A Brief History of Wargaming

08 / 2019 – Albert Świdziński

From the German Kriegsspiel to the Contemporary Era of Great Power Competition.

Map of Poland and parts of the Baltic-Black Sea bridge (photo: Jacek Bartosiak)

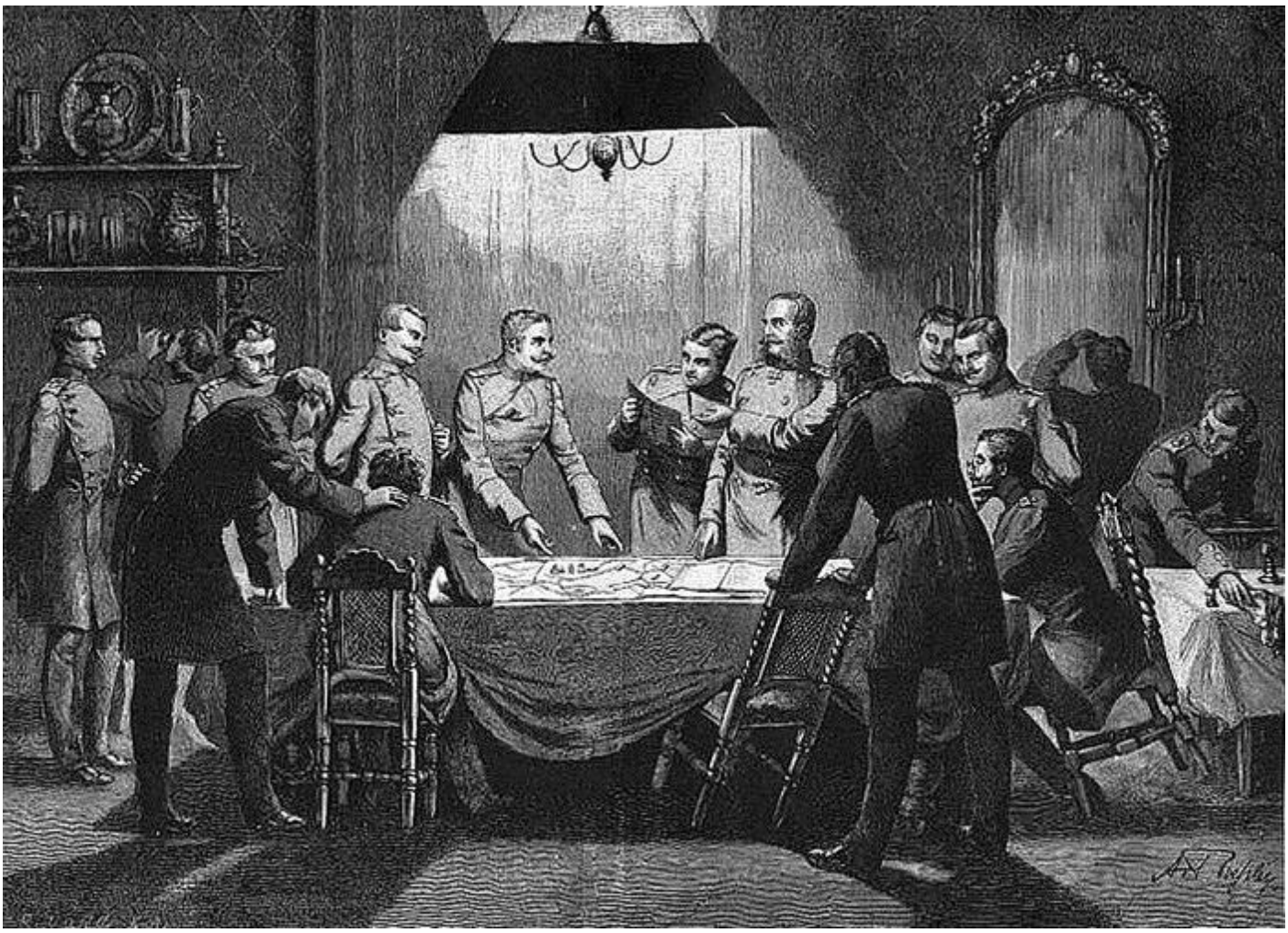
Since their inception in the early 19th century, modern wargames have been used by an ever increasing number of states, and have shaped the realities of countless armed conflicts. When applied correctly, they are often able to effectively and accurately predict the course of hostilities. Although played almost incessantly in military decision-making circles in the US, Russia or China, it perhaps began to seem to the broader public in the early 21st century that wargaming as an instrument meant to discover the evolving nature of future wars was no longer necessary. The unfolding era of great power competition in Eurasia is dramatically changing such perceptions. This essay aims to provide a very brief overview of the history of wargaming, starting with Kriegsspiel, and ending with the most advanced wargaming approaches of today.

