as dissenting voices on the fringes in a heavily Clausewitz-influenced, but not fully Clausewitz-converted, world.

Concluding metaphorically on Clausewitz, the grand master may be likened to "the long, invisible hand of strategy extending over a span of 150 years either directly shaping strategy or otherwise, pointing out the relevant first-order considerations of strategy formulation". The impact of Clausewitz on strategy, though not revolutionary, has nevertheless cut deep.

ENDNOTES

1.Peter Paret, "Clausewitz" in Peter Paret (ed.), *Makers of Modern Strategy: From Machiavelli to the Nuclear Age* (Princeton: Princeton University Press, 1986), p.186. For a comprehensive treatment of Clausewitz's life,

his time and influences, see Peter Paret, *Clausewitz and the State* (New York: Oxford University Press, 1976); and Peter Paret, *Understanding War* (Princeton: Princeton University Press, 1992).

2.*On War*, which comprises eight books, is organised into 128 chapters and sections. Book I is entitled *"On the Nature of War";* Book II *"On the Theory of War"*; Book III *"On Strategy in General"*; Book IV *"The Engagement*"; Book V *"Military Forces"*; Book VI *"defence"*; Book VII *"The Attack"*; and finally, Book VIII*"War Plans".* Clausewitz invested 12 years writing On War but did not finish it at the time of his death in 1831. It had to be published posthumously in 1832 by his wife and brother-in-law. The book did not gain immediate fame; nevertheless by 1860, it had established itself as a classic. For a summary of Clausewitz's arguments, see Wendell Coats, "Clausewitz's Theory of War: An Alternative View", *Comparative Strategy,*Vol 5, No 4, 1986.

3.H. Rothfels, "Clausewitz" in Edward Mead Earle (ed.), *Makers of Modern Strategy: Military Thought from Machiavelli to Hitler* (Princeton: Princeton University Press, 1971), p. 102.

4.Quoted in Michael Howard, Clausewitz (Oxford: Oxford University Press, 1983), p.34.

5.Ibid., p.35.

6.Ibid., p.38.

7.Paret, op. cit., p.199.

8.Ibid.

9.Howard, op. cit., p.49. A Platonic ideal is, as Peter Paret put it, also a philosophical ideal. Clausewitz devised the ideal of "absolute war" as a perfect standard against which all manifestations of war could be compared. In the absence of such an idealised standard, any analysis of war in practice would lack a uniform reference point.

10. *Ibid*., pp. 50-51. The idea of "friction" is not new in war. What Clausewitz had done was to highlight it as a key component of war and incorporate it as a distinct variable into a theoretical structure despite his admission that "friction" could not be adequately accommodated by theory. "Friction", in the Clausewitzian conception, referred to uncertainties, errors, accidents, technical difficulties as well as the unforeseen and their impact on actions, decisions and morale. Unlike mechanical friction which could be localised to points where a moving part came into contact with another, "friction" in war could occur anywhere and at any time. Just as the straightforward action of walking was difficult if attempted in water, so action in war - which was theoretically simple - was hampered by its own resistant medium, namely "friction".

11. Patrick Cronin, "Clausewitz Condensed", *Military Review*, Vol 65, No 8, August 1985,p. 41.

12. Edward Villacres and Christopher Bassford, "Reclaiming the Clausewitzian Trinity", *Parameters*, Vol XXV, No 3, Autumn 1995, p. 13. Villacres and Bassford argued that the Clausewitzian "trinity" had over time been simplified as referring simply to "the people, the military and the government". This, according to them, was a distortion which needed to be corrected. The accurate interpretation of the Clausewitzian "trinity" is as spelt out in the text of this essay.

13. "Genius", as Clausewitz described it, was not a singular trait but an almagam generally of courage, intellect as well as strength of will and character. "courage" consisted of two forms: an individual quality characterised by an indifference to danger and courage inspired by higher motivations of patriotism, ambition or enthusiasm. According to Clausewitz, the highest degree of courage comprised proportions of both kinds. As for "intellect", Clausewitz saw this as the sensitive and discriminating judgement military commanders must exercise to deal with imperfect intelligence, unforseen circumstances and all such other uncertainties of war. "Strength of will" referred to the personal capacity of the military commander to withstand the demoralising effects of war and therefore to not only retain hold on his men, but to reinvigorate them to achieve the mission despite setbacks. Finally, "strength of character" touched on the ability of the commander to maintain his balance and convictions in spite of strong emotional pressures. See Karl von Clausewitz, On War, ed. and trans. Michael Howard and PeterParet (New York: Alfred A. Knopf, 1993), pp. 115-122.

14. Howard, *Clausewitz*, p. 26.

15. Rothfels, "Clausewitz" in Earle, op. cit., p. 112. Rothfels argued that the heavy emphasis on moral and psychological factors stood out as the most pronounced of Clausewitz's permanent contribution to military thought. Specific chapters of the book On War are devoted to a discussion of this subject (I, III; II, III; III, III-VIII).

16. Howard, Clausewitz, p. 39. Clausewitz identified the enemy's centre of gravity as being any of the following: the enemy's army; his capital; his protector; or the community of interests that holds together an alliance.

