The Strategic Merits of Airpower

by **LTC Tan Kian Seng**

Abstract:

Until the introduction of the air dimension in the early 1900s, wars have primarily been fought either on land or sea. Air battle has since offered a third dimension in warfighting, without the need to deploy huge force, unlike the typical conventional land or sea battles. It is unique in its ability to achieve the strategic objectives in a speedy and precise manner. This essay aims to show that Mark Clodfelter's statement concerning airpower is inaccurate—that it is not true that the modern vision of airpower centres only on the destructiveness of its arsenal and equipment and not on its efficacy as as a political instrument. The article also briefly discusses the possibility of land and sea power replacing airpower.

Keywords: Third Dimension, Centre of Gravity, Strategic Objectives, Political Instrument.

BACKGROUND

Mark Clodfelter has argued that even with modern precision targeting, airpower may be capable of *"directing laser-guided bombs into a single warehouse in the heart of a densely populated City"*[1] without any guarantee of military success. He further argues, *"What it has done…is to create a modern vision of air power that focuses on the lethality of its weaponry rather than on that weaponry's effectiveness as a political instrument."*[2] Is this a fair assessment of the strategic merits of airpower?

INTRODUCTION

> *Against an army sailing through the clouds, neither walls, mountains nor seas could afford security.*
>
> *Dr Johnson*[3]

Throughout history, wars have primarily been fought on land or sea until the introduction of the air dimension in the early 1900s, this was seen specially during World War I (WWI). The conduct of battle in the air has offered a third dimension for offensive air action against enemy's Centres of Gravity (CoG) without the need to manoeuvre a huge force through land or sea. In other words, airpower is about effectively targeting on enemy's CoG to destroy or defeat the enemy so as to achieve the strategic objectives. The introduction of airpower has ultimately changed the way how wars would be fought, compared to the conventional war in Clausewitz's times.

In this essay, I aim to show that Mark Clodfelter's statement is an unfair statement towards airpower in that it only creates a modern vision of airpower that focuses on lethality of its weaponry rather than on

the weaponry's effectiveness as a political instrument. First, I will examine (1) John A. Warden's strategic ring model; thereafter, I will use (2) 1991 Gulf War—Operation Desert Storm and (3) Kosovo War—Operation Allied Force as case studies to further strengthen my argument. For my argument in both operations, as long as the employment of airpower alone can bring the opponent to table for negotiation, I will presume that airpower alone has achieved the strategic objective to bring the enemy's undesired action to a stop. Lastly, I will also briefly discuss the possibility of land and sea power replacing airpower before I conclude.

JOHN A. WARDEN'S STRATEGIC RINGS MODEL

Colonel (COL) John A. Warden III is probably the most well-known airpower theorist in modern times, who is also regarded as the leading airpower theorist in the United States (US) Air Force and one of America's premier strategic thinkers.[4] In Warden's strategic rings model, he advocated to see "the enemy as a system,"[5] which consists of the five rings of CoG of the enemy (see *Figure 1*). Warden's model is essentially a five-ringed bulls eye with the most important target, the enemy's leader/command element, in the centre.[6] Moving out from the centre, Warden labelled his rings process, infrastructure, population and fielded forces.[7] Warden maintains that the leader/command element (bulls eye) is the most critical of all targets. Destroy it and the whole enemy/country collapses.[8] However, a leadership's CoG is most difficult to locate and target due to its physical size, mobility and system complexity. Further to this, there will be more than one target in a CoG (e.g. an infrastructure's CoG may consist of roads, railways, bridges airfields, ports and others). The idea behind Warden's five-ring model is to attack each of the GoG ring to destroy or collapse the enemy forces. To optimise attacking effort, the attacker needs to target as many rings as possible with special emphasis on the centre ring, which is the enemy's leadership.