The practice of conducting wargames is probably as old, or almost as old as war itself – after all, battleplans must have been laid by military commanders from the onset of organised warfare. While the origins of wargames can be traced both to strategic games like Chess, Chaturanga or Go, and to the 'sand tables' used by Roman commanders – in some ways the closest representation of the wargames of later centuries – the modern history of wargaming traces its roots back to the 19th century. Like so many other inventions and approaches pertaining to military doctrine, modern wargaming simulations have their roots in developments made in Prussia – once aptly described not as 'a State with an Army' but as 'an Army with a State'.

In roughly around the year 1812, a Prussian artillery officer by the name of Georg Leopold von Reisswitz developed what would later become known as the *Kriegsspiel*. In many aspects, his "*Instructions for the Representation of Tactical Maneuvers under the Guise of a Wargame*" is remarkably similar to the tabletop wargames of today. Von Reisswitz's Kriegsspiel was adversarial. It involved a scaled down map of the terrain on which engagements took place, including specific features affecting speed of movement; sets of figures representing the opposing forces; a rulebook (and an umpire to ensure its correct application); and of course the stochastic element – dice rolls to represent the element of chance – in other words, the Clausewitz friction. In the process of developing the game, von Reisswitz designated the friendly force with the colour blue, corresponding to the particular shade of Prussian military uniforms (the famed Prussian blue). This still seems to be the origin of designating friendly forces as blue within nearly all subsequent simulations (with the exception of the Soviets, who flipped the colour scheme and designated adversaries as blue and friendlies as red).

Von Reisswitz's idea almost immediately caught on within the ranks of Prussian military command – in 1824, the Chief of Prussian General Staff, Karl von Muffling, after taking part in a Kriegsspiel, famously exclaimed, "This is not a game, this is a war exercise!" Shortly afterwards, the game became practiced by broad circles of Prussian military cadre – for example Marshal von Moltke, a Kriegsspiel enthusiast who introduced wargaming to the Prussian War College as an element of the curriculum. This growing recognition of the potential that wargaming carried was crucial. A series of startling successes that the Prussian Army enjoyed, including swift victories against the Habsburgs in the Austro-Prussian War of 1866 and against the French in Franco-Prussian War of 1870-71, are attributed in part to the prolific use of table-top war games in training the Prussian military cadre. In the following years, von Reisswitz's son, Georg Heinrich Rudolf, updated his father's design by developing the Free Kriegsspiel. Unlike his father's version, which relied predominantly on a strict adherence to the rule book, making the game itself somewhat cumbersome, lengthy and complicated, this new version allowed for an increased role of adjudication by the umpire. On the one hand this allowed the game to flow more and increased its "playability", but the reliance on the umpire's judgement meant that their role became more consequential, thus making the accuracy of the simulation far more dependent on their experience and ability to correctly analyze the situation. This approach worked when a seasoned

cadre was available – but when it wasn't, the accuracy of simulations tended to drop significantly, at times producing misleading results.



Wood craving by Adalbert von Rößler, c.1884. Prussian Army officers during a kriegsspiel session

While the Prussians are credited with pioneering modern wargaming, other nations were quick to follow suit, and by the early 20th century the armed forces of multiple states were similarly engaged in wargames. In 1879, US Army Major W. R. Livermore published the "American Kriegsspiel", while around 1887 – a mere three years after its establishment – the US Naval War College started conducting their own naval wargames, initially mainly in order to model potential conflict with the British. By 1914, the NWC was engaged in modelling Pacific war scenarios against Japan, at the time a British ally – a priceless experience if ever there was one. Somewhat foreshadowing the future, while Livermore's efforts were downplayed by the Army top brass, the Navy took notice of the potential offered by Kriegsspiel, and continued to extensively engage in wargaming. The Imperial Russian Navy also began wargaming around that time. One such game, conducted in 1902, successfully predicted

the kind of maneuvering necessary to defeat Russian forces in a naval battle, such as pre-emptive attacks on Russian naval assets stationed in ports. The conclusions and analysis stemming from the wargame were largely ignored by the Russian high command – yet again underscoring the leitmotif of military wargaming – there is a necessity for a buy-in at senior levels. This lack of interest would soon prove fatal – the Russian Imperial Navy was unprepared for the 1904-05 Russo-Japanese War, notably the sudden attacks of the Japanese Navy on the Russian ships stationed in Port Arthur.