17. Azar Gat, The Origins of Military Thought: From the Enlightenment to Clausewitz (Oxford: Claredon Press, 1989), p. 211.

18. Williamson Murray and Mark Grimsley, "Introduction: On Strategy" in Williamson Murray, MacGregor Knox and Alvin Bernstein (ed.), The Making of Strategy: Rulers, States and War (New York: Cambridge University Press, 1996), p.1. Broader definitions of "strategy" exist, but this essay adopts the definition which best facilitates an evaluation of Clausewitz's impact since the grand master dealt with strategy on the military plane.

19. Rothfels, "Clausewitz" in Earle, op. cit., p. 101.

20. Bassford, *Clausewitz* in English (New York: Oxford University Press, 1994), p.4.

21. Rothfels, "Clausewitz" in Earle, op. cit., p. 93; and Martin van Creveld, *The Transformation of War* (New York: The Free Press, 1991), p. 34. To be sure, Schliffen and Moltke were not themselves Clausewitz reincarnates; they were influenced byClausewitz, but even then they adopted Clausewitz only where his arguments suited their strategic predispositions. For instance, Moltke himself believed in the autonomy of war, rather than war as an extension of policy. See also "Clausewitz and the Rise of Prussian Military Hegemony" in Hew Strachan, *European Armies and the Conduct of War* (London: Routledge, 1991), pp. 90-104.

22. Jehuda Wallach, *The Dogma of the Battle of Annihilation: The Theories of Clausewitz and Schlieffen and Their Impact on the German Conduct of Two World Wars* (London: Greenwood Press, 1986), p. 9.

23. See Azar Gat, *The Development of Military Thought: The Nineteenth Century* (Oxford: Clarendon Press, 1992), pp. 114-134.

24. Bassford, op. cit., pp. 104-107. For the influence of Clausewitz on J.F.C. Fuller and Liddell Hart, see Jay Luvaas, "Clausewitz, Fuller and Liddell Hart" in *The Journal of Strategic Studies*, No 2, Vol 9, June/September 1986.

25. *Ibid*., pp. 96-99; and Howard, *Clausewitz*, p. 68.

26. Bassford, *op. cit*., p. 97.

27. Howard, *op. cit*., p. 68.

28. Douglas Porch "Clausewitz and the French: 1871-1914" in Michael Handel (ed.), *Clausewitz and Modern Strategy* (London: Frank Cass, 1986), p.287; and Bassford, op. cit., p. 111.

29. Michael Handel, *Masters of War: Sun Tzu, Clausewitz and Jomini* (London: Frank Cass, 1992), p. 11.

30. *Ibid*. The Weinberger Doctrine is the US' strategic adaptation for the post-Vietnam War era. It lists six conditions for US participation in any war. Frequently quotedduring the numerous debates concerning military action in the Gulf War, the Doctrine explicitly cites Clausewitz in the third of the six conditions: "As Clausewitz wrote, 'No one starts a war without first being clear in the mind what he intends to achieve by that war, and how he intends to conduct it.".

31. Bassford, *op. cit*., p. 204.

32. *Ibid*..

33. Handel, *Masters*, pp. 9-15.

34. Howard, *Clausewitz*, pp. 60-70; and Bassford, *op. cit.*, pp. 200-202. For Clausewitz's impact on nuclear strategy and the nuclear strategists, see Stephen Cimbala, ***Clausewitz and Escalation: Classical Perspective on Nuclear Strategy*** **(London: Frank Cass, 1991); see also Bruce Nardulli, "Clausewitz and the Re-orientation of Nuclear Strategy", *The Journal of Strategic Studies*, Vol 5, No 4, December 1982.**

35. Van Creveld, *op. cit.*, pp. 49-57.

36. John Keegan, *The History of Warfare* **(New York: Vintage Books, 1993), p.3.** Arguments against Clausewitz's relevance can also be found in John Shephard, "On War: Is Clausewitz Still Relevant?", *Parameters*, Vol XX, No 3, September 1990.** In it, Shephard argues that Clausewitz is no longer relevant due to the rise of nuclear weapons, transnational constabulary warfare and modern statecraft - elements which did not exist in Clausewitz's time.

37. Villacres and Bassford, *op. cit.*, pp. 15-17.

38. Bassford, *op. cit.*, p. 5.

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LTC Goh Teck Seng is a Deputy Department Head in HQ RSAF. He holds a BSoc Sc (Hons) degree from the National University of Singapore and an MA (with high distinction) in Strategic Studies from the Australian Defence Studies Centre (ADSC), University of New South Wales, Australian Defence Force Academy. He has published a working paper on ASEAN and the ARF under the aegis of ADSC.

Democratisation, Interdependence, and the Prospects for Future War

by MAJ Tan Yan Yee

Throughout the history of mankind, war has been an unpleasant but common occurrence. A study of the documented history of human civilisation is in many ways an analysis of why wars occur, how they are fought, and the political and military outcomes of the wars. While war has traditionally played a central role in the conduct of international relations between nations, scholars throughout the ages have tried to seek an end or at least, a reduction in the incidence or scale of war.