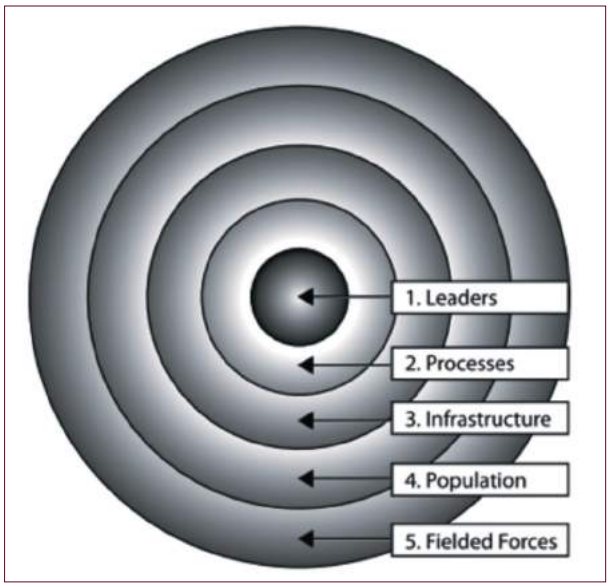

Figure 1: Enemy as a System – the five rings.[9]

Warden proclaims that CoG can exist at every level of warfare. In other words, CoG can be found at the tactical, operational, and strategic level of war.[10] As for the definitions, Wardens differs only slightly from the Clausewitzian view: "The term CoG is quite useful in planning war operations, for it describes that point where the enemy is most vulnerable and the point where an attack would have the best chance of the decisive."[11] For this essay, I will equate strategic level to political level for simplicity of analysis on war campaigns and achieving strategic objectives by airpower, will be the focus in the chosen campaign for analysis.

This does not mean that we can or should always ignore the outer rings—it does mean, however, that we can expect the cost of dealing with the outer rings to be quite high in comparison to the return on the operation.

A little thought will suggest that the CoG in the five rings do not all have the same value in terms of their return on the investments (ROI) needed to affect them.[12] Normally, we realise a far higher ROI to affect the inner rings than on those which affect the outer rings (see *Figure 2*).[13] This does not mean that we can or should always ignore the outer rings—it does mean, however, that we can expect the cost of dealing with the outer rings to be quite high in comparison to the return on the operation.[14]

Having identified the CoG, we must decide on the state the enemy must become (destroyed, isolated, converted, paralysed etc.) and how we will measure success.[15] If the use of force is chosen as a major way to achieve strategic objectives, it is crucial to exploit airpower effectively.[16] The airpower can be directly applied to the identified CoG to produce the desired strategic result in a speedy and precise manner. Speed and precision attack are key attributes of airpower deployment in modern warfare.

> *"The conquest of the air and the creation of aerial weapons have brought about a new development in warfare. This theory may be explained by analogy if war is compared to a boxing match in which aerial weapons offer the possibility of scoring a 'knock-out' whereas other weapons only permits of a victory on points."*[18]

On attack approaches, it can be done either by serial or parallel attacks on CoG. For a serial attack, forces attempt to affect one or small number of strategic CoGs sequentially over time.[19] For parallel attacks, forces attempt to affect multiple CoGs and create a phenomenon of shock effects produced by compressed attack.[20] During an attack, if it is done too slowly (serially) on CoG, the system will probably find ways to repair itself, protect itself against further attacks and begin its own operation against its opponent system.[21] On the other hand, if the attack was done quickly (parallel) on a CoG, the system will go into a state of paralysis, preventing it from repairing itself, protecting

