

SEARCHING FOR HISTORICAL EVIDENCE OF EFFECTS-BASED OPERATIONS IN MILITARY THINKING

The essence of effects-based operations can be grouped around three common, but interrelated elements such as effects focus, advanced technology, and systems thinking. These elements can also serve as a vehicle to go back in history in order to discover early presence of an effects-based thinking. This scrutiny is even more important as many advocates of effects-based operations attempt to reinterpret wars of earlier ages through an effects-based filter. Generalisation of this kind can distort the original meaning of effects-based operations; therefore it demands a thorough examination.

Many approaches to effects-based operations state that the concept is far from being new since astute commanders, statesmen and the likes have always practiced this sort of operation.¹ In this chapter we examine the truth of this assumption and the possible dangers it contains. The problem with simplified statements of this kind is that they indicate a generalisation, which de-emphasises specific social, political, cultural and economic factors that have always been important in the evolution of warfare. All the phenomena that support war including organisations and conventions depend on a combination of certain historical circumstances. Consequently, any manifestation of war is the result of societal transformation and mirrors social conditions.²

FOUR CLASSICS OF STRATEGY

The danger of any superficial generalisation is that it can turn any given phenomenon into its own caricature, and logically meaningless. Clausewitz warned that if an idea becomes diffuse it starts losing proper meaning and its value declines accordingly. Certain principles of war can survive ages or be rediscovered occasionally. However, the main reason for their endurance is often not due to their value or utility, but their simplicity and exceptional convenience. A good example for this is Clausewitz's relevance for the theory of war, which does not come because of his universal acceptance, but his well-formulated first principles. Strategic theory is always a framework, and as such independent from the size and scale of the conflict, the medium that hosts it, the means by which it is fought, and likewise the amount of violence it involves. In general it is the combination of efficiency and effectiveness with the aim of finding a balance between these two attributes. Strategy follows a mostly deductive logic whereby a conclusion about particulars, flows from a course of actions rooted in a general or universal premises.³

The term *effect* always refers to resultant conditions that follow an antecedent, which explains why strategy can be understood superficially as *effects-based*. Consequently, references to *effects-based operations* as an ancient phenomenon, point towards strategy in general terms rather than the existence of an early version of the concept. Thus displaying it as an ancient concept explains everything and nothing at the same time. It is useful to take a close look at the vocabularies of significant past theorists of war in order to examine to what extent their works can be regarded as reflections of effects-based operations in their respective age.

The following comparative analysis does not intend to deliver a broad historical, philosophical, cultural or even linguistic overview. The intention is to allow the respective authors to speak for themselves as they represent different periods of military thinking. The aim is to detect reference points towards the three identified common elements of effects-based operations such as *effects focus*, *advanced technology*, and *systems thinking*.⁴ The following mainstream theorists will be subject to this analysis: the Chinese classic Sun Tzu representing ancient China; the Italian Niccolò Machiavelli representing the Italian city-state of the late Medieval Age; the Swiss Antoine Henri de Jomini and the Prussian Carl von Clausewitz, both representing the emerging modern nation state.

SUN TZU

The ancient Chinese strategist Sun Tzu lived around 500 B.C. and belongs to the earliest known military theorists. His book *The Art of War* became known in Europe shortly before the French Revolution. Its summary translation was first published in Paris in 1772 and soon became widely circulated.⁵ He is the first known theorist who attempted to formulate the planning and conduct of military operations on a rational basis that enabled a successful prosecution of war. In the chapter on strategic assessment, Sun Tzu emphasised that intelligence was required to change plans effectively. He also wrote about effective discipline by stating that subordinates did not dare to disobey orders which were effective. Sun Tzu also mentioned effective armament together with carefully chosen and trained troops. As an effective method he suggested appearing weak whilst being strong, and appearing cowardly whilst being brave in reality. In order to confuse the enemy he mentioned the importance of giving the impression of being incompetent and ineffective whilst the opposite was true in reality. Sun Tzu concluded that formlessness was the most effective in military operations and unexpected movements the most efficient.⁶