Two theories that have gained widespread support in recent years are the Democratic Peace Proposition and the Theory of Interdependence. If these theories were to hold, the implications are enormous. On the one hand, the end of the Cold War has given rise to a wave of democratisation now sweeping across many countries, especially in Eastern Europe. On the other hand, globalisation has now becoming a necessity rather than a choice for most nations, with an increased interdependence among nation states world-wide. Advocates of the two theories would argue that we now have a unique opportunity before us to finally consign the scourge of war into the footnotes of history. This essay will review the existing literature on these two theories, with a view to determine their strengths, weaknesses, and their impact on the prospects for future war.

THE DEMOCRATIC PEACE PROPOSITION

The Case For Democratisation

Proponents of the Democratic Peace Proposition generally contend that autocracy or dictatorship is an important cause of war. Their argument is premised on the observation that democratic states do not initiate war against each other, and this therefore offers an avenue to universal peace. Such a proposition has philosophical roots that can be traced to Immanuel Kant, who in 1795, wrote the following passage:

The republican constitution ... provides for this result, namely, perpetual peace, and the reason is as follows: If (as must inevitably be the case, given this form of constitution) the consent of the citizenry is required in order to determine whether or not there will be a war, it is natural that they consider all its calamities before committing themselves to so risky a game. By contrast, under a non-republican constitution, whose subjects are not citizens, the easiest thing in the world is to declare war. Here, the ruler is not a fellow citizen, but the nation's owner, and war does not affect his table, his hunt, his place of pleasure, his court festivals, and so on. Thus, he can decide to go to war for the most meaningless of reasons, as if it were a kind of pleasure party, and he can blithely leave its justifications to his diplomatic corps, who are always prepared for such exercises.1

The language used may be ornate and archaic, but the vision depicted by Kant was a powerful one: that an inexorable evolutionary trend towards 'republican governments', which are inherently peaceful in nature, will serve to promote world-wide peace. Indeed, although progress towards greater democracy since Kant's days has been slow and non-linear, it remains an article of faith among many western political leaders that their efforts to promote democracy in other countries is an indirect but effective way to ensure future global peace and stability. As Margaret Thatcher, then British Prime Minister, said during a visit to Czechoslovakia in 1990, 'If we can create a great area of democracy stretching from the west coast of the United States ... to the Far East, that would give us the best guarantee of all for security - because democracies don't go to war with one another.'2

It is worthwhile to explore further the theoretical underpinnings of the concept of democratic peace. Of the various arguments put forth, two stand out for their simplicity and general acceptance. Firstly, it is said that democratic states do not fight each other because of the structural or institutional norms of democracy. This is the idea that democracies are organised in such a manner that makes going to war more difficult, as compared to other forms of government.3 The general population must support the idea that their state should take violent actions against another state because they are the ultimate bearers of the costs of such actions, in the form of human or economic sufferings. Since these people have the ability to voice their opinion, the leadership may theoretically be removed if they make decisions in a way that is incongruent with the wishes of the majority of the people. And even if the people are behind the war effort, leaders must still be concerned about the political costs in the event of a defeat.

The second reason why democracies may act more peacefully towards one another is the result of cultural and normative norms of a democratic state. The essential trait of democracy that facilitates such a development is that of *bounded competition*, which allows for open, competitive systems of governance where conflicting material interests and political values are regulated in a peaceful manner.4 Because disputes and differences within democratic states are much more likely to be settled through peaceful means, such an argument may be extrapolated to an inter-state environment within the realms of international relations. It follows then that in conducting relations with other countries, leaders in democratic states will tend to follow the same rules and norms that are pronounced within their own domestic spheres. Further, they will expect a reciprocation of this treatment from other democratic states. In addition, it has also been argued that the more entrenched the liberal values (such as in the established democracies of the western world), the greater the likelihood that the proposition will hold true.

What is the empirical evidence supporting the proposition? Numerous studies have been carried out, and the general approach has been to conduct what is known as a dyad study, where observations are divided into jointly democratic and non-jointly democratic dyad-years. Rummel in 1983 analyzed the relationship between 'libertarianism' and conflicts between all pairs of independent states from 1976 to 1980, and found a strong negative correlation between libertarianism and the degree of violence between states or pairs of states.5 Maoz and Nasrin Abdolali were more ambitious, analyzing all pairs of states for each year from 1816 to 1976, and came to largely the same conclusions. To provide a more powerful test of the hypothesis, however, they demonstrated that the proportion of the pairs of states in the system that were democratic were sufficiently high to warrant their conclusions.6 More recently, using the Alker-Sherman data of 307 post-WWII conflicts from 1945-1979, Dixon found that democracies are more amenable than others to efforts of third parties to resolve or ameliorate interstate disputes, and that disputes between democracies are more likely to be peacefully resolved.7

WEAKNESSES OF THE DEMOCRATIC PEACE PROPOSITION

In recent years, numerous objections have been put forth against the proposition, some of which have raised serious doubts about its validity. Many critics have focused on the weaknesses of the dyad approach. The relative infrequency in the incidence of war means that the statistical potency of any quantitative study will be very much weakened by the lack of a reliable sample. Studies have shown that only about one per cent of pairs of state in any year are engaged in wars against each other.8 This figure is so low that the absolute difference between the number of wars between states in general and those involving democratic states will be very small even if the latter number is zero. A relatively small number of exceptions to the rule that democratic states avoid wars against each other would further reduce that difference to insignificance, both statistically and substantively. Moreover, until the last three decades or so, undemocratic states far outnumber democratic states. Even if we accept the absence of wars between democratic states, this could well be explained by the argument that wars and democratic regimes are so rare that wars between democracies must be statistically insignificant.9

Indeed, Layne showed in a study that not only do democratic states rarely go to war with each other, non-democratic states also generally do not spend their time at war with anyone.10 He further argued that the American Civil War happened to be just such an exception to the argument that democracies do not fight each other. His contention was that since the American Civil War had taken place within a democratic state

whose cultural and structural norms had failed to prevent war, it cannot be expected that they will prevent wars outside the state.