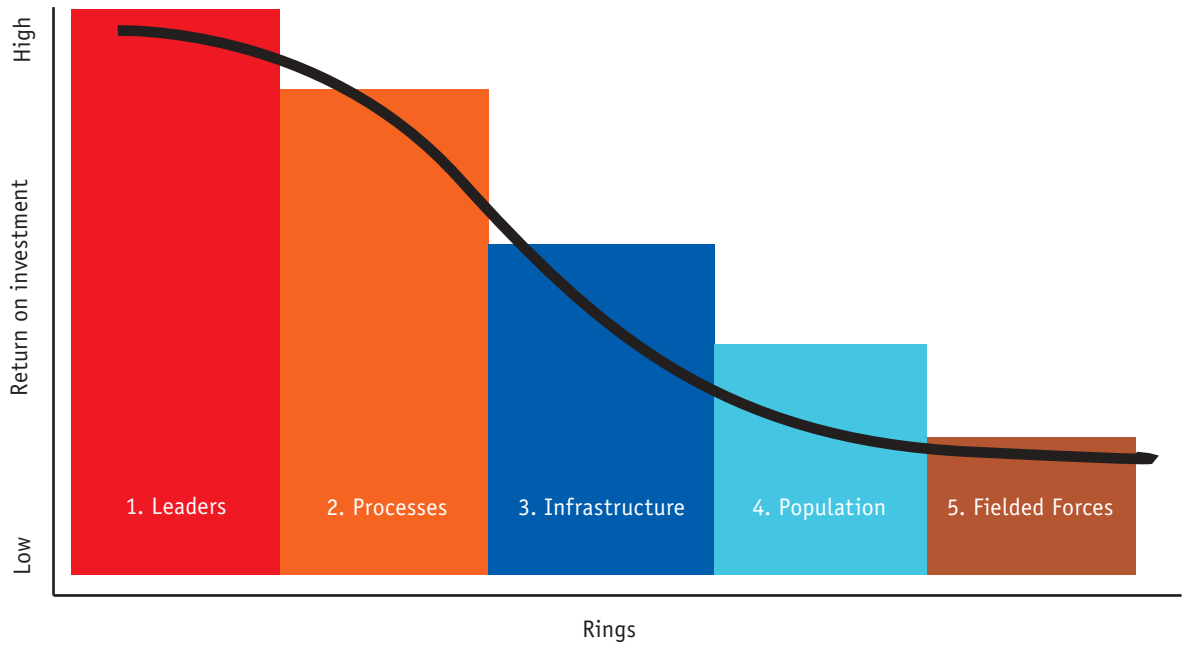

Figure 2: ROI for efforts to affect different rings.[17]

itself against future attacks, or making competent attacks against its opponent's system.[22] To achieve the parallel attack effect, airpower will definitely be a convenient and the best choice to choose in modern warfare.

> *"The particular feature of aerial weapons which affords so great an advantage to one side is that they may be used for dealing a swift and unexpected blow at the "solar plexus" of the enemy defenses, which he can rarely if ever be sufficiently quick to parry."*[23]

With an understanding of Warden's strategic rings model and the employment of airpower, it is assessed that Mark Clodfelter's statement is an unfair statement as he needs to see an "enemy as a system"in totality and not just a singular item.[24] In addition, a warehouse can be considered a strategic target residing under the infrastructure's COG (e.g. holding huge amounts of weapons) that affect the entire functioning of the enemy's system. To further strengthen the case, the 1991 Gulf War—Operation Desert Storm and Kosovo War—Operation Allied Force, will be used to show the strategic merits of airpower in achieving the strategic objectives.

1991 GULF WAR—OPERATION DESERT STORM

The 1991 Gulf War—Operation Desert Storm (16th January – 28th February, 1991) was a war waged by the United Nations (UN) authorised coalition forces from 34 nations led by the United States (US), against Iraq in response to Iraq's invasion and annexation of the state of Kuwait. It demonstrated the strategic merits of airpower. The plan put forward was to attack Iraq in order to change Iraq, the system, so that it would be compatible with the envisioned post-war peace. Iraq would be out of Kuwait and it would not be a threatening regional superpower for an extended period of time.[25] The aerial bombardment to expel Iraqi troops from Kuwait began on 17th January and President Saddam Hussein was brought back to negotiate on 22nd February with the ground forces pending to launch. In the conduct of Operation Desert Storm, Warden's strategic rings model was used to identify the enemy's CoG to effect the employment of airpower to achieve the strategic objectives as mentioned.

With the understanding of Iraq as a system, the task became one of converting it into something that would be in line with the post-war objectives.[26] The faster the UN can force the conversion, the more likely the UN is to succeed, because the slower the UN proceeds and the more serially the UN approaches the problem, the more likely it is that the enemy will find ways to counter the operations.[27] The UN's goal was to bring the Iraqi's system under rapid or parallel attack.[28] The parallel attack was made possible by advanced aircrafts (e.g. stealth aircraft F-117) and precision strike missiles with the aid of new technologies to strike on the CoG of high ROI, compared to the older era where weapons can only deliver a serial attack fashion which was inefficient and slow in achieving the desired end state. This clearly shows that airpower has its merits in taking out strategic CoG to achieve the post-war objectives which translates to achieving the UN's strategic objectives.