In the chapter on planning a siege, Sun Tzu wrote that the inability to deploy machines effectively could cause great trouble. For him there was also a difference between military and civilian life, especially in customs regarding military procedure and command in effect. He found that adaptation to the situation was important as sometimes even a large group could not effectively attack a small group. Conquest depended for him on co-ordination and not mass.⁷ In the chapter on formation, Sun Tzu wrote that sometimes there was no chance to see any effective way to attack, and defence was the better option by not letting the opponent find our forces.⁸ In the chapter on force he concluded that good warriors sought effectiveness in battle from the force of momentum and not from that of individuals.⁹

In the subsequent chapter on emptiness and fullness he proposed attacking gaps and, among others, he mentioned the inability to affect rescues. The ability to affect rescues meant for him fullness, which he regarded as worth defending.¹⁰ In the chapter on terrain he named six factors that resulted in defeat and one of them was the ineffectiveness of law and order.¹¹ In the chapter on nine grounds, Sun Tzu wrote of an effective rulership, which rests on firm knowledge regarding the enemy's plans, the lay of his land and the use of local guides.¹² In the chapter on fire attack he suggested not to go against the momentum of fire, because it was not effective as the enemy would surely fight to the death.¹³

NICCOLO MACHIAVELLI

The Italian thinker Machiavelli published his book *Art of War* in 1521. As a child of the renaissance and living in the city state of Florence, he viewed military problems in relation to politics. He devoted great attention to the procedures he regarded as important for the acquisition, maintenance and application of a well-equipped and highly trained military force. He suggested adapting the military practices of the ancient Romans, but also pointed out the difficulties of its accomplishment. Machiavelli outlined fundamental questions such as creating an army, individual armaments and organisation of military units, formations in battle and during marches, command and control, encampments, intelligence operations, and fortifications and sieges. In book one he suggested that the military should be made up of people who were not fully forced or fully committed to this profession. An army composed only of committed people would carry wicked effects as such people were for him without restraint and religion, like gamblers or blasphemers. Machiavelli concluded the middle way to be the best when people join the military due to their respect for the prince, which prohibits bad effects arising.¹⁴

In book three whilst detailing the order of battle of the ancient Romans he mentioned that lightly armed men were posted in front of the army between the cavalry and infantry. When they were repulsed they could withdraw along flanks or through "intervals ordered to such an effect" and re-establish themselves among the unarmed people.¹⁵ Regarding the signs on the flags of the army Machiavelli proposed that the captain-general should bear the sign of the prince. The signs

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of subordinate commanders were for him not that important as long as they had the effect of recognising each other.¹⁶ In book five he detailed the marching order of the Roman army. According to Machiavelli the Romans sent ahead some groups of cavalymen followed by the right horn, then by the wagons belonging to it, followed by one legion and its wagons, another legion with its wagons, the left horn with the wagons behind and then the rest of the cavalry. After this listing he concluded that this “in effect was the mode in which [the Roman army] marched ordinarily.”¹⁷

For marching through a hostile country he suggested the army to be in a square since this formation was good both for marching and fighting, and “to this effect” he proposed ordering a brigade in the same way.¹⁸ In a situation when an army was between two mountains occupied by the enemy and there were only two roads, he suggested that the commander should make a ditch at the rear and give the impression of forcing the army through the only road that remained open. This act could mislead the enemy who concentrates his forces on the remaining open part prepared to fight. However, if the commander “[threw] a bridge of timber ordered to such an effect over the ditch” and crossed that obstacle, he could escape the enemy.¹⁹ In book six Machiavelli detailed the importance of information on enemy activities and plans requiring spies, ambassadors and experts of war. However, he emphasised that the enemies were also active in this field, which became manifest “when one [took] prisoners from them to this effect.”²⁰ In book seven Machiavelli gives 27 general rules on war, but the rules do not contain terms such as *effect*, *effective* or *efficient*, or refer to the importance of achieving effects on the enemy.²¹