Another common objection to the Democratic Peace Proposition is that even if it can be shown that democratic states are less likely to go to war with each other, they are still as war-prone as other types of societies. History is rife with examples of public opinion seeming to support aggressive policies that lead to war. The Spanish-American War of 1898, the First and Second Indochina Wars from the 50's to the 70's, and even the US invasion of Grenada in 1983 amply illustrate this. More recently, the newly-elected democratic government in India conducted nuclear tests in May 1998, prompting Pakistan to do likewise, bringing the Indian subcontinent closer to war.

Several studies seem to bear out this point. Chan analysed the relationship between regime-types and the dichotomous variable of war involvement, and found that overall, the evidence points in the direction that greater freedom is associated with more wars.11 Levy in a separate study found the evidence conclusive that democratic states have been involved, proportionately, in as many wars as non-democratic states.12 Maoz and Russett, on the other hand, noted that democracies are no less conflict-prone than non-democracies, even though there is something in their internal make-up that prevents them from fighting one another.13

Thus, the argument that the public opinion will result in democracies being more pacifistic is not persuasive. One possible explanation for this could be that contrary to Kant's arguments, only a small minority (typically young males with little political influence) of the population actually get involved in the fighting. Moreover, the immense profits to be made and jobs created from the outbreak of war would no doubt spawn influential groups in favour of pursuing war as an option. In any case, it is unlikely that citizens in most countries base their attitudes about any given war on dispassionate and precise calculations of economic profit or loss to themselves and to the country.

One reason why scholars such as Chan and Weede have arrived at such radically different conclusions in their studies, compared to peace theorists advancing the cause of democratisation, is the lack of consensus over the concept of democracy. Clearly, the use of different definitions of democracy in empirical studies will lead to vastly dissimilar conclusions in the validity and strength of the proposition. Certainly, characteristics such as fairly contested elections, virtually universal suffrage, restrictions on the use of government power, accountability of political leaders, freedom of the press and public expression of preferences are invariably mentioned as modern tenets of a contemporary liberal democracy. This, however, has always been the case. Democracy is not an absolute ideal: it should be seen in relative terms. The idea of democracy, though widespread now, is no more than a few centuries old. A democratic system 200 years ago would almost certainly be viewed as an autocratic system today. For instance, because the War of 1812 between the United States and Great Britain came before the start (1816) of the Singer and Small data set, Doyle's study did not consider it as a war between democracies.14 Some scholars will no doubt beg to differ on that score.

Yet another criticism of the proposition involves the vulnerability of democratic regimes themselves. To peace theorists, one of the most gratifying outcomes arising from the end of the Cold War was the break-up of former communist states like the Soviet Union and Yugoslavia and the more democratic practices adopted (at least initially) by the successor states. Yet events since then have shown that these supposedly 'emerging democracies' can be inherently unstable and quickly lapse into authoritarian rule. Given the difficulty to promote sustainable democracy, it may be more productive for peace theorists to seek for fertile ground elsewhere to advance the cause of peace.

THE THEORY OF INTERDEPENDENCE

The Liberal vs The Realist View

Like the Democratic Peace Proposition, the notion that increased interdependence reduces the probability of war among nations is not new. For one, economists have long demonstrated that economic interdependence

benefits both parties through the process of international trade. The underlying rationale is worth explaining. In a simple model of a two-state-two-product international economy, even if a particular state is more efficient at producing both goods, it would still make more economic sense for each state to specialise in producing one of the goods and thereafter obtain the other through barter exchange. This is because the issue is one of relative rather than absolute efficiency; the more efficient state should optimise its limited resources to focus entirely on producing the goods where it has a relatively greater efficiency. From an economic viewpoint, therefore, international trade represents one of the rare occasions in international affairs that present a win-win situation to both parties.15

Traditionally, theories on the effect of interdependence between states on the risk of war can be divided into two main camps. On the one extreme, liberals argue that economic interdependence lowers the likelihood of war by increasing the value of trading over the alternative of aggression; in other words, states would rather trade than fight.16 To put it simply, trade is mutually beneficial, while war is at best a zero-sum game. At the same time, the increasing lethality of modern weapons has greatly increased the costs and risks of war, thus making the trading option seem even more rational.

