

In connection with the presentations which were made at the seminar on military power conducted at the Royal Swedish Academy of War Sciences on 14-16 May, 2014 and which are to be found in the book *Military thinking in the 21st Century*, a number of prepared comments from some specially invited participants were added in a supplement. The comments have been assessed as being of interest to our readers, and for this reason the authors have been asked to elaborate on their comments in the form of articles. Four of these are reproduced below.

Tommy Jeppsson, Editor

On the future of conventional warfare

From closed minds to open systems

by Dennis Gyllensporre

Resumé

Vid den internationella konferensen *Military Thinking in the 21st Century* som genomfördes våren 2014 i Stockholm presenterade Martin van Creveld och Emilie Simpson varsitt perspektiv på teoriutvecklingen för konventionell krigföring. Denna artikel reflekterar över deras bidrag och konstaterar att interaktion är den gemensamma nämnaren, trots att perspektiven och argumenten skiljer sig åt i flera avseenden. Utveckling av teorier för konventionell krigföring måste i större utsträckning beakta ömsesidiga beroenden. Krigföring bör ur ett teoretiskt perspektiv betraktas som ett öppet system med växelverkande delsystem och en ständig yttre påverkan. Linjär och deterministisk logik ger inte längre en tillräckligt god grund för att förstå konventionell krigföring. Metaforer och koncept som utvecklas inom andra vetenskapliga områden kan vara till stor nytta. I detta sammanhang är det särskilt värdefullt att studera kaos- och komplexitetsteori.

THIS ARTICLE PROVIDES reflections on the future of conventional warfare against the backdrop of thoughts provided by military theoreticians Martin van Creveld and Emilie Simpson during the conference on military thinking in the 21st century held in Stockholm last spring.¹ Notwithstanding the value of their individual contributions the common denominator may not be apparent at first glance. The aim of this chapter is to synthesise their findings to address the seminar questions:

- Does the future lie in new technology or in new approaches?
- Is there a single future for conventional warfare or several?
- How can we cut through the exaggerations that often accompany new concepts?

Indeed, these questions are challenging and beg for more elaborative considerations than are possible in this entry. Consequently, the ambition is to provide one narrative to

approach the questions. The key argument is straightforward; a theory for conventional warfare must to a larger extent be underpinned by the notion of interconnectivity and increasingly be construed as an open system.

A generational typology of warfare

Before reviewing the contributions a frame of reference is needed. To this end the concept of generational evolution of warfare, postulated by William S Lind et al., is chosen as a point of departure.² It is a concept that has received broad acceptance amongst scholars and practitioners.³ For the purpose of this study it is straightforward and addresses key aspects beyond the core of warfighting, including actors, technology and societal aspects.

The original article, summarized in this paragraph, posits that first generation warfare (1GW) revolved around the tactics of line and column without any operational art, although exercised by some commanders like Napoleon.⁴ In second generation warfare (2GW) smoothbore muskets were replaced by rifled muskets, barbed wire, machineguns and indirect fire. Other technological advances included the telegraph and the railway. Operational art emerged primarily from the Prussian Army. Instead of massing manpower, success was achieved by massing firepower. The battle was linear, or at least there was a desire for linearity on the battlefield. While third generation warfare (3GW) emerged after World War I, doctrine, for instance in the USA, remained focused on 2GW until the 1980's. In practice warfare made the leap into 3GW during World War II. Mindful that several nations had new technologies in their military inventories, like aircraft, radars, telecommu-

nications, armoured vehicles, only Germany excelled in making full use of them through her Blitzkrieg.

3GW is encapsulated in manoeuvre warfare. Like its predecessors, 3GW is associated with technological advances and new weapons systems, however to a lesser extent. As the Germans understood that they could not overcome the U.S. industrial base, focus was shifted from attrition to manoeuvre. This shift complicated a move towards non-linear tactics. Still the conceptual ideas revolved around the sovereign enemy and the duel between forces that served as instruments to their political leadership. Operational art became more occupied with time than location. Combined and joint forces, at sea, on the ground, in the air, are coordinated in time and space to outmanoeuvre the enemy. This concept was further developed by John Boyd in his OODA (Observe-Orient-Decide-Act) loop.⁵ Arguably, this is the conventional way for nation states to plan and conduct warfare against other nation states. During the Gulf War, in 1990-91, 3GW was at its pinnacle. The success of the coalition propelled the debate on Revolution in Military Affairs. It is underpinned by the idea of networking of a well-informed but geographically dispersed force and enabled by new technology.⁶

In the late 1980s fourth generation warfare (4GW) theory gained traction in the face of new challenges.⁷ Nation states monopoly on violence eroded and forces had to prepare to fight non-state opponents, including insurgence and guerrilla forces.⁸ In a provocative statement Sir Rupert Smith, a retired top British general, went even further, claiming that: "War no longer exists... War as battle in a field between men and machinery, war as a massive deciding event in a dispute in international affairs: such war no longer exists".⁹

4GW has its roots in Mao Zedong's uprising and his 'long march' to ascend in power in China.¹⁰ This development marks a significant change, for the first time the ideas emanates from a non-western society. At the core lies the formula for a weak actor to defeat a superior power. Persistence to fight for decades and the willingness to accept casualties are important factors. In response western forces, spearheaded by the U.S. and the United Kingdom have developed counterinsurgency (COIN) doctrines. However their effectiveness remains disputed.¹¹ Thomas X Hammes should be recognized as a key contributor to refine this concept. Also Martin van Creveld has been instrumental in the early phase of forging a notion of 4GW.¹² Notably, 4GW does not equal terrorist action by employment of low-technology systems.¹³ Terrorism is mere a tactics, and the original paper on 4GW identified directed energy weapons, robotics, and artificial intelligence as viable for the future. 4GW puts primacy on psychological objectives as opposed to physical objectives. Lind et al. recognise that 4GW is in essence a return to warfare conducted prior to the Westphalian peace in 1648 when the nation states emerged, the new aspects being 'who fights' and 'what they fight for'. Furthermore the novelty also includes the use of 'new tools' and operating in a new international system.¹⁴

There is a growing acceptance of fifth generation warfare (5GW) as a notion to encompass unrestricted warfare. It is attributed to Qiao Liang and Wang Xiangsui based on their book *Unrestricted Warfare: China's Master Plan to Destroy America*.¹⁵ In essence they argue that "the use of all means whatsoever; means that involve the force of arms and means that do not involve the use of arms, means that entail casualties and means that do not entail casual-

ties – to force the enemy to serve one's own interest".¹⁶ They argue that the American way of warfare is myopic. Mindful of the RMA it is too focused on technical aspects in the military realm. Six other fields are elevated to nullify the USA advantage in high-technology weaponry: diplomatic, economic, financial, cyber, media/information and network warfare.¹⁷ The concept uses the term 'super-empowered individuals' that relates to individuals and small groups that have the ability to render western military power obsolete by for instance by employing weapons of mass destruction or launching cyber-attacks. John Robb calls this 'open source warfare'.¹⁸

Most recently sixth generation warfare (6GW) has been fielded as a way to capture the Russian warfare in relation to Ukraine. It currently receives significant attention, albeit under different labels. The EU and NATO seem to gravitate toward the term *Hybrid Warfare*. It combines the logic of *realpolitik* with legalism and soft power. According to Jānis B rzi š Russia subscribes to the notion that the strong and powerful will ultimately successful and thus defining what is legitimate.¹⁹ The perceived weakness of the west, including the USA, in their early responses perpetuates this point. Seizing the legal high ground is important. The Russian president, Mr. Vladimir Putin, requested authority from the Parliament (Duma) to use force. Moreover the annexation of Crimea was based on the outcome of a referendum, i.e. self-determination. The number of Russian troops in Crimea never exceeded those that were authorised under the bilateral agreement. Clearly, in the view of the west these legal aspects are eclipsed by the breach of international law as well as the Budapest Memorandum on Security Assurances. Also Russia did not employ its forces directly into the conflict. Instead she

intimidated Ukraine at its borders, conveying a deterrent message on her ability to act militarily if needed. The Russian forces also mixed personnel and equipment into separatist units without the insignia that would alter the jurisdiction of their actions under international humanitarian law. The conflict also created and exploited a porous boundary between war and peace. According to the Chief of the Russian General Staff, Valery Gerasimov, ‘military actions starts by groups of troops during peacetime, war is not declared at all’.²⁰

New science in support of new thinking

The generational topology has received criticism for *inter alia* its simplicity and lack of novelty.²¹ Another area that has been subjected to criticism is the distinct sequencing of phases of warfare.²² Rather than quantum leaps they should be regarded as intellectual bannisters that coexist. However for the purpose of this treatise these shortfalls can be neglected. Instead we focus on some trends in the overview provided.