ANTOINE HENRY DE JOMINI

The strategist and historian Jomini was an officer in the Napoleonic wars. His book *The Art of War* was first published in 1838, and can be seen as a synthesis of his practical military services and a thorough historical study. In chapter one he illustrated the importance and effect of wars of intervention, which were for him wars of opportunity. Regarding national wars he thought that the efficient defence of a country should rest on organised militia to limit the barbarities of war.²² In chapter two Jomini praised the great advantage of the lance and concluded that lancers were inferior to hussars as skirmishers, but more effectual in charges. He also mentioned the Congreve rockets “the effect and directions of which [...] the Austrians [can] now regulate”.²³ He acknowledged the contribution of councils of war, advising how the commander could contribute to more weight and effect of military operations. Enthusiasm and military spirit were for him factors that produced the same effects: passion that was temporary and the more permanent great love of the country.²⁴

In chapter three he concluded that converging routes were better for defence since two retreating divisions “[could] effect a junction more quickly” and may defeat the pursuers separately.²⁵ He also wrote that prejudice towards entrenched camps as bases of operations does not allow generals to trace the effects back to their real causes. By explaining the term *objective point* he used a fictitious scenario in which the French army’s task was to “relieve the forts ... if the enemy succeeded in effecting a passage of the river and in besieging them”.²⁶ He also emphasised the significance of a position in the rear within which divisions could collect and oppose the enemy if he becomes successful in effecting a passage. Regarding the French declaration of war in April 1792, Jomini could not understand why the French did not conquer Belgium in which there was “no effectual resistance.”²⁷ The behaviour of the allies in the campaign of 1793 was for him an example of the effect that a “faulty direction of operations” has.²⁸ His maxim number ten concerning lines of communication stated that two such lines must be arranged in a way that passing armies are able to effect their junction without being separately exposed to the enemy. According to maxim number fifteen, on crossing a large river in the presence of a numerous enemy the first consideration should be “to ascertain where the passage can be most certainly effected”.²⁹

By examining the advantage of the central lines in the case of very large masses and concentric operations, he used expressions such as *effecting a junction*, the *effect of suffering reverses*, and *effecting a union of two armies*. He also emphasised the effects of roads on a retreat and the advancement of armies so as to effect a junction. In his epitome of

strategy he wrote that the “system of rapid and continuous marches multiplies the effect of an army”, which can be magnified if those marches are directed “upon the decisive strategic points of the zone of operations”.³⁰ In chapter four on grand tactics and battles Jomini suggested the selection of tactical position to be done in such a way that it should give “the artillery all its effect in the defence.”³¹ In his analysis regarding offensive and defensive positions in a battle, he emphasised the importance of the moral effect that comes from movement towards enemy lines. Such an advance can only be stopped by well-placed batteries that produce the “greatest effect” on the approaching assailant. The moral effect of the subsequent counterattack was for him “enough to stagger the boldest troops.”³² Regarding battles he wrote that force must be employed to “obtain the most effective action” since this offers the biggest chance for success.³³

In detailing the different orders of battle, he wrote about *effecting the decisive manoeuvre and detours* around the enemy’s flank. A perfect order of battle was for him one that “united the double advantages of the fire of the arms and of the moral effect produced by an onset.”³⁴ The retreat of the first line had for Jomini a moral effect on the second, resulting in loss of command over the troops involved. Regarding the fire of musketry, he admitted that it was much more effective in defence than in offence. In his analysis of various campaigns he used expressions such as *effecting a detour* and the *effect of discouraging the enemy*.³⁵ In chapter six on logistics he again used terms such as *effecting a junction* and the *effective capture of enemy soldiers*.³⁶ In chapter seven on the formation of troops he wrote about the *greatest and destructive effects of the artillery* and the *effect that comes from shock when attacking with pikes*. Among others he mentioned *moral effects in battle*, which came from being in a column and having arms at the shoulder without firing a shot. Further references included the *effect of the enemy’s fire*, the *effect of arms improvements*, the *momentary effect of a cavalry charge*, the *effect of artillery and musketry fire*, the *moral effect of reverse fire upon troops* and the *efficiency of rocket batteries in frightening horses*.³⁷