Four other subsidiary propositions supporting the liberal view are worth mentioning here.17 Firstly, the increased economic activity that accompanies higher trade levels tends to promote domestic prosperity, and in doing so lessens the internal problems that push leaders to war. Secondly, trade may alter the domestic structure of a particular state, giving more influence to groups with a vested interest in the continuation of peaceful trade. Thirdly, a higher level of interdependence inevitably leads to increased interaction between governments and peoples. This enhances understanding and an appreciation of each other's views and perspectives, reducing the misunderstandings and miscalculations that sometimes lead to war. The final argument asserts that trade has the spillover effect of enhancing political ties between trading partners, thus improving the prospects for long-term co-operation.

Going by the liberal arguments, there is cause for optimism as long as a high level of interdependence can be maintained among all states. Rosecrance sums up the view rather neatly that high interdependence fosters peace by making trading more profitable than invading.18 Some liberals explain the continuing occurrence of war as a result of the misconception of political leaders caught up in the outmoded belief that war still pays.19 Yet others saw it as the misguided attempts by political leaders to gamble for an outright victory in war, in which case the benefits would be even greater. The contention is that inspite of the pacifist tendencies that interdependence brings about, it may sometimes not be enough to prevent war from happening.

Conversely, the realist view is that *ceteris paribus*, highly interdependent states are more likely to go to war with each other. Ironically, like liberals, realists also accept that economic interdependence is generally mutually beneficial to both parties. However, they argue that the security perspective of a state is rarely if ever defined solely in economic terms. In fact, states concerned with their security will want to avoid becoming too dependent in the first place, as it could mean imported goods being cut off in a crisis.20 This is particularly so for crucial imports like oil or raw materials, without which most modern economies would collapse. Consequently, it is argued that the more militarily powerful states have an increased incentive to go to war in order to assure themselves of continued access to vital goods. Such a course of action pre-supposes that there are no alternative supplies of the particular good from other sources or that the adjustment costs of doing so will be too high; otherwise, war may not be the most viable option.

Kenneth Waltz puts across the point succinctly: whilst in theory states have little reason to fear the dependence that goes with specialisation and international trade, the anarchic structure of international politics engenders in states a heightened sense of vulnerability. This fosters the desire in states to constantly seek to increase the span of control and lessen the extent of their dependency.21 In fact, one can trace the roots of the modern realist's understanding of economic interdependence and war to the advent of imperialism in the 18th century. Imperialistic expansion and the acquisition of colonies by major colonial powers can be traced to the states' desire to secure ever-greater control over sources of supply and markets for its goods. In other words, the colonial empires were striving to reduce their fears and dependence on external specialization by increasing internal specialization within a now larger political realm.22

WEAKNESSES OF BOTH APPROACHES

The main problem with both approaches is that they consider the future only within their own ideological pre-suppositions, instead of formulating a dynamic perspective of how a state will incorporate its future environment into the choice between war and peace. For example, a high level of interdependence can be peace-inducing if states expect future trade levels to remain high. On the other hand, if a highly dependent state expects future trade to be low due to the policy considerations of the other state, war may then be seen as the more viable option.

Events leading up to the two World Wars amply illustrates the weaknesses of both theories. Prior to WWI, the European powers had reached unprecedented levels of trade, but this did not prevent the outbreak of war. Some liberals have sought to explain this by arguing that political leaders then did not understand how beneficial interdependence was, and how costly war would be. This is plausible, as it is likely that few statesmen or even military leaders then did not believe that the war would be over relatively quickly.[] However, it remains that greater interdependence failed disastrously to prevent the political crisis that led to WWI. Realists, on the other hand, fared no better. Although a high level of interdependence undoubtedly preceded WWI, such a situation had been prevailing for at least the best part of the previous 30 years, without causing any major conflict. If one were to be generous to the realist viewpoint, it can only be said that interdependence was a necessary but not sufficient condition for the War.

Applying the liberal and realist arguments to WWII presents equally problematic outcomes. At first glance, the inter-war period seems to support liberalism over realism. In the 1920's, interdependence was high, and the world was largely peaceful. In the 1930's, as entrenched protectionism resulted in declining interdependence, international tension rose to the point that WWII erupted. Such a conclusion, however, would be wrong. Among the major protagonists during WWII, the Axis powers of Germany and Japan were the most dependent on other states for their raw materials and other vital goods; yet they were the ones that contributed most to the outbreak of war. It is fair to say that both states, especially Japan, resorted to war partly as a means of ensuring continued access to vital supplies.

The period since the end of WWII has not helped to resolve this prolonged debate. International trade has enjoyed robust growth in the five decades since the end of WWII. The international economy is as integrated as it has ever been, with the economic situation in one country often affecting the outlook for other countries, as events in the recent financial turmoil has shown. International institutions and organisations have also become permanent features of the international society.[] In recent years, globalisation has further heightened the level of interdependence between states, so much so that the present trend towards ever-greater interdependence is probably irreversible.[] At the same time, the costs of war have also been proportionately rising with the development of increasingly sophisticated and destructive weapons and munitions.

If the liberals are correct, then we should certainly see a reduced propensity for conflict among states. Yet the numerous conflicts over the last 50 years does not point to that conclusion. On the other hand, if the realists are correct, the world should certainly be close to a third world war by now. Yet it is hard to argue that there were more conflicts in recent years. In addition, none of these wars remotely approach the scale of the two World Wars fought in the earlier part of this century.