Van Creveld argues that soldiers are exposed to chaos and that their perspective has not been properly reflected in military theory. This misses somewhat a key point, namely that chaos is present at all levels of warfare, and is discretionary to neither specific command levels nor selected personnel categories.²³ If chaos is the norm in warfare, perhaps chaos theory could be useful in the progress of military theory? Indeed, theory on chaos and non-linear systems has made significant strides the last decades and is increasingly being applied in other scientific fields.²⁴

One of the key features is increased complexity with regards to the actors involved. The early generations of warfare were based

on a closed and linear system. Their deterministic nature was reinforced prescriptive guidance by theorists like Antoine-Henri Jomini. This thinking can be traced back to Sir Isaac Newton.²⁵ By defining absolute time and space and explaining the universe with a Majestic Clockwork metaphor made people understand an orderly and predictable nature.²⁶ Newton’s laws of motion provided exhaustive explanatory power in the realm of physics. The trajectory in warfare is towards less determinism and increased complexity. It is a far cry from being confined to duels between two military forces of similar composition under clear political authority by acclaimed nation states. While it is tempting to predict the evolution of warfare through the development of technology and weapons, studies show that technology is a necessary but not exhaustive condition to make leaps in warfare. Other critical factors include societal change, and economic progress.²⁷ Arguably, globalisation with its instant and universal connectivity has not yet been fully captured. There is an increasingly blurring of the line between war and peace. Warfare is also migrating to other domains than the military, partly to offset the USA military supremacy. Other areas of society are becoming increasingly nested in activities that relate to war and new actors have entered the scene.

This approach opens up for new entities and new interactions. According to Hammes there is an “exponential increase in the number and type of players on the international scene,” including international, transnational and subnational actors in addition to states, economics (greater interdependence, which has eroded sovereignty, and a greater divide between rich and poor), and society (with a huge variety of non-traditional networks – including ethnic, cultural, and religious – reducing the allegiance of citizen

to state, and meaning that less and less of “international politics” is actually conducted through official channels).²⁸

Today we know that Newton’s laws fail to provide a sufficient explanation as to how nature behaves, but we remain committed to the *Majestic Clockwork* metaphor despite the significant progress from the early generations of warfare. In his seminal work on scientific revolutions, Tomas Kuhn argued that intellectual and scientific advances displacement of one paradigm, which has become incapable of providing a framework for new findings, as well as acceptance of a new paradigm that it is perceived as better than its predecessor.²⁹ “Today science has provided us with more refined tools to understand how complex systems behave. The nonlinear paradigm encapsulates a cognitive approach to enhance understanding of complex systems in uncertain environments”.³⁰ The next generation of paradigm, or scientific theory, consistent with the aforementioned evolution of warfare has to accept complexity, uncertainty and interactive behaviour as the norm.

Arguably, relevant theories are emerging, albeit under different labels; chaos, complexity, non-linear, chaoplexic, string systems.³¹ These systems defy proportionality. They may demonstrate unpredictable behaviour through disproportionately large or disproportionately small outputs, or they may involve interactions in which the whole is not equal to the sum of the parts.³² The collective behaviour of a nonlinear system can be greater or lesser than the addition based on the interactions. Systems are sensitive to initial conditions (SIC), nearly similar inputs, can diverge into two trajectories with no correlation. Systems bifurcate into multiple states and eventually reach the equilibrium zone, where the system is stable without change, organization of the system changes

without significant external influence.³³ It is claimed to be the same variation and natural selection processes as the driven processes of evolution.³⁴ Albert Saperstein describes Self-organization criticality (SOC):³⁵

Elements and their interactions come into and go out of existence as part of the ongoing process; the field of endeavour may change in size, structure, and constituents with time. Thus states, armies, military and civilian units, may be born, grow, thrive, decay, die and disappear, as part of the process which also creates, distorts, and dissolves, the structures of which they are – if perhaps only temporarily – parts and foundations. States may be created out of, or dispersed back into, smaller groups of people as a result of war or other interactions between other states or people groupings. ‘Official’ or ‘unofficial’ military units form or dissolve as a result of anticipated or actual conflict between existing, nascent, or hopeful nations. Economic, political, or other classes, come and go through turmoil engendered by other groupings in the system of nation or nations. In sum, the system determines its apparent elements rather than conversely.

Although introduced by a biologist, systems theory is an interdisciplinary theory.³⁶ Systems thinking originate from a desire to shift focus from the part to the whole.³⁷ As such it resonates with the operational desire for comprehensive approaches to conflicts.³⁸ To fully understand a phenomenon it is not sufficient to disintegrate it into subparts, a holistic perspective is also required.³⁹ Its basic feature is a constant interaction with its external environment, which is not controlled by the system. The application of open system thinking to understand how nature behaves has drawn on modern science and several complex systems concept have evolved, one of those is Complex Adaptive Systems. The

importance interaction is further manifested in the concept of Complex Adaptive Systems, another important construct of the non-linear approach. Systems in nature, for instance the immune system, that are characterized by complex behaviours that arise as the result of nonlinear interactions among a large number of components or subsystems and lack of (strong) central direction, are defined as Complex Adaptive Systems.⁴⁰ They are made up of large numbers of active and diverse components; all living organisms satisfy the requirements of Complex Adaptive Systems.⁴¹ The basic building blocks of the Complex Adaptive Systems are agents that seek to maximize some measure of goodness or fitness, by evolving over time.⁴²

Mitchell Waldrop describes complex systems as: (1) having a great number of interacting independent agents, (2) allowing the system to undergo spontaneous self-organization, (3) active adaptation to gain advantage, and (4) possessing a dynamism compared to static but complex systems.⁴³ Mindful that the generational shift of warfare is moving towards a human centred concept the non-linear paradigm is a better reflection of human behaviour than the linear paradigm.

Martin van Creveld's ten dictums

In van Creveld's "the crisis of military thought" the main proposition is that there is no relevant theory for conventional warfare. Only two theorists have prevailed, Sun Tzu and Clausewitz. Van Creveld underpins his proposition with ten concise arguments outlining areas in which these great minds failed to anticipate influences in future warfare. Indeed, these observations are insightful. It is striking that in laws of war,

causes of war, economical aspects have by and large been ignored. Still there are some points of reflections regarding his statements. Although Sun Tzu and Clausewitz stand out as the most brilliant minds, many others have certainly made critical contributions. Imagine what the collective body of knowledge on warfare would be without the contributions of Beaufre, Boyd, Corbett, Douhet, du Picq, Fuller, Galula, Jomini, Liddell Hart, Mahan, Mitchell, and Tukhachevsky, to name a few?

The aspiration of formulating a general unified theory on warfare that would survive the generational evolution is admirable, but is it realistic? Clausewitz, a product of 2GW, is recognized for his non-linear thinking, something that distinguished him from his contemporary colleagues, Jomini and von Bülow, who also aimed at providing a comprehensive theory.⁴⁴ Arguably few scientific fields enjoy that convenience of a comprehensive theory. For instance, is there any comprehensive theory in political science? Arguably neither of the two original schools, Realism and Idealism, provides a complete body of theory, although they have evolved over time with many scholars providing key input. Notwithstanding the aspiration is sound, but perhaps the question should be revised: Why has the contemporary sizeable body of scholars in military theory failed to shoulder the responsibility of moving theory forward in a comprehensive manner?

Rather than spending efforts on scrutinizing van Creveld's arguments further it is more fruitful, for the purpose of this chapter, to briefly reflect on the reason for this theoretical deficit and at the same time reflect in why Sun Tzu and Clausewitz have managed to prevail. My observation is that both their strength and weakness have a

common trait; the embraced interconnectivity and open systems thinking.

In the case of Clausewitz interconnectivity had an internal and external dimension. The trinity connected the military, the people and the government within a belligerent. Clausewitz argued that ‘the very nature of interaction is bound to make it unpredictable’.⁴⁵ In fact he makes a compelling case of self-organization criticality (SOC) how an entity, mainly by internal factors, changes. His elaborations on fog, friction and chance on the battlefield testify on the complexity and uncertainty that would follow an encounter with an opposing force. Still his view was narrow of the battlefield perspective resembling a closed system with clearly confined and limited military actors. Sun Tzu, on the other hand, had a wider scope of war beyond the military. Peace and war are connected and difficult to distinguish in war, military and non-military activities interact. As a consequence warfare is associated with infinite complexity something that he illustrates with several poetic metaphors. This mind-set correlates to that of an open system.

Sun Tzu viewed warfare as a process of ‘ceaseless change’ and he recommended that principles of warfare should be applied fluidly in response to the actual moves of the enemy. Hence, his thinking also correlates with some the principles of Complex Adaptive Systems.⁴⁶ The combination of Clausewitz and Sun Tzu provides a powerful combination to build a lasting theory on. At the same time their perceptions had significant limitations as articulated by van Creveld. In particular in relation to causes of war, technology, legality and new forms of asymmetric warfare they bear witness of their inability to fully view warfare as an open and evolving system.