CARL VON CLAUSEWITZ

No other theorist has shaped military thinking in the Western world more than Clausewitz. Although his sudden death deprived him of the opportunity to finish his work properly, even in its incomplete form, *On War* is one of the most influential and voluminous book ever written on the matter. The sheer volume of the book prohibits a similar display with the other authors, but it also differs in some respects. Clausewitz not only used words such as *effect*, *effective* and *efficient* significantly more often than the previous authors, but he also delivered a detailed analysis regarding cause-and-effect relationships and the way effects interact. In book one on the nature of war, he used terms such as *disproportionate effect*, *combined effect*, *moderating effect*, *effect of fear*, and *restrictive effect*. He also wrote about the *effective way of using force* and the *effective forms of fighting*.³⁸

In book two on the theory of war he referred to *psychological effects*, *particular effect*, *moral effects*, *effects of danger* and the *effect of the engagement*. However, what makes his work interesting is contained in chapter five, in which he delivered a critical analysis, which he understood as an attempt to trace effects back to their causes. For him facts and the underlying motives are seldom fully known in wars, and the deduction of effects from their causes is difficult. Therefore causes remain mostly unknown due intentional concealment or improper recording. Since effects do not always come from known causes, there are always gaps in terms of causality, and ignoring this can cause serious problems. Clausewitz was convinced that effects in war cannot be traced back to a single cause, as several concurrent causes are normally at work. It is not sufficient to trace effects back to their causes, but the causes themselves must be assessed correctly. He regarded investigation of the nature of effects important, otherwise the analyst faces the danger of unending arguments that lead to no conclusion. Regarding effects and their causes, it is impossible to establish laws and standards, although reliance on aids in the process of judgement can be helpful. For Clausewitz, investigating the relationship between cause and effect becomes easy only if they are closely linked. Unfortunately, in war everything is intercon-

nected and effects produced influence all subsequent events, as for the final outcome every means available influence the ultimate outcome. When tracing effects back to their causes, every step means that effects become cause themselves. An effect that appears correct at one level can become objectionable on a higher level and imply a new basis for judgement. This hierarchical chain indicates serious problems since he regarded the distance between cause and effect proportionate to the number of other causes to be considered. Consequently, the range of forces involved and circumstances that must be taken into account grows: the higher the effect the greater the causes by which they could be achieved.

In order to comprehend the intricate and difficult nature of causal relationships in war, Clausewitz advocated a critical analysis to illuminate the connections and determine essential concatenations. This analysis is even more important since people are biased and tend to blindly follow single line of thoughts. As the analysis goes towards psychological forces and effects, reliable evaluation becomes increasingly cumbersome. Regarding the will, which he defined as the interplay between courage and fear, even critical analysis cannot determine probable outcomes. Although he was aware of the difference and interrelatedness of physical and psychological effects, he emphasised that “the psychological effect is what concerns us”.³⁹ In book three, he insisted that a strategic theory must consider not only material factors, but also moral qualities since physical and psychological effects form an organic whole. Furthermore, he referred to the *effect of the engagement*, the *effects of genius*, the *ricochet effect of forces*, *desired effects*, *destructive effects*, and the *effect of the advantage*.⁴⁰

In books four to seven his vocabulary included a wide array of effects such as the *effectiveness of additional forces*, *effect of surprise*, *effective integration of the individual parts of the army*, *effective sphere of operations*, *effective range of weapons*, *strategic effectiveness*, *effectiveness of resistance*, *effective strategic move*, *effectiveness of diversion* and *immediate effect*.⁴¹ In the last book concerning war plans he emphasised that so many factors influence military campaigns that the “almost infinite distance [...] between a cause and its effect” reveals an endless combination of the elements involved.⁴² The maximum that can be achieved is to work in a comprehensive fashion to avoid “narrow formulas for solving problems”.⁴³ Commanders should rely on the capacity of their mind with actions being “a response to the immediate challenge rather than a product of thought.”⁴⁴ He further wrote about *effective blow against the principle ally*, *intentional effect*, *maximum effect of an attack*, and *effective help*.⁴⁵

EFFECTS-BASED VOCABULARY

All of the four selected theorists' vocabulary contain terms such as *effect*, *effective*, and *efficient* to various degrees. However, attempts to reinterpret their work on effects-based principles means that their theory and methods are used to explain present day phenomena. The result is a naive and one-dimensional misconception that disregards influential and historical circumstances of their respective age.⁴⁶ The concept of effects-based operations rests on three common elements such as *effects-focus*, *advanced technology* and *systems thinking*. These elements served as the vehicle for our examination back in time in order to detect the theorists' relevance for effects-based operations in detail.