CONCLUSION

It is difficult to argue that either democratisation or interdependence lessens the prospects for future war. At best, current evidence supports the theories that under certain internal and external conditions, it is possible that the two factors could be peace- inducing. Moreover, it must be recognized that states can have varied preferences in similar strategic situations, and that there is a great deal of uncertainty about what those preferences will be. In the final analysis, it is unlikely that the two propositions will be useful to peace theorists in their present forms. Much work remains to be done to bring them from the realms of the idealistic to the realistic.

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MAJ Tan Yan Yee attended the Royal Military College in Duntroon, Australia from 1987-1988. He graduated from the London School of Economics and Political Science with a B.Sc. (Econs) degree in 1992. An infantry officer by vocation, he attended the Singapore Command and Staff College in 1998 and is presently the S3 of 10 SIB.

That Scrap of Paper : On the Neutrality of Belgium in World War I

by CPT Yeo Heng Hwee

The neutrality of Belgium in WWI is often referred to as a scrap of paper. The essay will scrutinise Belgium's guarantee of independence and neutrality by its guarantors at the London Conference in 1831-l839 and the failure of the guarantors to deliver their promise. *Due to the wide scope of the topic, this essay will focus on the nature of its guarantee as interpreted by the different guarantors and their intentions. The controversial issue of whether Belgium maintained its precepts of neutrality will also be discussed, including Germany's justification of its violation of Belgium in its war plan, formulated by General Von Schlieffen in the early 19th Century*.

BELGIUM BEFORE 1831

Belgium's strategic geographical location was one of the reasons for the frequent invasions of this country where "all the horses of Europe had once grazed". Situated in the western frontier of the European continent with France on its southern border, Prussia in the east and Great Britain just across the English Channel, the plains of Belgium central had attracted the eyes of Prussia and France: it allowed easy transportion of troops across the flat terrain in Belgium to conduct a swift attack on the other. The common border between France and Prussia in the south and southeast of Belgium has many natural obstacles to deter any would-be invader: the Vosges Mountains, Moselle Uplands and the Black Forest Mountains. The upper Saone, Rhine, Moselle, Saar, and upper Meuse rivers have either steep banks, palisades or marshy lowlands. Thus, tracking through Belgium was seen by the two countries as "the option to a swift victory".

Belgium was also known for its natural resources: it possessed rich iron ore and coal mines and large farms in the northern and central areas. Her people were recognised for their industry. This was another reason for the frequent invasion of the country. France had set its eyes on the Belgian states as early as the 17th century. It had successfully gained, lost, regained and lost again some provinces of Belgium. The French authorities again had the intention of annexing the country in 1829, near the end of the Greek War of Independence. To France's disappointment, the war ended before it could divulge its plan.

Britain's interest in the welfare of the Belgian states could well be summarized in a statement by Napoleon I: "Antwerp, *in the hands of a strong France was a pistol pointed at the heart of England*". This statement could well be interpreted that the Belgian states, occupied by any great power of the European continent, would have disastrous effects on the welfare of England. Great Britain was particularly interested in Belgium because it had developed extensive trade links in the region and thus had decided that no rival would annex the popular provinces and interfere with the commerce of Great Britain. Any power that possessed a port as near as Antwerp was seen as being potentially dangerous to the conduct of commerce in the British Isles and could upset the balance of power there. Britain's keen interest was illustrated clearly by the initiation of the guarantee of independence and neutrality of Belgium at the London Conference of 1831-1839 and the promise that it would contribute extensive military power and declare war on any country that violates the neutrality of Belgium.

As early as the 13th century, steps had been taken by the Belgians to ensure peace in the region. The first being the formation of the Barrier Fortresses to deter any potential aggressor and also the unification of Belgium with the Netherlands to make a larger and more defensible kingdom of Netherlands. Both had failed and it was not until the London Conference of 1831 that a more formal guarantee was forged. This "formal guarantee" was however shortlived. Never had they anticipated it to being reduced to a mere piece of scrap paper.

THE LONDON CONFERENCE OF 1831

The conference was initiated by the British to discuss the terms of the guarantee for the independence and perpetual neutrality of Belgium. The five great powers: Great Britain, France, Prussia, Russia and Austria agreed to preserve the independence and neutrality of the country. On 20 January 1831, the terms were finalised to guarantee the independence and neutrality of Belgium. Article V. of the protocol read:

Article V., - Belgium, within those limits which shall be determined and traced conformably to the arrangements laid down in Articles I., II., and IV., of the present Protocol, shall form a perpetual neutral state. The Five Powers guarantee to it that perpetual neutrality, as well as the integrity and inviolability of its territory, within the above-mentioned limits.

Article VI., - by just a reciprocity, Belgium shall be bounded to observe the same neutrality towards all other states, and not make any attempt against their internal or external tranquillity.

The Articles were further revised and finalised on 30 April 1839 to read as follows:

Article I. - [Their majesties of the 5 powers] declare, that the Articles hereunto annexed ... are considered as having the same force and validity as if they were textually inserted in the present Act, and that they are thus placed under the Guarantee of their said Majesties.

Article VII., - Belgium, within the limits specified in Articles I., II., and IV., shall form an independent and perpetually neutral state. It shall be bound to observe such neutrality toward all other states.