Emile Simpson’s enemies

Emile Simpson offers another perspective on the subject in his *The Concept of the Enemy in Contemporary Conflict*. His point of departure is understanding warfare through the perception of the enemy. To this end three jurisdictional conceptions are presented: the sovereign enemy; the common enemy of mankind; and the enemy within the sovereign state.

The sovereign enemy provides a clear example of a closed concept. The belligerents as well their contexts are well defined. It is one sovereign military force under state control against another similar force, confined geographically by their territories. The logic of the battlefield is essentially defined by military organisations’ duel. It fits well within the accepted legal and political frameworks. In many ways the construct resonates with the thinking unpinning the first three generations of warfare (1-3 GW).

The common enemy of mankind disrupts this orderly construct. This enemy poses a universal threat that transcends national borders and state controlled actors. Methods and laws become blurred as new entities and interactions enter the fray. International terrorism and piracy are cases in point. The threshold to become an enemy is low. A loose network of like-minded in possession of for instance any type of weapons of mass destruction and the will to inflict mass casualties and other losses can enter the world stage. There is not necessary military logic that will dominate the struggle as the actors have other affiliations.

The third construct, the enemy within a state, reflects the increased relevancy of interstate conflict. In this case the belligerent do not acknowledge the legitimacy of the nation state’s jurisdiction. Consequently, if the state denies the legality of the state’s en-

enemy actions it will render peace treaties unattainable. As for the enemy of mankind, this belligerent will operate with an ambiguous status, between criminal and warfighter. Simpson concludes that the two latter enemies are regarded as open systems. The openness makes the boundaries of the enemy opaque and in absence of a clearly defined entity to oppose, victory becomes an elusive concept.

Moreover, it is argued that all three enemy construct can coexist, Afghanistan being a case in point. As important the delineation between war and peace becomes blurred. Notably, these features are highlighted in later generational warfare (4-6GW). Both the enemy of mankind and the enemy within the state change the role of the citizens. The will of the people becomes a factor of strategic importance in that their support cannot be taken for granted. A salient point in Emile Simpson's thesis is the information revolution as agent for driving interconnectivity.

A key characteristic in 4GW is longevity. Simpson also alludes to this notion when elaborating on common enemy of mankind and the enemy within the state. This correlates with another characteristic of open systems; negative entropy or 'negentropy'. It suggests that eventually all systems will disorganize into decay, referred to as entropy. However with external input to the system, this could be put on hold indefinitely.⁴⁷ If we regard conflict as an open system, including its actors, then the logic becomes useful. Simpson refers to the insurgents in Afghanistan as a franchise movement, rather than a cohesive force, that attracts different audiences. By exploiting global interconnectivity through social media outlets successfully, when attacked as well as when attacking, new operatives are recruited and external funding generated. Hence, both success

and failure breeds resilience. Moreover, it invalidates the traditional logic of body count as a means of measuring success on the battlefield. Inherent in the notion of 'franchise warfare' is a decentralisation in the conduct of operations. Clearly, clusters of enemies can operate differently yet reaching the same objectives. In open systems theory this is explained through '*equipfinality*'. It is the principle that refers to open systems reaching the same end state, starting from conditions and/or taking different paths.⁴⁸ To advance the application of open systems Simpson contends that the analytical paradigm of war should be complemented with a construct based on armed political activity that could harbour an alternative jurisdiction in conflicts with porous boundaries.

Observations

The presentations by Martin van Creveld and Emile Simpson suggest that there is a need to further develop the theoretical foundations of conventional warfare. This article has identified one common conceptual denominator based on their contributions. They address interaction, albeit in different ways. Their combined effort point in the same direction; a theory for conventional warfare must to a larger extent be underpinned by the notion of interconnectivity and understood as an open system. Consequently, the aforementioned questions should be addressed accordingly:

Does the future lie in new technology or in new approaches?

The brief review on the evolution of generational warfare suggests that the impact of military technology is descending. Technology is a necessary but not exhaustive condition to make leaps in warfare. The

increasingly wider perspective on warfare, beyond the confined military battle space, puts technology in a broader context. The introduction of new technology does not take place in isolation; rather it represents a trigger for interaction. While it can be sensitive to new input and demonstrate an un-proportional reaction and exhibit oscillating, chaotic, or exponential behaviour, it will find a new steady-state system including entities that seek equilibrium. The new technology is “integrated”. A new steady state for the system is accomplished. Consequently, the impact of the new technology will be tempered. Every manoeuvre has a counter-manoeuve, the impact of the initially superior technology will be mitigated in different ways such as new doctrine and/or counter-technology. For instance, van Creveld asserts that the importance of airpower reached its peak during WWII, ever since it has been descending due to its reduced cost/benefit ratio.⁴⁹

Is there a single future for conventional warfare or several?

Equifinality suggests that success in warfare can be accomplished in different ways. Conventional warfare must be regarded as a ‘big tent’ with plenty of room to accommodate different developments and concepts. Simpson’s conceptualisation of the enemy is a case in point. New concepts are generated through interaction; the future of warfare becomes less of a revolution but rather an evolution. Although beyond the scope of this chapter, an examination on current conflicts would reveal panoply of concepts. The belligerents in, for instance, Gaza, Afghanistan, Iraq, Ukraine, Mali, Nigeria, Democratic Republic of Congo or South Sudan apply significantly different concepts. However, to comprehend the

disparity it can be underpinned by a common theoretical foundation. This foundation needs to reflect the current scientific regime. Open systems and connectivity do not only provide a common thread between van Creveld and Simpson, these concepts have to conflate and influence current thinking. Survival through adaptation based on negentropy suggests that in order to maintain a viable theory of warfare requires a mind-set of inclusiveness to adapt to the changing operational environment. Clausewitz utilised linear scientific metaphors, such as culmination, pendulum, and friction. Based on Kuhn’s understanding on scientific paradigms they were the dominant theories at that time; the mechanistic view, as discussed above, dominated by Newton’s laws. Notably there is progress. For instance military theorists in airpower (Douhet, Mitchell, Trenchard, Warden, McNamara), products of 3GW, have increasingly recognised the non-linearity in operational art of airpower and the enemy has by the more recent theorist been perceived as a Complex Adaptive Systems.⁵⁰ Military theory is developed and should be understood based on its scientific context⁵¹ and military history.⁵²

How can we cut through the exaggerations that often accompany new concepts?

While SIC can explain an initial dramatic change in outcome given, even small changes, in new concepts, the new scientific paradigm also anticipates that the interactive system involving the new concepts as well as the plausible enemy responses will bifurcate into multiple states and eventually reach the equilibrium zone, where the system is stable without change, innovation, growth, or progress implying

that the system will settle down in a steady state. At that point the impact of the new concept has been mitigated and stabilized. The emergence of 3-5GW have all been efforts by adversaries to mitigate the military supremacy of the USA. The discussion on history also suggests that the progression of new concepts need to be put in context. For instance, warfare involving non-state actors is habitually ascribed to as new warfare. However this has been rule, not the exception. Arguably state centric warfare is to be regarded as modern as it has

a short history, dating back to the peace of Westphalia.

To prepare for the future of conventional warfare, modern scientific metaphors will be instrumental to enhance the cognitive awareness regarding interconnectivity, open systems and other key concepts. The future belongs to open minds.

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Noter

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Sea Power and Air Power. Some thoughts about the future^I

by Lars Wedin

Resumé

Den maritima arenan är av vitalt intresse i detta det 21 århundradet. Detta är en följd av globaliseringen som driver fram en maritimisering av världspolitikerna. De marina stridskrafterna blir därför allt viktigare. Deras roll är, liksom tidigare, att hävda egna intressen i fred, kris och krig samt att motverka eventuella motståndares intressen. Skillnaden är att uppgiften blir allt mer komplex på grund av den teknologiska och geopolitiska utvecklingen. Även i framtiden kommer marin närvaro att vara en grundläggande uppgift. Konfrontationen mellan maktprojektion och dess motsats (A2/AD) kommer att driva teknologi- och doktrinutveckling. Luftmakt är en integrerad del av operationer till sjöss och till lands. ”Ren” luftmakt har emellertid inte levt upp till de förväntningar som entusiaster som Douhet och Warden hoppats. Dess framtid är något osäker till följd av att luftförsvaret generellt blir allt starkare och de mest kvalificerade flygplanen allt färre.

NAVAL POWER AND air power have some similar aspects but they also have some important differences. Both kinds of power are pursued in an environment where man needs technical equipment to survive, move and work. Governments are situated on land where its citizens live most of their lives even if many of them, more or less frequently, take to the sea or travel by air. Indeed, as the French strategist Admiral Castex (1878–1968) put it: “Sea power is mainly interesting according to the extent it contributes to victory on land; it does not secure victory by its own except in exceptional cases”.² The same could be said about air power.