EFFECTS FOCUS

Statements that the origins of effects-based operations lay with Sun Tzu, because he wrote truisms such as “killing is not the important thing” are far fetched and biased. His recommendations have validity only in their own historical context. Sun Tzu intended his advice not as replacement for, but as an adjunct to, the actual use of force. Citing him in order to validate present day strategic theory disregards the particular reality and the particular praxis of his age.⁴⁷ His significance is due to the fact that Sun Tzu was probably the first who understood the importance of strategy and forming strategic alliances as an alternative to bloody wars. References such as the ability to overthrow a city without throwing a rock only highlights the existence of various alternatives that have always existed to bloodshed.⁴⁸

A vocabulary that uses the term *effect* and its derivatives does not indicate a certain early conceptualisation of effects-based operations. No theorist delivered better, fresher and more detailed analysis on the relationship between cause and effect than Clausewitz. However, he did not do it in an attempt to formulate any early concept of effects-based operations. As a soldier-cum-philosopher, he wanted to warn theorists that reality is too multifaceted for single-minded causal explanations.⁴⁹ Despite the diversity and frequency with which he used such words, *On War* fails to give a detailed analysis, categorisation and definition of effects. His statement of disinterest in generals who promise to win victories without any drop of blood may appear to be a blow for the proponents of effects-based operations. His cynical style of writing about the higher skill of avoiding decisive battles and reaching goals by other less violent means does not qualify him as the forerunner of the concept either. For him, war was brutality and blunder, and as he concluded history has scattered attempts to win bloodless wars to the winds.⁵⁰

Although both Machiavelli and Jomini can be positioned between Clausewitz and Sun Tzu, Machiavelli's vocabulary is the least effects-based. It is the best example that using the term *effect* does not indicate the existence of an effects-based vocabulary. In the original Italian, *effetto* the equivalent of the English *effect* is mentioned only ten times, and never in an effects-based way.⁵¹ One probable explanation is that Machiavelli was less interested in how an army fights and more how it is possible to establish and sustain that fight once it occurs. His argumentation relates the armed forces as much to the political aspects of war as to operational employment. In this respect, he was probably among the first theorists in the Western world who raised an issue roughly similar to the current concept of long-term defence planning. The absence of the term *effect* in his many rules of war reflects a clear lack of thinking in this regard. Jomini's vocabulary was much more interwoven with references to effects, although not to the same extent as that of Clausewitz. He personally preferred chivalrous warfare to organised assassination. Unfortunately, he cannot be seen as one of the forefathers of effects-based operations since for him, this sort of warfare stood for a certain epoch, but not phenomenon.⁵²

His four maxims regarding the fundamental principles of the art of war do not contain any reference to effects. He thought in terms of massing armies and massing forces, which stand in sharp contrast to the rather balanced and delicate approach of effects-based operations focusing on massing effects.⁵³ The idea of throwing the masses upon the decisive point forms a recurrent pattern in his work, and clearly negates the chance of an early conceptualisation of effects-based operations. Although he knew that armies could be destroyed without pitched battles, this option was for him, the "succession of inconsiderable affairs."⁵⁴ He often referred to the moral effect, but did not attempt to examine the way it could relate to actions and physical phenomena. Thus using the term *effect* and its derivatives and thinking in an effects-based way do not mean the same.