The air strikes on CoG ultimately coerced Iraq to withdraw due the breakdown of the system. The air strike on the innermost circle—leadership—made it difficult for effective decision-making and giving clear directions. Striking on the supply of electricity and retail petroleum in the Iraq affected the process CoG and crippled the system that the UN wanted to achieve over Iraq. Striking on the infrastructure (e.g. roads, airport and others) and population (e.g. Military elites, Ba'athists and others) CoG, further affected

The USAF F-117 Nighthawk, one of the key players in Desert Storm.

the functionality as a system and affected support towards the government (Saddam Hussein in this case). The airpower in theatre caused much devastation—it destroyed Iraqi's supply lines, wiped out 20% of Iraq's heavy forces, resulting in starvation to 100,000 and prevented the surviving units from effectively resisting the coalition forces.[29] The fielded forces CoG was badly affected by the effective air strikes and eventually triggered Saddam Hussein to agree to a negotiation. This ultimately shows the importance of airpower and its lethality on CoG, affecting the functionality of the enemy's system. In short, each target destroyed contributed to the dysfunction of the enemy's CoG (each CoG consists of many targets) with the main aim of destroying the enemy in a short period of time through the effective employment of airpower, exhibiting its strategic merits over other powers in modern warfare.

In the conduct of Operation Desert Storm, Warden's strategic rings model was used to identify the enemy's CoG to effect the employment of airpower to achieve the strategic objectives as mentioned.

In February, as Saddam Hussein's army in Kuwait deteriorated under coalition air attacks, Saddam Hussein entered into negotiations which were mediated by the Soviet Union.[30] At first, he offered only to withdraw from Kuwait within six weeks, but, under pressure from both the Soviet Union and the US on 22nd February, he offered to withdraw all his forces within three weeks, with economic sanctions to end only after the withdrawal was complete.[31] Saddam Hussein entered into negotiations prior to the commencement of the ground operations. In short, the intensive air attacks brought Saddam Hussein to table for negotiation and this evidently showed that airpower alone can achieve

the strategic objectives. However, due to further problems during the negotiations between Iraq and the US (The US demanded the withdrawal of Saddam Hussein's forces in seven days instead of three weeks), the ground forces were eventually launched on 23rd February, but it lasted for only 100 hours before a declaration of ceasefire was called. With this, Iraq withdrew from Kuwait and its combat forces suffered heavy losses. This translated to the UN's strategic objectives being met. I feel that the launch of ground forces was unnecessary as further air attacks would have caused Saddam Hussein to comply with the stringent requirements.

Another point of significance is that the effective employment of airpower allows any president or government to secure political and public support for the conduct of such an operation. It would have been difficult to secure political and public support for the conduct of an operation which would have led to a high number of casualties. In addition, low casualty rate in operation is always a concern of the UN forces deployment due to the fact that the UN is not fighting for their own conflict at home, but rather, to seek or offer security at an international level. In Operation Desert Storm, the US (main player) causality rate was low, standing at 148 battles and 145 non-battles death in the 43-day campaign respectively.[32] Out of this, 20 battles and 6 non-battles death belonged to the US Air Force.[33] Hence, the effective airpower employment provided a good justification for political and public support in such operations for any President or government, which indirectly translates to show the strategic merits of airpower.

KOSOVO WAR—OPERATION ALLIED FORCE

If Operation Desert Storm is not convincing enough that airpower is effective in achieving strategic objectives, then Kosovo War—Operation Allied Force will further prove and strengthen the strategic merits of airpower.