Although the five great powers had all agreed to honor the guarantee, all of them had adopted an intentionally vague and ambiguous guarantee. They had done it on purpose so that should any country intend to violate Belgium for their own reasons, then there would be an alternative and not be branded as hacking out on the original contract. All five nations had declared that at that point of time, they would fight against any aggressor that violated Belgium. In that statement, they were pointing at France in particular, as the ambitions of France in annexing Belgium was well known to all. Apart from that time that the contract was reached, none were willing to commit themselves in any future eventualities. Thus though the five great powers had agreed to preserve Belgium's independence and perpetual neutrality, they were merely seen as providing lip service to the guarantee rather than anything else. For example, the Dutch were forced out of the remaining Belgian states still remaining in their hands after the Parisians rebellion which only involved the English and the French. The guarantee appeared to be joint and several instead of joint and collective, as the respective member countries would act only in the interest of their own country and not in the interest of Belgium.

THE PRECEPTS OF NEUTRALITY

According to the Articles of 1831-1839, Belgium was to abide by the rules and treat all countries equally but this was not so in practice. A frequent charge during the 19th century from Germany was that Belgium had violated the precepts of their neutral status. The Belgians were unable to refrain from taking sides during domestic quarrels among neighbours and more during war and crisis. Prussia, especially, made the charge that Belgium was pro-French. It supported these charges by the accusation that the Belgians had encouraged their Catholics to oppose its religious laws. Prussia had also accused Belgium of not conforming to the precepts of neutrality by its stoppage of grain shipment to Prussia. It was also noticed that during the period 1870s-1880s, Belgium did not adopt a neutral stand when it fortified Liege and Namur into powerful fortresses to defend itself against a possible German attack but it left the French border open.

It was a fact that Belgium was weak in military prowess and that drove them to seek help from the great powers to jointly guarantee its independence and neutrality. Belgium assumed that since the five great powers had jointly agreed to guarantee its independence and neutrality, none of them would dishonor their word and attack the country that they had all agreed to protect. However what was missed in Belgium's

calculations was the intended vague and ambiguous guarantee that the five great powers signed. Belgium relied too heavily on the guarantee that all five great powers would keep their promise and not violate their country.

The Belgians were not afraid of any country other than the five great powers. They were confident that they could handle any attempt of assault from any potential aggressor. The Dutch invasion of 2 August 1831 was an example of their confidence. The dispute was on the terms set out for the separation of Belgium from the Dutch Kingdom: the terms were unfavorable to both countries and the Dutch were enraged by the arrogant attitude of the Belgians and the other nations for meddling in their affairs. The Dutch decided to show the world that they could handle their own affairs when left on their own. They mounted an attack on Belgium on 2 August 1831 but realized that they had been over-confident and appealed to the French and the British for help. The Dutch told them to wait at the border as they would probably not be needed.

THE VIOLATION OF NEUTRALITY

When the Prussian government decided that they were to adopt the Schlieffen Plan, an ultimatum was drafted by General Moltke, the Chief of the Prussian Army, to serve to the Belgians. The ultimatum was handed to the foreign office on 26th July 1914 before it was sent to the ambassador in Brussels on 29 Jul 1914.

Upon receiving news that Russia had mobilized its troops, Berlin declared war on Russia on 1 August 1914. The German ultimatum to Belgium was delivered to its government at l900 hours the next day. The contents of the ultimatum were as follows:

Berlin had reliable information which left Germany absolutely no doubt that French troops would move through Belgium to attack Germany. Since Belgium could not offer sufficient resistance, "It is for Germany, a dictate of self-preservation, that she anticipate the hostile attack". It had also asked Belgium not to consider the intrusion as an act of hostility as Germany had not intended the act to be so. The ultimatum goes further that should Belgium adopt an attitude of benevolent neutrality, ie. give Germany support, Germany would gurantee its independence and sovereignty. Germany would also pay for all necessities required by its troops and make good any damage suffered. Otherwise, Germany would not undertake any obligations for the benefit of the kingdom and the relations between the two nations would be decided by arms. It had also suggested to the Brussels government that it retreat to Antwerp and leave Germany to undertake the maintence of law and order in Brussels. Germany demanded an uneqivocal reply within 12 hours.

The intentions of Germany can hardly be termed as secret. Four days before the issue of the ultimatum to Belgium, Chancellor Bethmann Hollweg had assured Great Britain that it would respect Holland's neutrality. But as to Belgium, he claimed that his government was not sure as to what measures, in the event of war, that France's counter-operations would drive them to do. Sir Edward Grey, then the Prime Minister of Great Britain, asked France if it would respect Belgium's neutrality. France replied in the positive. Immediately, Grey informed Belgium of France's decision and asked Belgium to do all possible to maintain its neutrality.

Britain's main issue of great panic was that Belgium would go against its initial stand of being neutral and side with Germany. If that was the case, Germany's plan of having a swift victory on the Western front would definitely have materialised with the support of the Belgians. It would then concentrate its forces to fight against Russia in the North. Russia, just recovering from the war with Japan, could hardly hold against the powerful German troops. Britain would thus have been left in a very tense and volatile situation if Germany had won the war. The trade and economy of Britain would suffer considerably then. Furthermore, Germany could reach its Isles within a matter of hours if it decided to attack Britain.