ADVANCED TECHNOLOGY

We devote the next scrutiny to the technological aspect of effects-based operations. No theorist put considerable emphasis on elaborating the difference that technology can make in war. Despite the millennia that lie between Sun Tzu and Clausewitz, and the centuries between Machiavelli and Jomini, weapons were operated mostly by muscle and being mounted on a horse was the fastest means of advancement. It does not come as a surprise that speed in military operations was best understood and practiced by confederated horse riding nomads such as the Huns, Avars, Hungarians and Mongols who invaded Europe throughout the ages. Due to their mobility they conducted brilliantly executed campaigns and as the Mongols showed, at a speed that could be repeated by European armies only five and a half centuries later on the corps level. Seven full centuries had to pass before all military operations were conducted at a speed that even Subotai Khan would have accepted.⁵⁵

Another example for the missing technological aspect can be found in Machiavelli and his relationship with artillery, the first and foremost military technological innovation of that age. Due to their size and weight, cannons were very hard to use in the beginning and were regarded as extremely unreliable, inaccurate and risky. However, they heralded the end of

primeval warfare and paved the way for the wars to come. For Machiavelli artillery was useless, and could be overcome by ancient modes and ancient virtue. Jomini himself did not regard technology as a significant aspect of war either. According to him superiority of armament can increase the chances of success, but it does not gain battles in itself. It is just one, albeit great element of success. Although he was aware of the numerous technological improvements that took place during his lifetime and made war more destructive, he saw their effects basically to force troops to prefer shallower formations. Similar to Jomini, Clausewitz did not regard the technological aspect of war, manifested in weapons and equipment, as important. For him, they were not essential to the very concept of fighting as he thought that the act of fighting determines the weapons employed. The range and effectiveness of firearms were only of tactical importance. He saw the relevance of new technologies mostly in their psychological impact on the enemy, but not as enablers of military operations. As he concluded, armies of his age were very similar in weapons, training, and equipment. Consequently, he saw little difference between the best and the worst armies.⁵⁶

It appears that the military lessons of past ages were not significantly influenced by changing technological conditions until the second half of the 19th century. Although the disparity between methods and weapons used became clear as early as the Crimean and American Civil Wars, it was only World War I that displayed the immense gap. Weapons of industrial mass production with an ever-increasing destructive potential shattered the value of past military experience only in the 20th century. Regarding the technological aspect of effects-based operations, none of the four authors can be regarded as originator of effects-based operations since they did not regard technology as leverage.

SYSTEMS THINKING

Regarding systems thinking, more similarities can be detected with effects-based operations. For Sun Tzu the way of battle was measured by five things such as the *way*, *weather*, *terrain*, *leadership* and *discipline*. *Way* stood for inducing the same aim in order to share death and life without the fear of danger. *Weather* meant the four seasons, *terrain* referred to distance, difficulty, dimension and safety. *Leadership* was composed of intelligence, trustworthiness, humanness, courage and sternness. *Discipline* stood for organisation, chain of command and logistics.⁵⁷ Machiavelli did not provide such an explicit categorisation, but the sequence of his books might reveal some sort of systematisation. Book one describes the qualities needed for war and discusses the role of fortune and virtue. Whereas book two details initial armament and unit organization, book three addresses battles, formations and describes the value of artillery at length. In book four he describes the role of the environment and addresses strategies of movement together with the psychological condition of troops. Book five details marching orders, communication, and ambushes. Book six contains encampments and intelligence, but pays special attention also to health, medicine, and supply lines. Book seven discusses fortifications in detail. Jomini's categorisation of the art of war aims basically to manifest five military branches as *strategy*, *grand tactics*, *logistics*, *engineering*, *tactics*, and *discipline*, and one civilian branch called *diplomacy*. Strategy equalled war made on the map, with the aim to direct masses properly in the theatre of war. Grand tactics was the positioning of troops in order to bring them into the action to fight.