The Kosovo War—Operation Allied Force (24th March – 10th June, 1999) is a 78-day bombing operation by the forces of the North Atlantic Treaty Organisation (NATO) comprising 19 countries, and, for the first time, the use of airpower alone brought a foe to its knees—and at the cost of no NATO lives. In short, there was no 'boots on the ground' ultimately to achieve the strategic objectives. Airpower alone achieved the strategic objectives. At the onset of the crisis, the Clinton administration articulated three goals of the bombing campaign: 1. to demonstrate the seriousness of NATO's opposition to aggression; 2. to deter Milosevic's continuing and escalating attacks in Kosovo (i.e. ethnic cleansing); and 3. to damage Serbia's capacity to wage war in the future.[35] These goals were reflected in NATO's official statement, which required that Milosevic end repression in Kosovo, withdraw his forces from the province, agree to an international military presence there, as well as the safe return of refugees and displaced persons and provide assurances of his willingness to work towards a political framework agreement along the lines of the Rambouillet accords.[36]

NATO's success in the campaign was attributed to the air attacks that were capable of destroying a wide range of 'strategic' targets such as command bunkers, power stations and infrastructure.[37] Beginning on 29th March, 1999, after several days of tightly circumscribed targeting—NATO broadened and intensified its air campaign. Allied air attacks destroyed key roads and bridges in Yugoslavia, as well as oil refineries, military fuel installations and other fixed targets, including army bases.[38] NATO also attacked targets in Belgrade, such as the headquarters (HQ) of Milosevic's Socialist Party and radio and television broadcasting facilities.[39] On 24th May, 1999, NATO aircraft disabled the national power grid. In addition, the Yugoslav

government reports indicated that NATO damaged or destroyed 12 railway stations, 36 factories, 24 bridges, 7 airports, 17 television transmitters, along with other infrastructure and communications targets.[40] In addition, NATO strikes also fostered elite and popular discontent with the Milosevic regime and by striking military barracks and other military targets, NATO also sought to increase military dissatisfaction.[41] The targets destroyed in the air attack could easily be translated onto the five level CoGs identified in Warden's strategic ring model, for example, Leadership CoG—Milosevic's Socialist Party's HQ, Process CoG—oil refineries, Infrastructure CoG—airports, Population CoG—elite and popular discontent and Field Forces CoG—army bases. These targets destroyed during the air attacks created a dysfunction in the enemy's CoG system, aiming to collapse or destroy the enemy through the effective employment of airpower.

The NATO bombing also fed dissatisfaction within the military. The number of Serbian desertions increased during the campaign and morale problems were considerable.[42] Several of Milosevic's top generals had to be placed under house arrest, testifying to his sensitivity about possible loss of political control.[43] Although neither the Serbian population nor the military appeared ready to rebel and overthrow Milosevic, discontent from the air strikes was clearly growing by the end of the campaign.[44] Indirectly, airpower played a major role in raising these various threats to regime stability, affecting the overall ability for Milosevic to resist further.[45]

A parallel air attack approach was also adopted to strike the identified CoG so that the enemy will be less likely to find ways to counter the operations due to the fast and accurate strikes. Then again, the parallel attack approach was made possible by advance

A view of Iraqi armored personnel carriers, tanks and trucks destroyed in a Coalition attack along a road in the Euphrates River Valley during Operation Desert Storm.

Post-strike bomb damage assessment photograph of the Sremska Mitrovica Ordnance Storage Depot, Serbia, used by Joint Staff Vice Director for Strategic Plans and Policy, MAJ GEN Charles F. Wald, U.S. Air Force, during a press briefing on NATO Operation Allied Force in the Pentagon on 26th May, 1999.

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The 78 days of relentless bombing by NATO forces compelled Milosevic to the negotiating table on 9th June. LT Gen. Michael Short, who orchestrated the bombing campaign, summed up the victory when he said *"NATO got every one of terms it had stipulated in Rambouillet and beyond Rambouillet, and I credit this as a victory of air power."*[46] Defense secretary William S. Cohen called NATO's air campaign against Yugoslavia *"the most precise application of airpower in history."*[47] However, some scholars felt that Operation Allied Force was not a successful air campaign as ethnic cleansing was not stopped during the campaign and that it was a threat of ground invasion that resulted in Milosevic's surrender. On the ethnic cleansing, it was not achieved at the initial launch of the air campaign but it did come to a stop at the end of the 78 days Therefore, it is not fair to say that the airpower did not achieve its objectives. On the ground threat invasion, the evidence showed that it was unlikely for NATO to launch a ground attack with 25,000 NATO soldiers against Serbian's 40,000 soldiers. Given Serbian forces, western officials had said that a review indicated that about 200,000

troops would have been required to invade Kosovo but the "public would never support such a move."[48] Therefore, it is ruled out that land invasion threatened Milosevic to negotiate for peace. In summary, airpower enabled Operation Allied Force to achieve its strategic objectives.