Another resemblance is, according to classic theory, that control of the domain – sea

or air, respectively – has to be secured as a precondition to other operations in or from this domain. A third resemblance is the absence of natural frontiers.

There is no clear line between the two kinds of power. Air power constitutes an important part of maritime power. On the other hand, naval power is often part and parcel of air power as it offers theatre-wide and local air defence, air control³ and projection of power with cruise missiles and carrier-based aircraft.

Finally, both air power and sea power are dependent on space-based assets for surveillance and communication as well as on cyberspace *i.a.* for their important data-links.

There are also important differences. The most important is perhaps that sea power,

or maritime power as we say today, is a vast subject of which naval issues are just a part. A navy is bipolar as it is both part of the maritime world and part of the Joint Force. It has standing missions such as presence and keeping good order at sea. Air power, however, is basically military in its scope.

Maritime Power

What is maritime power?

Mahan has given us the classic definition of naval strategy: "Naval strategy has indeed for its end to found, support, and increase, as well in peace as in war, the sea power of a country".⁴ He never defines sea power but he gives us the elements of which it consists: "I. Geographical Position. II. Physical Conformation, including, as connected therewith, natural productions and climate. III. Extent of Territory. IV. Number of Population. V. Character of the People. VI. Character of the Government, including therein the national institutions".⁵

Today, the maritime arena is of vital interest. Maritimisation of politics and economy is perhaps the most important factor of globalisation, in turn the most important contemporary trend.

Traditionally, naval warfare has focused on the protection and attack on the Sea Lines of Communication (SLOC). Corbett famously wrote that "Command of the sea, therefore, means nothing but the control of maritime communications, whether for commercial or military purposes. The object of naval warfare is the control of communications, and not, as in land warfare, the conquest of territory. The difference is fundamental".⁶ Today, however, the sea itself, including the seabed, is increasingly important. Oil, gas, pipelines, fish farms, and other resources within the seabed, as

well as wind, tide, and wave-powered electrical generators, are all assets that require safety and security. A modern definition of maritime power must, hence, encompass all these aspects.

Power, in turn, cannot be restricted to hard power but must also include soft power and smart power.⁷ Furthermore, power in itself cannot accomplish anything. To make use of power, there is a need for political will and leadership in order to achieve a designated political project.

Power is translated into political objectives through strategy. We can now adapt Mahan's definition of naval strategy into the following: maritime strategy has for its end to found, support, and increase, as well in peace as in war, the maritime power of a country and to achieve political objectives through the use of this maritime power.

The quest for maritime strategy

A modern maritime strategy must, as we have seen, be a comprehensive strategy. It has to draw on a number of strategies – or policies – of the state like industrial strategy, financial strategy, diplomatic strategy and strategy of defence. These relations are reciprocal: an efficient maritime industry depends on the existence of an industrial strategy which emphasizes the maritime aspects; in return the maritime industry will give impetus to the industrial strategy and feed the financial strategy. The strategy of defence must give the military part of maritime strategy a high priority and gets an important strategic tool in return. It is quite obvious that all this requires a general political will that gives priority to the maritime aspects – a grand strategy with a maritime focus.

A maritime strategy could be seen as composed of three sets of strategies: a strategy

of wealth, a strategy of means and a naval strategy. A strategy of wealth considers the exploitation of the richness existing at sea: the transport of goods, the exploitation of gas and oil, etc. A strategy of means regards the conception and construction of the means needed: ships, platforms and the like. Naval strategy finally is the strategy of action in the maritime field. Naval strategy uses maritime forces to achieve its objectives.

Naval strategy

Maritime forces,⁸ in cooperation with other military forces, have five basic strategic missions:

- Knowledge and anticipation. This is a very broad mission that forms the basis for all other actions. It encompasses missions like oceanology and hydrography, intelligence and surveillance. The latter mission should lead to the creation of a Recognised Maritime Picture (RMP), basically answering the question: who does what and where?
- Prevention by the creation of a favourable strategic situation – changing the *status quo* in our favour. This could be done by wisely using persuasion and coercion. Naval diplomacy plays a very important role in this regard.
- Deterrence, which very much looks like prevention. The difference is that while prevention is offensive, deterrence is defensive. It strives to keep the *status quo*. For countries having the capacity, nuclear forces serve as the ultimate deterrence. But these forces cannot handle threats against our interests at lower threat levels – they are important but not sufficient.
- Protection. This mission encompasses the classic mission of protection of

SLOCs. But today it must be much wider as there is much more to be protected, such as ports and all kinds of infrastructure at sea.

- Intervention, finally, is also very broad. At the lower end, it covers interventions against smugglers, Search and Rescue (SAR). Generally, it is also a question of keeping good order at sea, to borrow a term from Geoffrey Till. On the high end, there are missions like interventions against enemy assets at sea as well as projection of power.

Maritime forces strive to achieve these missions basically through four modes of action: fighting against enemy forces including blockades, attacking and defending communications, and the projection of power and presence.

The fight against enemy forces aims at giving us the liberty to use the sea while denying this liberty to the enemy or, in short, to achieve a reasonable degree of sea control. We write “reasonable” because control of the sea can never be total in time and space. To sea control, we need to add the control of space and cyberspace.

Castex has very well formulated what sea control means: “Depending on whether you have control of the sea, you can or you cannot:

- in an offensive mode, intercept the maritime communications of the enemy and attack his territory by the sea;
- in a defensive mode, guarantee your own communications and interdict the enemy from attacking your own territory by the sea”.⁹

The term power projection is usually preferred before “attack his territory”. This implies that forces at sea project power

– forces, ammunition, etc. – against targets on land. The term was coined by Richild Grivel in his book *De la guerre maritime avant et depuis les nouvelles inventions* from 1869, and was influenced by the Crimean war – one of the biggest operations of power projection in history.¹⁰

Presence, finally, is the basic naval mission in peace and in a crisis. Presence means creating influence. The posture of the naval force decides whether this influence is positive/offensive or negative/defensive.

Some thoughts about the future

Let us finally address the questions initially posed.

What purposes will sea power serve in the 21st Century?

Sea power will basically serve the same purposes in this century as it “always” has: furthering own interests at sea in peace, crisis and war as well as negating the interests of adversaries. The formula given by Sir Walter Raleigh (1552–1618) still contains basic truths: “whoever commands the sea, commands the trade; whosoever commands the trade of the world commands the riches of the world, and consequently the world itself”.¹¹ Today, however, control of the sea is not just about trade but also about the resources of the sea, the possibilities for power projection and maritime diplomacy. The adversary is not just an enemy in times of war, but also the forces of chaos: pirates, mafias, rogue states etc.

There are two major reasons for why maritime power today is so important. The first one stems from the fact that today’s globalised world is dependent on the sea for transport and resources – what we call maritimisation. The second is the freedom of naviga-

tion guaranteed by the UN Convention on the Law of the Sea (UNCLOS). This right, together with the abilities of modern navies, gives maritime power a unique strategic mobility. However, countries like China strive to negate this right through a process known as territorialisation of the sea – basically extending its sovereignty out on the high seas, which traditionally and legally are *res communis* (belonging to all mankind). As this right is upheld by maritime powers like the USA and the EU, this is a fundamental cause of conflict.

Will naval presence and power projection remain pre-eminent, or will access-denial anti-access make power projection increasingly difficult?

Power projection is a vast subject. It encompasses attacks on assets on land through artillery, missiles, aircraft and troops. To these “traditional” missions, one can add: C⁴ISTAR,¹² air defence including defence against ballistic missiles, but also the evacuation of wounded (MEDEVAC) and threatened citizens. But land also projects power towards the sea. There is a balance between the influence of land upon the sea and, vice versa, the influence of the sea on land. This is well described by Castex: “The influence of maritime power in the crisis of this world is dependent on the air-land force it is able to deploy and the influence of the land power is at the same time measured by the naval-air force it is able to put into the balance.”¹³

In “pentagonese” one talks about Anti-Access/Area Denial (A₂/AD) and Counter A₂/AD, respectively.¹⁴ This aspect is particularly pertinent between China and USA. China

strives to control the near seas and to keep the US out, while the US wants to be able to project power against the Chinese mainland. These two adverse strategies contain, however, a much broader concept than just applying military force: it is about diplomacy, control of space and cyberspace and so on. It is quite possible that these two strategies will have a profound importance for the development of high-end naval capacity. Generally, technology will give the land power an increased strategic reach over the sea while the reverse is at least as true.

In a more general sense, the two pre-eminent naval assets – the capital ships in traditional parlance – are the nuclear-powered attack submarine with its long-range cruise missiles and the aircraft carrier with its air wing.