Whereas logistics was the art of moving armies comprising means and arrangements, while engineering meant the art of attacking or defending fortifications. Tactics mainly described the actual fighting, including actions such as charges, repulsions and positioning troops. Diplomacy meant statesmanship and its relationship to war efforts. For Clausewitz, a systemic approach might have been the subdivision of war into his famous paradoxical trinity, the *people* with a creative spirit unleashed and free to roam, the *military* standing for subordination as an instrument of policy, and the *government* that makes war subject to reason alone.⁵⁸ Thus concerning the aspect of systems thinking, we can say that at least three of the authors wanted to grasp the essence of war in systemic terms. Claims that throughout history effects-based operations have always been applied by talented commanders are, at least, only partly true.

CARRIAGES AND CARS

We can state that works of the four theorists have at best an indirect relationship with effects-based operations, but cannot serve as origins of the concept. Referring to past theories and making forced links to support present day strategic thought is appealing. It provides useful tools to validate one's own arguments with reference to the classics, and offers better prospect and stronger arguments for selling ideas in order to gain influence. However, any such reference can jeopardise a well-founded understanding of the message and the theoretical implications of effects-based operations. It prohibits the decoding of unique historical conditions and detaches theory from practical relevance. Instead of seeing both the theoretical forest and the contextual trees it offers only theoretical trees and a contextual forest, which is superficial, misleading and extremely dangerous.⁵⁹

A carriage pulled by a horse, and a car driven by a combustion engine reveal obvious similarities, but do not indicate that those who invented the carriage also had the car in mind. If we understand war and effects-based operations in a social context then we assume specific factors and conditions. For Clausewitz it was clear that "every age had its own kind of war, its own limiting conditions, and its own peculiar preconceptions. Each period ... would have held to its own theory of war, even if the urge had always and universally existed to work things out on scientific principles. It follows that the events of every age must be judged in the light of its own peculiarities."⁶⁰

Following his advice we must conclude that the origins of effects-based operations must lie much closer to our time. In reality, the reason why effects-based operations came into being was the scarcity of available aerial resources during the 1991 war against Iraq. As Gen. Deptula stated during an interview the concept grew out of the practical problem of how to compensate for this shortcoming. The unexpected success of the approach and the power of advanced technology resulted that effects-based operations became "the philosophy ... we used in targeting for the rest of the war planning effort and then during the war".⁶¹

¹ See also Crane, Conrad: Effects-Based Operations: A Blast From the Past, Commentary, Defense Week, 14 May 2001, p. 16; McNicoll, p. 38.

² Toffler/Toffler, pp. 1-18; Creveld (1991), pp. 112-122.

³ Clausewitz, pp. 554, 624; Brodie, Bernard: Strategy as a Science, World Politics, Volume 1, Number 4, 1949, pp. 471-475; Creveld (1991), pp. 157, 218; Robbins, Stephen P.: Organization Theory: Structure, Design, and Applications, Prentice-Hall International Editions, 1987, pp. 25-49; Hooker, R. D. Jr.: Beyond Vom Kriege: The Character and Conduct of Modern War, Parameters, Summer 2005, p. 4.

⁴ Jobbagy, Zoltan: Effects-based Operations and the Age of Complexity, A Critical Reflection, Militaire Spectator, May 2006, pp. 235-242.

⁵ Sun Tse: L'art de la guerre, Traduit du chinois par le père Amiot, Éditions Didot Fainé, Paris, 1772.

⁶ Tzu, Sun: The Art of War, Shambhala Dragon Editions, Shambhala Publications Inc., 1988, pp. 41-56.

⁷ Ibid., pp. 66-83.

⁸ Ibid., pp. 84-92.

⁹ Ibid., pp. 93-99.

¹⁰ Ibid., p. 103.

¹¹ Ibid., pp. 143-147.

¹² Ibid., pp. 148-163.

¹³ Ibid., pp. 164-167.

¹⁴ Machiavelli, Niccolo: Art of War, The University of Chicago Press, 2003, p. 23.

¹⁵ Quotation in ibid., p. 64.

¹⁶ Ibid., p. 81.