It is important to note that airpower offers the flexibility to strike at strategic targets to achieve strategic objectives; whereas land or sea power will not be able to do so over a short period of time, due to the need to manoeuvre for land forces or the ability to reach for sea forces.

In Operation Allied Force, the most crucial point to note is that NATO achieved zero combat casualties. This is a remarkable achievement and preferred for any UN or NATO operation that seeks or offers security at an international level. Hence, the effective airpower employment provided a good justification for political and public support in such operations for any President or government, which indirectly translates to show the strategic merits of airpower.

COMPARISON OF LAND AND SEA POWER WITH AIRPOWER?

Both Operation Desert Storm and Operation Allied Force have shown that airpower is sufficient to achieve the strategic objectives and have also shown the merits of employing airpower in a campaign. However, a question is raised: Can land and sea power achieve what airpower has achieved? In my opinion, airpower is unique, compared to land and sea power. It is important to note that airpower offers the flexibility to strike at strategic targets to achieve strategic objectives; whereas land or sea power will not be able to do so over a short period of time, due to the need to manoeuvre for land forces or the ability to reach for sea forces. Land power, the oldest and historically most prevalent tool of conflict, is slow and normally affects an opponent's fielded forces—the outer, fifth ring that is only rarely, directly connected to a strategic objective.[49] Land power has the minimal ability to conduct parallel operations on its own or operate without significant destruction and bloodshed.[50] Sea power can operate against CoG directly or is closely related to strategic objectives but, only if those CoG are accessible by water.[51] Although much of the world fits into this category, many do not—even the majority of states and organisations with coasts normally have a large number of CoGs well removed from the sea.[52] Airpower can operate against virtually all CoGs directly related to strategic objectives, regardless of their location and it can bring any CoG under attack in a short period of time and hence, it is well suited for parallel operations. Finally, airpower can produce appropriate effects with little destruction and bloodshed.[53] In short, airpower can offer strategic merits that land and sea power cannot offer, due to its uniqueness in nature. And, airpower can be directly applied to the identified CoG to produce the desired strategic result in a speedy and precise manner. This evidently shows the strategic merits of airpower over land and sea forces.

CONCLUSION

> *Airpower enables us to think about conflict from a future-back, end-game-first perspective as opposed to one based on the battle obsession of Clausewitz and his followers. It also opens another very exciting possibility: conflict with little or no unplanned destruction or shedding of blood.*
>
> *Col John A. Warden III*[54]

Photo of damage of 1999 NATO bombardment on Defence Ministry of Yugoslavia building in Belgrade.

In conclusion, Operation Desert Storm and Operation Allied Force have shown the strategic merits of airpower through effective employment to achieve the strategic objectives as a political instrument. In fact, similarity can also be observed at the ongoing war—Operation Odyssey Dawn. Airpower is unique compared to land and sea forces; it has the ability to strike at strategic CoGs in a speedy and precise manner to destroy or collapse an enemy's system to achieve strategic objectives. The conduct of air strikes through parallel attacks on CoG in an effective and efficient manner, allows the achievement of strategic objectives in a shorter time, compared to land and sea campaigns; there will not be entanglements with battles of attrition or being dragged into long periods of war. In short, effective employment of airpower allows having an end-game-first perspective. Of significance, airpower also minimises the unplanned destruction and shedding of unnecessary blood. In addition, the employment of airpower also allows any president and government to gain better political and public support in the conduct of war or operation. Hence, I feel that the statement by Mark Clodfelter is an unfair statement regarding airpower; it only creates a modern vision of airpower that focuses on lethality of its weaponry rather than on the weaponry's effectiveness as a political instrument. Having seen the effectiveness and usefulness of airpower in Operation Desert Storm and Operation Allied Force, airpower definitely has strategic merit as a political instrument to destroy or collapse an enemy's CoG system with minimum casualties, while achieving a strategic objective in a shorter period of time, compared to land or sea power. Airpower is a strategic power for tomorrow's war.

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