Both systems are highly mobile both strategically and operationally. They can extend naval power well into land and thereby influence the decision-makers of (potential) adversaries. A carrier air wing is a more flexible instrument than cruise missiles of a submarine but there is, evidently, an important difference in the cost of the platform. But there is also a fundamental difference in how influence is created. The submarine builds on its stealth and, hence, its capability to create uncertainty and strike surprisingly. The carrier on the other hand builds on the visibility of its presence, which is enhanced by gesticulation with its air wing.

Presence, finally, is the basic mode of action of any maritime power. Without presence, no strategic or operational effect can be created, neither in peacetime nor in a crisis and war. Without presence the five strategic missions enumerated above cannot be carried out.

Is even a new contest between major fleets on the horizon?

A fleet-to-fleet action like Jutland in 1916 or Leyte Gulf in 1944 is highly unlikely. But the likelihood for a maritime contest between major maritime powers like USA, China, and India is at the very least not unlikely. Such a contest will use all maritime forces both at sea and those based on land and will make heavy use of space and cyberspace. Within such a struggle, there will, of course, be naval engagements – ship against ship – of various importance.

Naval engagements on a lesser scale are, on the other hand, quite common as states try to extend their influence and reduce the influence of adversaries. The struggle for and against the freedom of navigation in the China seas is one example. Russian pressure on, below and above the Baltic Sea is another. One should also not forget the permanent missions of maritime forces such as keeping good order at sea, search and rescue operations, and fighting against trafficking and pirates.

Air Power

The question was: Has air power finally come of age, fulfilling the prophecies of Douhet and others? Or are conflicts still decided on the ground, albeit with assistance from the air?

What is Air Power?

Air power is a more limited concept than maritime power; basically it is about influencing the outcome of a conflict in our favour while limiting the influence of the adversary's air power. To this one should add the industry, research, infrastructure, etc., that is needed to acquire, train and use air power. So far, there is no difference between

air and maritime power. But unlike the latter, air power is not normally seen to encompass the civilian use of the air for economic and other reasons. Unlike maritime power, air power does not create wealth.

A problem with the definition of air power is that the use of the air is an integral part of both terrestrial strategy and maritime power. But there is also “pure” air power or strategic air power, which is not tactically a part of another arena. According to the “founding fathers” of air power, strategic air power should be able to win wars all by itself. For the Italian general Douhet, air power would create such terrible damage that the war would quickly be won: first, cities should be bombed with explosives to create ruins, then with fire bombs to create fires, and finally with gas in order to halt any attempts to fight the fires for a long time and to kill the maximum number of people. In that way, Douhet assures, large areas can be completely destroyed by a fairly limited amount of explosives.¹⁵

The American colonel John Warden III is a representative of more modern thinking. His idea was to paralyse the enemy by attacking his vital functions – the leadership of the state, basic functions of society like electricity supply, infrastructure, population and deployed forces.¹⁶ Paralysis is to be achieved simultaneously by physical destruction and the destruction of morale.¹⁷

Has Air Power come of age?

So far, air power has played a very important role but by itself it has not achieved the success hoped for by these enthusiasts. Operation *Allied Force* against Serbia became a success when Milosevic understood that there was no hope for Russian aid. In operation *United Protector* against Gadhafi, attack helicopters based at sea and

rebel ground forces played a decisive role. Against the weak air defence of Iraq during operation *Iraqi Freedom* 2003, the allies had to use 1 440 missions and 400 missiles of the type HARM.¹⁸ No one seems to believe that the “alliance” can win over Daesh¹⁹ with air power alone.

From these experiences one could perhaps propose a more modest definition of strategic air power: the main purpose of strategic air power is to project power in order to influence the adversary’s decision-makers and to generally create favourable conditions for own forces while negating the fighting power of the adversary.

During the conflicts of the last 25 years, Western air power has been deployed over enemy territory where it has enjoyed air supremacy thanks to weak adversaries and a high capacity for Suppression of Enemy Air Defence (SEAD). This “happy” situation seems, however, to have become history. This is for several reasons. One is the extremely high cost of the most modern aircraft like the F-22. Another is the development of air defence weapons in particular missiles. A third reason is the ground threat against air bases on foreign territory. A fourth reason stems from western dependence of datalinks and, hence, vulnerability to cyber-attacks.²⁰

Drones have played an ever more important role in recent conflicts. They are now more or less indispensable for land warfare and, soon at least, for naval warfare. Drones are also extremely important for ISTAR at the operational and tactical level. We will see them in a direct combat role when UCAVs (Unmanned Combat Aerial Vehicles) become operational. But it is not clear – at least not to this author – if this development will change the very concept of air power.

To conclude – air power is an extremely important part of any strategy but it cannot win wars by itself. In that way, it has not “come of age”.

Final thoughts

The aircraft carrier, loosely discussed above, represents the strategic junction between naval power and air power. Europe has, however, today just one real carrier: the French *Charles de Gaulle*. The new British *Queen Elisabeth* and *Prince of Wales* are, hence, of vital strategic importance not only for Great Britain but for Europe – regardless of whether we are talking about NATO-Europe or EU-Europe. Why is it so? There are several reasons:

1. War is back in Europe and its southern and southeastern borders are in turmoil. The time for rearmament is now.
2. A question of strategic standing. All major navies, in particular those of the UN Security Council, have or are in the process of acquiring carriers.
3. Aircraft carriers offer a very important asset for cooperation with the USA, who will remain a vital ally for Europe.
4. Thanks to the building of these carriers, Europe has an industrial and operational knowledge that has taken decades to acquire, although such knowledge disappears quickly.
5. An aircraft carrier is the tool for naval diplomacy *par excellence*. Even a stupid dictator understands the threat posed by a carrier group on the horizon.
6. Cruise missiles from submarines and frigates are important. But an aircraft is more flexible than a missile, it can strike at a greater distance and more often (one missile=one strike!), and it

has a greater capacity for the avoidance of collateral damage.

7. Effective control of the airspace during a power projection operation requires air power, which can often only be based at sea.
8. A carrier group offers unmatched strategic mobility and flexibility.

But what about vulnerability? All military systems are obviously vulnerable, so are aircraft carriers. But an aircraft carrier is a rather tough target to seriously damage. Furthermore, it has always an impressive escort. Finally, at least American and French carriers have nuclear weapons on board. It is impossible for an outsider to know but, arguably, they are part of those vital interests that are “protected” by the nuclear deterrent – a part of the sanctuary.

This short article has only touched on the two vast subjects of sea power and air power. The use of smaller ships has not been discussed – just the very high end. Neither has the missions of maritime forces in keeping good order at sea or in support of diplomacy been discussed – just to mention a few omissions. Air power is even less discussed. Air diplomacy and the strategic role of transport aircraft has been completely left out, as well as the balance between the defensive and the offensive in air warfare. And so forth.

But, as general Lucien Poirier (1918–2013) used to say: The strategic construction site is never closed.

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Notes

1. This article is, regarding sea power, based on Wedin, Lars : *Stratégie maritime, stratégie navale. La modernité de Castex*, NUVIS éditions, Paris 2015.
2. Castex, Amiral [Raoul] : *Théories stratégiques*, Institut de Stratégie Comparée and Économica, Paris 1997, vol 1, p. 81.
3. During operation Unified Protector against the forces of Gadhafi in Libya (2011), frigates of the type *Horizon* have played the role of C2 *Primary Unit* in the *Air Tasking Order* (ATO).
4. Mahan, A.T.: *The Influence of Sea Power upon History 1660 – 1783*, Sampson Low, Marston & Company, London, no year given, probably 1889, p. 23.
5. Ibid. p. 29.
6. Corbett, Sir Julian S.: *Some Principles of Maritime Strategy*, Conway Maritime Press, London 1972 [1911], p. 90.
7. Nye, Joseph S.: *The Future of Power*, Public affairs, New York 2011, pp. 20-21.
8. Maritime forces are all forces that have a vocation to act on the sea: navy, possible coast guard, maritime air based on land and so forth.
9. Op. cit. Castex, Raoul, see note 2, vol. V, p. 87.
10. Depeyre, Michel : *Entre Vent et eau. Un siècle d'hésitations tactiques et stratégiques 1790-1890*, Économica and Institut de Stratégie Comparée, Paris, p. 486.
11. Quoted in Coutau-Bégarie, Hervé: *Traité de Stratégie*, Économica and Institut de Stratégie Comparée, Paris 1999, p. 481.
12. Command, control, computers, communications, intelligence, surveillance, target acquisition and reconnaissance.
13. Ibid. p. 247; In French one uses the terms 'force aero-terrestre' and 'aero-navale', respectively.
14. See Tangredi, Sam J.: *Anti-Access Warfare. Countering A2/AD strategies*, Naval Institute Press, Annapolis 2013.
15. Douhet, [Giulio]: *La Guerre de l'air*, Présentation de M. Étienne Riché, préface du général Tulasne, Journal « Les Ailes », Paris 1932, p. 56.
16. Warden III, John A.: « L'ennemi en tant que système », *Stratégique* No 59, Institut de Stratégie Comparée, Paris 1995, p. 28.
17. Ibid. p. 9.
18. AGM-88 High-speed Anti-Radiation Missile (HARM) is a missile fired against air defence radars.
19. Called IS for « Islamic State » – it is, however, NOT a state even if wants to be one.
20. See Brustlein, Corentin; Durand, Étienne de; Tenenbaum, Élie: *La suprématie aérienne en péril. Menaces et contre-stratégies à l'horizon 2030*, Centre d'études stratégiques aérospatiales, La documentation Française, Paris 2014.