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- ¹⁷ Quotation in *ibid.*, p. 101.
- ¹⁸ Quotation in *ibid.*, p. 102.
- ¹⁹ *Ibid.*, p. 114 (quotation p. 114).
- ²⁰ *Ibid.*, pp. 133-139 (quotation p. 133).
- ²¹ *Ibid.*, pp. 157-159.
- ²² Jomini, Baron Antoine Henri de: *The Art of War*, Greenhill Books, London, Stackpole Books, Pennsylvania, 1992, pp. 22, 34.
- ²³ Quotation in *ibid.*, p. 48.
- ²⁴ *Ibid.*, pp. 47-62 (quotation p. 48).
- ²⁵ *Ibid.*, pp. 76-80 (quotation p. 76).
- ²⁶ *Ibid.*, pp. 82-90 (quotation p. 89).
- ²⁷ *Ibid.*, pp. 100-105 (quotation p. 105).
- ²⁸ *Ibid.*, pp. 106-118 (quotation p. 107).
- ²⁹ *Ibid.*, pp. 120-138 (quotation p. 120).
- ³⁰ *Ibid.*, pp. 175-177 (quotation p. 176).
- ³¹ *Ibid.*, pp. 180-184 (quotation p. 181).
- ³² *Ibid.*, pp. 185-186 (quotations p. 185).
- ³³ *Ibid.*, pp. 187-192 (quotation p. 187).
- ³⁴ *Ibid.*, pp. 195-205 (quotation p. 201).
- ³⁵ *Ibid.*, pp. 210-216.
- ³⁶ *Ibid.*, p. 273.
- ³⁷ *Ibid.*, pp. 289-318.
- ³⁸ Clausewitz, pp. 83-142.
- ³⁹ *Ibid.*, pp. 145-204 (quotation p. 199).
- ⁴⁰ *Ibid.*, pp. 207-262.
- ⁴¹ *Ibid.*, pp. 265-693.
- ⁴² *Ibid.*, pp. 697-698 (quotation p. 698).
- ⁴³ *Ibid.*, pp. 698-701 (quotation p. 699).
- ⁴⁴ *Ibid.*, pp. 710-722 (quotation p. 720).
- ⁴⁵ *Ibid.*, pp. 725-779.
- ⁴⁶ Bassford, Christopher: John Keegan and the Grand Tradition of Trashing Clausewitz, *War and History*, November 1994, pp. 319-336.
- ⁴⁷ Quotation in Sun Tzu, p. 66; Chisolm, pp. 117-118.
- ⁴⁸ In one interview Gen. Deptula used this example.
- ⁴⁹ See further Brodie's commentary in *On War*, pp. 788-790.
- ⁵⁰ Clausewitz, pp. 308-309.
- ⁵¹ Machiavelli, p. 236.
- ⁵² Jomini, pp. 34-35.
- ⁵³ *Ibid.*, p. 70.
- ⁵⁴ *Ibid.*, pp. 85-88, 139, 178 (quotation p. 178).
- ⁵⁵ Perret, p. 64; Gilbert, pp. 50-52.
- ⁵⁶ Machiavelli, pp. 71-76; Gilbert, Felix: Machiavelli: *The Renaissance of the Art of War*, in: Paret, Peter: Paret, Peter (ed.): *Makers of Modern Strategy, From Machiavelli to the Nuclear Age*, Princeton University Press, 1986, p. 23; Jomini, pp. 47, 299; Clausewitz, pp. 145, 167, 199, 335.
- ⁵⁷ Sun Tzu, pp. 42-45.
- ⁵⁸ Jomini, pp. 2, 66-70, Clausewitz, p. 101.

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3. évfolyam 3. szám**

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- ⁵⁹ Meyer, Andrew/Wilson, Andrew R.: Sunzi Bingfa as History and Theory, in : Lee, Bradford A./Walling, Karl F. (eds.): Strategic Logic and Political Rationality: Essays in Honor of Michael I. Handel, Frank Cass, 2003, pp. 99, 116-117.
- ⁶⁰ Quotation in Clausewitz, p. 717.
- ⁶¹ Quotation in Air Force Operations Concept Aims at Success, Not Destruction, interview with Maj. Gen. Deptula, Internet, accessed 28. 03. 2003, available at <http://www.globalsecurity.org/wmd/library/news/iraq/2003/iraq-030321-usia14.htm>.