Grey, upon hearing of France's guarantee to maintain Belgium's neutrality, turned to Germany and posed Germany a similar question. Germany tried to delay its reply to Grey because providing an answer to that question would be as good as giving away its country's war plan. Germany then started to claim that

Belgium was not neutral in its dealings.[illegible] The reply from Germany to Belgium was the ultimatum and the reply to Britain was the crossing of troops on the neutral border.

After much discussion by its top ranking officials, Belgium replied to the ultimatum at 0700 hours promptly in the negative and told the German government of France's declaration to maintain neutral in crossing Belgium, it had also reminded Germany of its original treaties as promised by the Prussian King some 83 years ago. It stated that their country had fulfilled the duties of a neutral country faithfully and thus did not deserve such a violation. In the ultimatum, Germany had suggested that the Brussels government retreat to Antwerp. That was an obvious indication of the size of the German troops. The officials were hard pressed for time and a decision on whether to[illegible] maintain neutrality and hope that Britain would come to its liberalisation or whether to agree to the demands of Germany. They faced the pospect of accusations from the rest of the world.

GERMANY'S JUSTIFICATIONS FOR THE VIOLATION OF BELGIUM

Germany tried to justify its actions in violating Belgium's neutrality on various grounds, one of which was to soften the impact of words like "intrusion" and "violation".[illegible] It tried to seek sympathy from the neighboring nations, stating that it had acted in "plain self-defence".[illegible] In its propaganda, Germany also stressed that it was France's intentions that had compelled Germany to commit itself in this course of action.[illegible] Germany also stressed on the point that Belgium had not been very neutral and quoted examples of grain shipment and French aircraft flying across Belgium to spy on Germany. Germany knew that Britain would contribute extensive military help to Belgium should it encounter any intrusion. By stating that its actions were in self-defence, Germany hoped that it would not encompass Britain into a war on the Entente side, thus engaging Germany further from a two-front war, to a three-front war.

The explanation to Britain for the violation was more to assist Belgium because it claimed that the latter would not have enough military strength to deter the French attack. Germany had tried once again to persuade Belgium to adopt an attitude of benevolent neutrality as it needed the rail network in the country to transport its troops across the country to fight[illegible] on the French-Belgian border. This was an important aspect of[illegible] support as the Germans could preserve the energy of its troops and thus achieve a swift and victorious war against the French. Apart from the rail network, Germany also had need for the Belgian communication network and food supplies. The Belgian authorities rejected the offer that Belgium should go to the side of Germany. The German troops marched into Belgium singing the Belgian National Anthem, trying to befriend the Belgians. This was because the Germans did not want to be branded as invaders, but as patriots for the self-defence of their country.

When Germany refused to give Britain an answer on the observance of neutrality of Belgium, England issued an ultimatum on 3 August 1914 to the Germans, one day after the Germans issued an ultimatum to the Belgians. A day before England issued its ultimatum to Germany, Chancellor Bethmann Hollweg was frantically trying to prevent Britain from going to war. He had told Sir Edward Goschen, the British ambassador to Germany, that it was a matter of life and death that Germany had chosen to violate the neutral territory of Belgium.[illegible] Goschen had replied that it was also a matter of the life and death for Great Britain to keep its promise of guarantorship to Belgium. In a rage, Hollweg rattled something about the British being foolish enough to go into war for just[illegible] "a scrap of paper". This was a free piece of propaganda for the Entente and it was also how the reference for the guarantee of Belgium came about.

CONCLUSION

Though Britain was part of the Triple Entente, it seems that it was not in any rush to go to the Entente's aid. Little was recorded about the reactions of Britain when Germany declared war on Russia and France. But when Britain got to know of Germany's bad intentions to violate the neutral country, it sprang to Belgium's aid and started reinstating its guarantorship, advising that Germany should consider other options. The British were extremely calculative, knowing that they had nothing to gain from going to war, at least not until they heard of Germany's plan to invade Belgium. Though the British had not rushed to aid France and Russia, it did reply to the Germans that even if the Germans had left the Belgians alone, it would still have

gone to war. There is no proof in the claim and it seems likely that it was just another case of the British defending their honor when the Germans posed the question to them. From the German point of view, there was little reason to adhere to the guarantee when there was strong opposition. They would have adopted a plan offering the highest chance of a quick victory in a three-front war.

Britain did not outrightly declare that it would join the war against Germany: it preferred to be "dragged" into the war. This was a cowardly act even though Britain had much interest in the Belgian States and it was wary of the powerful navy that the Kaiser had built. It was bound by the Entente to go to the aid of any of the other two partners. So why did the British not go to war from the onset?

Had France not listened to the British in implementing its own version of the Schlieffen Plan and invaded Belgium to get to Germany, would Britain have declared war on France? It should have, going by its justification for going to war with Germany.

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CPT Yeo Heng Hwee graduated from the National University of Singapore majoring in Political Science and European Studies (French). He is a Weapons Systems Officer (Air Defence Artillery) and is trained in both the Improved-HAWK missile system and the Rapier missile system. He is currently the S4 of 165 Sqn.