The Normality of Asymmetric Warfare

av Tormod Heier

Resyme

Asymmetrisk krigføring ses ofte på med et nedlatende blikk i Vesten. Men også Vesten fører asymmetrisk krig. Blant annet utnyttes egne komparative fortrinn samtidig som motpartens sårbarheter utnyttes. Det er slik asymmetriske fordeler oppnås, og som gjør at asymmetri i krig er et tidløst fenomen. Dette vet også motstanderne til Vestlige styrker. Opp gjennom historien har krigførende parter derfor alltid utnyttet hverandres sårbarheter. Det er derfor en fordel om vestlige styrker stopper bombingene i tide. Med andre ord: for mange bomber og totale seire på taktisk nivå kan fort bli kontraproduktivt på det politiske – fordi motpartens *modus operandi* endres fra symmetrisk til asymmetrisk karakter. Derfor: Med mindre vestli-

ge styrker ikke underlegges en sterkere sivil kontroll nedover i kommandokjeden vil det fortsatt vinnes mange kriger på det taktiske nivået. Men en form for politisk uttelling vil neppe skje. Dette åpner opp for tettere integrasjon mellom diplomati, militærmakt, økonomisk, juridisk og humanitær bistand. Hvis ikke kan Vestens sterke sider raskt bli en del av problemet snarere enn en del av løsningen.

SCRUTINISING WARS' REVOLUTIONARY change after the French Revolution, Carl von Clausewitz codified a perennial doctrine: «War is nothing but a duel on a larger scale». In this duel, opponents fight for the ultimate objective, which is to compel the other to do our will.¹ Protecting one's own shortcomings while exploiting the opponent's weakness is therefore instrumental for political success, and may be regarded as relevant today as in previous times. In this article, the continued importance of asymmetry is scrutinised. Partly by describing challenges that tend to arise when «the West» employs overwhelming force against inferior opponents in unfamiliar societies. And partly by taking into account the increasingly short *warning-time* that tends to arise as Western forces are dragged into megacities and urban warfare.

The perennial logic

The timelessness of asymmetry is most clearly encapsulated in the oriental school of thought. As pointed out by Sun Tzu, asymmetric warfare should deliberately exploit own advantages in order to strike towards the opponent's shortcomings.² This doctrine has ever since been a universal rule of thumb, and hence a key imperative for any rational use of force. Being a key feature in European, Russian and American military thinking, it may be claimed that asymmetry is the most rational and necessary principle undertaken by any party, at any time, in any war.³ But is asymmetric warfare as

relevant for the stronger party as it is for the inferior one? After all, superior states and alliances, such as the United States and NATO, seem to emphasise symmetry rather than asymmetry; as preparations for the next war against Russia or any other conventional opponent is made, conventional deterrence and decisive battles seems to prevail.

A conventional military mindset inside Western command structures may therefore blur the perennial normality of asymmetry. This may particularly be so for politicians and military strategists that are intimately associated with some of the world's most sophisticated and agile war-fighting systems, but who often tend to associate asymmetry with illegitimate breaches of universal norms and regulations codified in the International Laws of War. Asymmetric wars are therefore often associated with something uncivilised, something brutal or cowardly, and often pursued by subtle or elusive insurgents, such as the Islamic State in Syria and Iraq or the Taliban and Al Qaida in Afghanistan. Maintaining the «moral high ground», asymmetric warfare is often associated with uncontrollable «rag-tags» – insurgents that employ unconventional and low-tech means of reaching increasingly radical ends.⁴ Exalted by even more spectacular and intimate media reports, US and NATO forces may even be outraged as insurgents improve their methods and progressively adapt to new rules of the game to counter Western technological superiority. Avoiding Western preferences for decisive battles on a

transparent and clear-cut battlefield, asymmetric warfare can be seen as an integral part of any viable strategy.

Refining asymmetric warfare

Hence, asymmetric warfare may therefore be interpreted in a broader context. This is a context that goes beyond the Western effort «... to compel the enemy to do our will» in order to «... render the enemy powerless». ⁵ Instead, asymmetric warfare can be regarded as a universal phenomenon that has gained more momentum in the 21st century. This is particularly so as Western forces have pursued wars of regime change inside militarily inferior states in the South. One of the most stunning outcomes from these interventions, whether it is in Afghanistan, Iraq, Mali, Libya or Syria, is that inferior opponents have refined, improved and professionalised their asymmetric *modus operandi*. Their primary operational incentive, whether they are states or non-state actors, is to maintain their «stealthiness». That is, keeping their combat signature below the global radar of Western military intelligence, surveillance and reconnaissance systems. The asymmetric *modus operandi* may of course contrast the «symmetric war» of conventional forces, traditional inter-state war, or «proper war». But it allows even the most inferior opponents to protect their operational and political vulnerabilities while counterattacks against the superior's own shortcomings are planned and executed.

Rather than ditching «asymmetric warfare» into the hands of the inferior, therefore, to make a clearer distinction to the preferable Western «symmetric» way of war, the universal logic of asymmetry could be a fruitful reminder to the Western employment of force in the post-Cold War era. Even «the

West's» most likely symmetric opponent, Russia, operates increasingly asymmetrically. In Ukraine in 2014, Russia's so-called «hybrid war» ⁶ is first of all spelled out by means of neatly synchronised and highly asymmetric manoeuvres. Precisely guided towards the weakest point of its opponents, which is the Western ability to rapidly forge a cohesive and united counter-measure, Russia's primary target seems to be the mindset of its own population, the people in Ukraine, and the often too fragmented security community inside the EU and NATO. Subtle campaigns by ingenious forces, blended with information operations, paramilitary intimidation and subversion from «rag-tag» militias originating from the Russian diaspora, not only blend with conventional operations. They even dominate the campaign. ⁷ Why is the timeless wisdom of asymmetric warfare so important to the West?

The relevance of asymmetry

Firstly, a clearer comprehension of asymmetric warfare is likely to stir more knowledge into the realm of strategy. This is particularly so with regard to how Western forces are employed and how a consistent ends-ways-means relationship between military forces and political objectives is attained. Exploiting one's own advantages while attacking the opponents' vulnerabilities has traditionally been used for defeating conventionally armed enemies, leaving irregular opponents untouched. ⁸ Throughout history, however, there has always been an intimate relationship between regular and irregular forces. This regular-irregular duality thereby helps us to comprehend a basic fact: there is seldom «a proper decisive conventional war» available in a theatre of operations. Even though some wars, such as the Falklands War

(1982), the first Gulf War (1991) or the Kosovo War (1999) proved to be rather short and decisive, academics and officers have often tended to neglect the uncomfortable and improper sides of asymmetric warfare.⁹ Instead, the many duels between regular and irregular forces have been labelled as something else, such as small wars, guerrilla wars, Stability Operations, Peace Support Operations, or even Military Operations Other Than War.

Secondly, and more important than academic and intellectual ignorance, are Western strategic failures in the post 9/11-environment. The failure relates primarily to the inability of US and NATO forces to translate their military advantages into lasting and favourable political outcomes. The wars in Afghanistan, Iraq, Libya, Mali and Syria provide fertile ground for this admonition, but require a thorough clarification: Asymmetric warfare is a normal feature in any war. It may even be claimed that additional aspects should be included, such as the basic fact that any employment of force – symmetric or asymmetric – always leads to numerous unintended consequences. These consequences often provide fertile ground for new and even more vicious opponents that operate in a more radical and brutal manner than the original opponent. The growth of the Islamic State in the aftermath of the the US operation *Iraqi Freedom* in 2003 is but one example. Unintended consequences from this invasion continues to stir long-term social resentments, increased radicalisation and ultimately a more polarised political landscape for Western civilian diplomats to work on. As there are increasingly fewer moderate elements left to negotiate with (in a society that has been decisively bombed by the strongest party), it may seem as if Western strengths and advantages should

be used with more caution and diplomatic sensitivity. What may this imply?