As in the case of the aforementioned conflicts, many of the strategies and doctrines characteristic to the First World War were developed in part as a result of wargaming. Field Marshal Alfred von Schlieffen for example developed his plan in the course of a number of wargames organised between 1890 and 1905. During the First World War itself, the Germans also roleplayed the "Peace Offensive" of 1918. In both cases, the war games turned out to be correct in some assumptions but failed to include political and diplomatic elements – in the case of the Schlieffen Plan, the reaction of the Belgian public and the blowing up of the train rails by civilians, and in the case of the Peace Offensive, the diplomatic reaction and sense of utmost urgency that the rapid German advances caused among the Entente command. The British also conducted at least one wargame prior to the beginning of the First World War, largely owing to the efforts of Spenser Wilkinson, the journalist-turned-Oxford military historian responsible for popularising wargaming in the United Kingdom in the late 19th and early 20th century. The British game, which focused on a potential Franco-German war, indicated that the Germans would likely manage to destroy the French army prior to the arrival of a British Expeditionary Force. This allowed the British to at least be cognisant of the threat, to reorganise their mobilisation plans, and to initiate informal talks with the French.

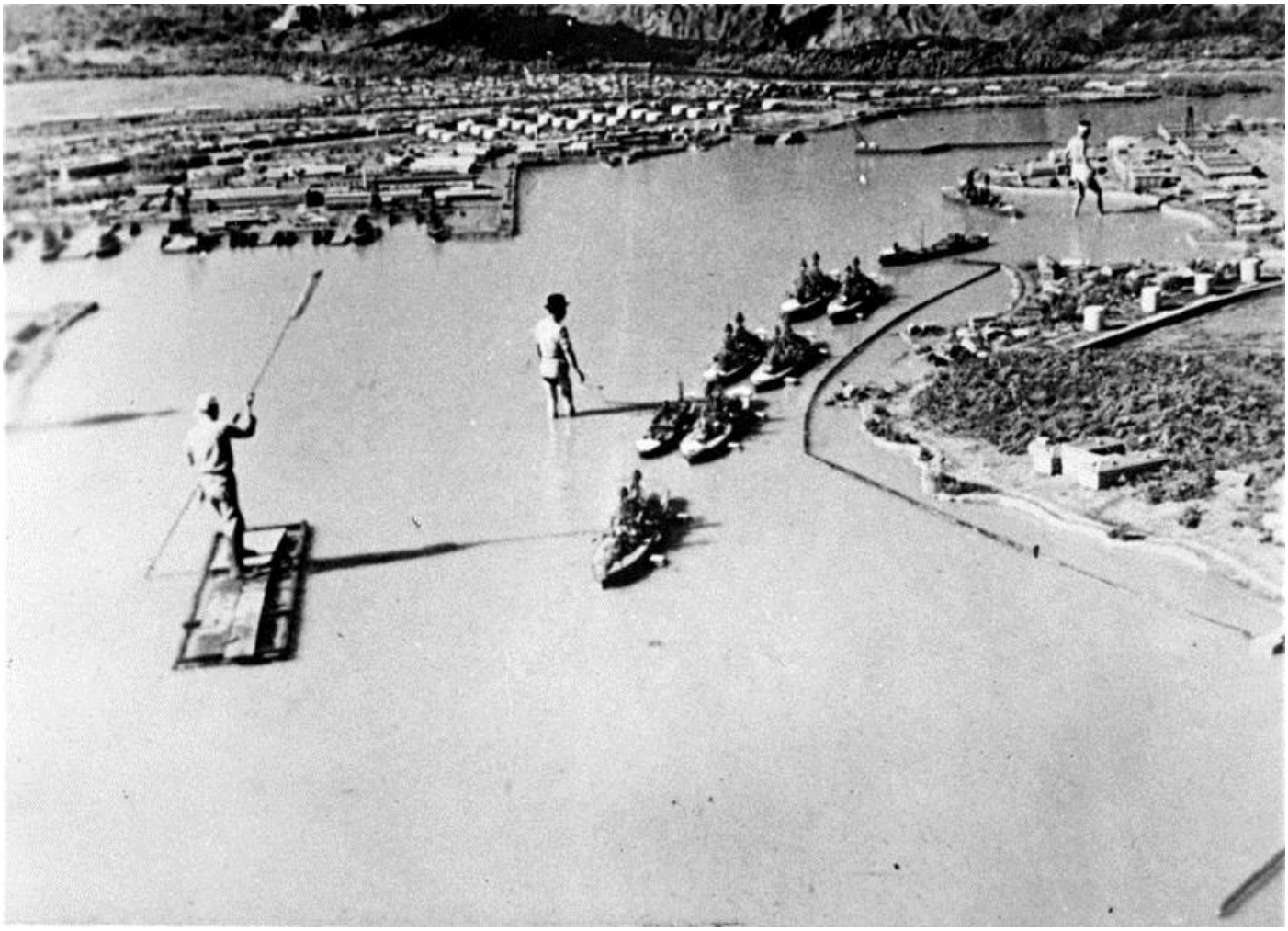
In the aftermath of the Great War, wargaming remained a significant part of the curriculum at military academies and amongst general staffs throughout the world. Wargaming in the interwar period was used so widely in order to help digest the immense changes in both doctrine and technology that the Great War had brought. From the role of submarines and sonars to aircraft carriers and tanks, wargames now offered help to their participants in coping with the high degree of contemporary technological and operational uncertainty that was beginning to unfold.