Civilian control over military means

Clearly, a more gentle approach as to how Western military advantages are exploited, and how an opponents' vulnerable forces are annihilated, has little resemblance with Clausewitz' doctrine of «rendering the enemy powerless», which according to Western military thought is the «true aim of warfare».¹⁰ By this recognition, we may also take a more critical stance towards arguments where own forces should «give full play to its own advantages». Could it be that Western military advantages have become too predominant in 21st century warfare? Have Western forces played their comparative strength too far? Are Western forces too deadly, acting too decisively or employing their weaponry too efficiently? In other words, are the opponents' weaknesses exploited too ruthlessly? Questioning the fragile balance between calibrated coercive diplomacy and decisive annihilation thereby triggers new questions that deal with civilian control over their military servants' professional autonomy. Have Western forces become too independent from their civilian masters? In other words, have politicians and their diplomatic advisors no longer control over the outcome of the violence performed by their military subordinates?¹¹

Empirical evidence from the initial stages of the wars in Afghanistan, Iraq and above all Libya underscore the relevance of the question. In all the three wars, Western forces fought extensively asymmetrically. US and NATO advantages were ruthlessly exploited: precision-guided munitions, night vision goggles, air-ground-surveillance, signals in-

telligence and stealth aircraft all contributed to an almost perfect and rapid military victory. Through these comparative strengths, the opponents' weaknesses were systematically attacked; conventional Taliban, Iraqi and Libyan formations were effectively decimated as their military weaknesses were exposed – and ruthlessly exploited.

But in each of the three wars, the consecutive effort to translate stunning tactical victories into lasting political outcomes, with a vibrant civic community at its core, led to the opposite: a large, complex, unruly and unpredictable *power vacuum* which seemed to paralyse not only the civilian political elite, but also their military servants. The effort to neatly integrate the military instrument into a broader spectrum of civilian instruments of power failed.¹² Instead, the evolving vacuum absorbed an increasing number of regular and irregular forces into a never-ending quagmire, leaving few incentives behind for diplomatic negotiations with moderate opponents that had not been decisively beaten.

It may therefore be claimed that Western forces' exploitation of own advantages has become their worst enemy: politicians at home and their diplomats abroad seem unable to influence, regulate or sufficiently adjust the level of violence employed against their opponents' vulnerabilities in due time. The overwhelming attacks and the successive collapse of Taliban formations in October–December 2001, of Iraqi conventional forces in March–June 2003, and of Libyan governmental forces in June–October 2011, instead lead to a number of humiliating defeats. Western asymmetric advantages were used to an extent so overwhelming that a shift towards an asymmetric *modus operandi* was the only rational way left for the

opponent's battered remnants. Where does this leave us? In other words, what are the implications of a Western doctrine aiming at rendering militarily inferior opponents powerless?

Slippery concepts and morphing forces

The questions invite us to scrutinise more thoroughly the balance between coercive means and diplomatic accommodation. Based on experiences from the post-9/11 environment and the «war on terror», the outcome seems to be «a morphing of Western forces into open-ended asymmetric wars».¹³ This may partly be so because Western forces still seem to be stuck in a «symmetrical war paradigm» where bothersome wars against elusive opponents in Afghanistan will soon come to a welcomed end, and where concerns over Russia's assertive role in post-Soviet client states have renewed our interest in «proper war».

Asymmetric warfare, however, particularly with regard to unequal number of troops, fighting style and degree of legitimacy, may nevertheless be of continued importance. This is first of all because there are similarities between wars that are fought «out-of-area» against insurgents in Afghanistan, Iraq and Syria, and wars that are prepared for conventional battles against Russia. Even though NATO-Europe refocuses its defence efforts against Russia's conventional forces, experiences from the Spanish War of Liberation against Napoleon's armies (1808–1812), Hitler-Germany's attack on the Soviet Union in 1941 or Soviet forces' fight against insurgents in the Baltic States in the 1950s, rests on the same logic as used on the Crimean Peninsula or Eastern Ukraine in 2014 and 2015. Despite their long time span, a com-

mon feature is the absence of a clearly defined *Centre of Gravity* in the local theatre of operations – the hub from where all combat energy derives from.¹⁴ This is a point that designates itself as the most attractive target for any Western conventional force that fosters doctrines of short wars and decisive conclusions. As asymmetric warfare goes beyond «out-of-area» operations, the persistent blurring of symmetric and asymmetric war is relevant in Europe as well.

Morphing towards asymmetric warfare

Empirical evidences that underscore the trend may be found in the following three examples. Firstly, the unprecedented rise of Special Forces. This secretive and low-profile capability plays a much more prominent role today as compared to previous decades. From being a largely marginalised group in the 1980s and 1990s, at least among smaller Western states with few colonial interests, Special Forces have increasingly become more stealthy and «civilian look-alikes»; they have become more political in their outreach, and more integrated into states' political decision-making processes, even at the top ministerial levels. Special Forces have even become an integral component in states' embassies and in diplomatic consulates worldwide.¹⁵

Secondly, the morphing metaphor between regular and irregular forces is also recognised inside powerful military-industrial complexes with a global outreach. The BAE Systems in Sweden is but one example: developing so-called «adaptive camouflage» to their Armoured Personnel Carriers (the CV 90), the infrared signature from Hagglund's combat vehicles becomes significantly similar to the signature derived from commercial cars inside modern civic societies.¹⁶ The

military advantage is obvious: conventional forces may more easily hide among civilians, seek protection in densely populated areas, and attack opponents by surprise in an increasingly blurred, complex and compound civil-military battlefield.

And thirdly, as pointed out in the American *Small Wars Doctrine* from 1940 (and confirmed throughout the Western campaign in Afghanistan), «when there is no king to conquer, no capital to seize, no organized army to overthrow, no celebrated strongholds to capture and no great centres of population to occupy»,¹⁷ Western forces tend to transform. Morphing into «civilian look-alikes», manoeuvring with white Toyota Land Cruisers, drilling wells, building schools and acting as humanitarian NGOs, Western forces communicate civil-military ambiguity and contradictory intentions. On the one hand, humanitarian benevolence towards popular demands and expectations are accommodated. On the other hand, complex combat operations are spearheaded towards insurgents in the same area, by the same forces, at the same time.¹⁸

The morphing metaphor is thereby challenging the conception of war, reminding us of the blurred framework between «us or them», «friend or foe», «victory or defeat», «peace or war». These slippery concepts should stir more research on how Western adaptation to asymmetric wars challenge the universal Laws of Armed Conflicts, and the Geneva Protocols in particular – where the distinction between combatants and non-combatants, between civilians and militaries, between legal and illegal targets, are at stake. The crucial overriding question may be this: How far can Western forces go in their effort to become truly asymmetric before they fall victim to the same values and belief systems they are set to defend?

Asymmetry into Megacities

The question above urges us to scrutinise more thoroughly future operational environments. Being accustomed to rural COIN strategies in the Afghan countryside, it can be argued that «the West's» operational focus should be rebalanced. The emergence of so-called «mega-cities» requires Western forces to pay more attention to an increasingly compound and complex urban environment.¹⁹ Reflecting on a more prominent role for Western forces under such circumstances, the ever-increasing trends towards shorter strategic *warning-time* is striking.

Mass incitement in urban environments seems to accelerate by a global development and dissemination of cheap, user-friendly and sophisticated information and communication technology. These devices empower huge masses – with both violent and non-violent intentions – to take rapid, unexpected and decisive action. This ability not only induces more pressure on the individual soldier or unit employed in a megacity, whose role as «strategic corporal» may become even more important than previously known,²⁰ but the unpredictability arising from these technologies, often through social media, significantly also reduces states' *warning-time*. States may therefore find it increasingly difficult to find short-time remedial actions-points to address unexpected and rapidly evolving crises. This again may also trigger broader regional engagements, particularly so as neighbouring states tend to intervene openly or by clandestine operations. This may partly be motivated by a desire to prevent a crisis from escalating, or causing instability on one's own territory, but it may also be a «window of opportunity» for other states to change a regional balance of power.

The US and NATO operations against Libya in March 2011 can be seen in this context. The humanitarian suffering portrayed through the social media inside the rebel stronghold of Benghazi significantly decreased the strategic warning-time. This was the case for decision-makers in the US and Europe as well as for the Libyan leader Muammar al-Gadhafi himself.²¹ In retrospect, short time-spans in crises management seem to be a serious challenge for Western politicians. As decision-making processes accelerate, military outcomes also become less transparent and less controllable. A short strategic warning-time thereby makes it difficult – for politicians and their civil servants – to neatly regulate the use of force so that it is neatly harmonised and calibrated with the other civilian instruments of power. This difficulty may often be due to the absence of trimmed and cohesive command structures,²² and may have a negative impact on the civilian effort to regulate military force inside a broader political tool-box.²³

Conclusion

The argument that «insurgency will always be present in history as long as outraged segments in any population find it useful»²⁴ encapsulate a common feature throughout this article: The logic of asymmetric warfare effectively prevents militarily superior opponents to gain a decisive political outcome. This is why asymmetric warfare is a perennial phenomenon. As long as the weaker side chooses to dissolve its conventional forces and reach for a stealthy signature, and hence engage in a symbiotic relationship with the civil community, a clearly defined – and much appreciated – *Centre of Gravity* cannot be found for Western forces. The absence of opponents with a clear symmetric *modus operandi*, including clear

political intentions and clearly defined conventional capabilities, thereby degrade the political usefulness and superiority of Western forces. This opens up for a new thinking on what relevance and impact military forces may have in comparison with other instruments, such as diplomacy, economic and juridical assistance. Unless Western strengths are neatly controlled and integrated into a broader political project, where

other civilian instruments of power define the premises for success, Western superiority may easily become part of the problem rather than part of a political solution.

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Technology and Warfare – the Implications of Change, Especially for Small States

by Tor Bukkvoll

Resyme

Militærteknologisk utvikling kan med fordel deles inn i inkrementelle og revolusjonære nyvinninger. De første endrer avgjørende måten militære operasjoner utføres på. De andre bare øker effekten av ting man allerede gjorde før. En av de største revolusjonære endringene man kan tenke seg er hvis den militærteknologiske utviklingen etter hvert fjerner mennesket fra slagfeltet. Dette kan ha stor betydning både for villigheten til å bruke våpenmakt og for etiske problemstillinger rundt hvordan denne våpenmakten brukes. Et mindre studert tema innenfor dette området er hvordan små stater skal klare å henge med i teknologikappløpet. Her finnes det en rekke mulige strategier. For det første kan små stater bare kjøpe færre enheter. Dette er antakelig mere en nødvendighet enn det er en strategi. For det andre kan små stater gå sammen om både utvikling og kjøp av ny teknologi. For det tredje kan små stater, hvis de er rike nok, prioritere teknologi over personell. For det femte er det mulig i noen tilfeller å satse på spesialisering. Dette betyr at man bruker sine begrensede ressurser til å bli god på en eller noen typer operasjoner, og satser på lån fra andre på de områdene man selv er svak. Dette siste fordrer selvfølgelig er særdeles god koordinering av politikk på det sikkerhetspolitiske området.

THE ROLE OF technological transformation in the development of warfare is central. Much has been written on the topic, but little from the perspective of small states. I will try to make a small contribution in this regard at the end of this short essay, where I discuss what options small states have when challenged to keep up with the technology race. First, however, I discuss the two questions: what do we mean by “new” technologies”; and what may be some of the consequences if new technologies remove the human being from the battlefield?

Revolutionary and incremental technological progress

New technologies may mean both technologies that did not exist before, and it may mean significant improvements to types of technology that have been around for a while. Thus, the analysis of technology and warfare may benefit from introducing a distinction between “revolutionary” and “incremental” technological advances. Revolutionary here means a technology that fundamentally changes the ways operations are conducted. Incremental means changes that make it possible to improve things that have been done before. For example, precision-guided munitions may be said to have been revolutionary. These munitions significantly transformed operations by making permanent installations highly vulnerable and in many cases irrelevant. On the other hand, the increased firepower of many weapons systems may have significantly improved the ability to fight, but would still only be incremental. This is because they did not radically alter the way forces fight.

The border between revolutionary and incremental technologies will naturally be blurred. For example, some would see 5th generation fighter aircraft as revolutionary and some would see them as incremental. The first would emphasize changes to how such planes operate because of new capabilities, whereas the latter would accentuate the fact that fighters have existed at least since the First World War. Still, future studies may profit from making this distinction between revolutionary and incremental technologies when studying the effects on warfare.

Some scholars assume that certain new technologies have the potential to gradually remove the human being from the battlefield. If true, that would indeed be an example of revolutionary change. Such a development opens up for a number of fundamental questions about the future of warfare.

Removal of the human from the battlefield

First, will the removal of the human being from the battlefield be an incentive for a more liberal use of military force? Will it contribute to more wars in the future? At least for most developed countries, and probably also for many developing countries, the fear of many deaths is a serious restraint when deciding on the use of force. A necessary clarification here is whether we are talking about the removal of all humans from the battlefield, or just the military ones. If the latter is the case, then an easier resort to military force could still be curbed by the fear of numerous civilian deaths. However, if we are talking about the total removal of humans from the battlefield, then resorting to war could largely become a question of economics. The one with the strongest economy is likely to be the one who has the highest readiness

to sacrifice military hardware in order to achieve political goals.

Second, will national defence become more or less expensive as a result of the removal of the human being from the battlefield? Personnel costs, again at least for many developed countries, seem to be rising dramatically as a percentage of overall military costs. Fewer humans on the battlefield would thus again reduce that part of defence outlays. However, the trend is at the same time for military hardware to become more expensive. The net effect probably depends much on whether military hardware can ever achieve price effects similar to what we see in many civilian industries. In the electronics industry, for example, single item costs have dropped substantially. There are expectations that, for example, the cost of drones may see a similar development in the future. However, the military, in contrast to civilians, always need to be at the very forefront of technology in order not to lose the next battle. This may negate a price drop mechanism for the military similar to what we have seen in many civilian fields.

Third, the new technologies may alter the balance of power between state and non-state actors. At least some of these new technologies already have, or are likely to become, available on the civilian market. To the extent that this is the case, it is likely to substantially increase the capabilities of non-state actors. Thus, the general balance of power between them and state actors may adjust in favour of the former.

Fourth, there is also a worrying ethical side to the question of removal of the human being from the battlefield. If this is done by gradually delegating more and more decision-making to robots, it opens up very troubling questions about who is responsible for what. Some argue that there are natural technical limits to how similar ro-

bots can be to humans, and that the problem may therefore not become very severe, whereas others seem to see a more fluid distinction between humans and machines in the future.

Small states and the technology race

Finally, what can small states, with more limited resources than the bigger ones, do in order not to fall too far behind in the military technology race?

The first thing they can do is to buy fewer items of each system. This is probably less a strategy than a necessity. A decision to buy fewer items than one would have done with earlier systems can, in addition to cost saving arguments, be justified militarily by the enhanced capacities of new systems. Fewer items need not necessarily mean less capability. However, procurement and maintenance costs for each item will naturally rise. There is also the further problem that if the number of items sinks below a certain threshold, it may be problematic to uphold the necessary level of domestic expertise to run the systems. Expert milieus can often not be sustained if they drop to just a few individuals.

Another strategy small states may adopt is joint development and procurement. This strategy is sustainable if the transaction costs of cooperation are lower than the expected gains of cooperation, and if the operational requirements of each participating state are relatively similar. The Danish, Dutch, Belgian and Norwegian joint programme for burden-sharing in terms of maintenance and upgrades to the F-16 fighter fleet is a successful example, whereas the stranded Norwegian-Swedish project to jointly develop and procure new submarines is an example of the opposite. While there are various reasons

why the latter attempt failed, one of the main causes was that operating requirements for submarines in the Atlantic in contrast to the Baltic Sea were just too different.

Furthermore, small states, if they are rich, may give priority to technology over people. Salaries tend to be high in rich countries. Therefore, they may cut in the number of troops and instead purchase technologically advanced systems. These systems can compensate in terms of military capability for the reduced number of troops. One potential problem with this strategy is that it is mostly suited for domestic territorial defence. In *international* military operations troops are often greatest in demand. Thus, if the small country in question also gives substantial contributions to international operations, then the technology at the cost of manpower strategy may be problematic. Small countries contribute to such operations both because they believe in their usefulness, and because they want to maintain close military relations with stronger alliance partners in this way.

Additionally, small states may specialize and/or integrate with each other. Specialization is different from joint development and procurement in the sense that each state here concentrates on certain capacities under the assumption that it can borrow other capacities from allied states when needed. Thus, Denmark, for example, no longer has an air defence. Should a need for this arise, they expect to borrow it from allies. The decision to abandon air defence has freed up means that Denmark can spend on other capabilities, such as for example more special forces. Integration without

specialization is also possible. For example, the Netherlands and Belgium now basically have a joint navy.

To finish, in addition to the four strategies discussed above, small states are also likely to profit from possessing domestic purchasing competence even if they do not have their own arms industry. By purchasing competence I mean a pool of national military-technological expertise, preferably at least semi-independent from the armed forces. This competence is necessary both for bargaining with external providers and for the political leadership to be able to question the demands generated from the domestic military services. The latter will have a tendency to order more of what they already have instead of contemplating whether there may be other, better, and/or cheaper ways of doing the same. Someone always needs to ask the question “can this function be filled by other and cheaper means”?

Technology always has and will continue to change warfare. Sometimes this change is revolutionary, but most often it is incremental. Both types of change are likely to have different consequences for different actors. One relatively understudied issue is the consequences of technological change for the militaries of small states. The comments above point towards some of the issues in need of further study in order to understand these consequences. For these small states themselves, this is an issue of far more than academic interest.

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