History does not repeat itself, but it does rhyme. Today, with history making a grand return – one that is also marked both by uncertainty and by the advent of new technologies and doctrines, from the Revolution in Military Affairs (RMA) and the growing A2/AD capabilities of the Eurasian land powers to the emergence of the new and important domain of electromagnetic/cyberwarfare and a host of phenomena under the umbrella term of hybrid warfare – the military and civilian community appears to be reacting by turning to wargames with an increased interest.

Almost all the major powers wargamed extensively during the interwar period – and the results of this were yet again clearly visible in the fast approaching Second World War. The Weimar Republic, and subsequently the Third Reich, was particularly active in this regard. The strict limitations placed upon Germany by the Treaty of Versailles meant that the German officers corps were ipso facto forced to train and develop strategies within the confines of headquarters, rather than on the training grounds. Wargaming therefore remained an important part of the curriculum of the Weimar Republic military, and to great effect. It was then that the skills of many brilliant German military commanders were honed – for example, a 1927 kriegsspiel organised by the Weimar Republic General Staff gathered the likes of Guderian, von Paulus, von Manstein, Kesserling and Donitz. And it's in the course of those wargames that the blitzkrieg strategy was created and perfected.

Sōryokusen Kenkyūjo (the Institute of Total War Studies), founded by the imperial government of Japan in 1940, wargamed a future conflict with the United States in the Pacific. On the one hand, this resulted in operations such as the successful attack on Pearl Harbor the following year. On the other, in a manner similar to the Russian wargames of 1902, the Japanese ignored and discarded simulations predicting the possibility of defeat at Midway, choosing to re-float sunken vessels and restart the exercise. [Such attitudes were mirrored by US Joint Forces Command decades later during the infamous Millennium Challenge 2002 exercise.] The US Naval War College on the other hand had wargamed Midway-like scenarios even before World War One, and those simulations paved the way to victory in that battle, and consequently to the victory in the Pacific War. "The war with Japan had been reenacted in the game room here by so many people and in so many different ways that nothing that happened during the war was a surprise – absolutely nothing except the Kamikaze tactics towards the end of the war; we had not visualized those" – said Admiral Chester W. Nimitz.

In the case of planning for the Pearl Harbor attack, the Japanese made a mistake similar to that made by the Germans during World War One – they successfully designed an effective battleplan, but failed to calculate the less tangible diplomatic and social consequences. They scored a sensational victory but did not manage to annihilate the US Navy to the point of no return, and furthermore, in the words of Admiral Yamamoto, they had "awakened a sleeping giant and filled him with a terrible resolve."



Japanese officers wargaming the Pearl Harbor attack (official US Navy photo)

The Second World War ushered in a major development that deeply affected the future of wargaming – the inclusion of the scientific community into the war effort. This resulted, among many other developments, in the use of computers within the US Armed Forces. In the aftermath of WWII, however, especially in the years immediately following its conclusion, interest in wargaming atrophied – particularly in the West. This was caused firstly by demobilisation, with scores of officers adept in wargaming leaving the force; also, by the short-lived initial belief that the Soviets were the West's allies, and not mortal enemies; and, last but not least, by the onset of the nuclear era that soon followed. This perception changed with the onset of the Korean War, when it became clear that conventional warfare was not a thing of the past.

During the 1950s, two historic developments in wargaming took place. One was the emergence of computer-assisted and fully computerised simulations (mentioned previously), and the other was the beginning of commercial, civilian wargaming. Utilising computers in order to assist simulations allowed for reduced costs, both in monetary terms and in man-power, with calculations of attrition and movement being done almost immediately. It also enabled participants to better visualise the games themselves. One of the first computerised wargames was developed in 1958, when the Navy Electronic Warfare Simulator (NEWS), developed by the US Navy, became operational. 1958 is significant in the history of wargaming for one more reason – it is also the year in which Charles S. Roberts founded the Avalon Hill Games company, which became a prolific designer of civilian tabletop board wargames in the decades to come, contributing to the increased exposure of the general public to wargaming and also to the development of the hex grid (superimposing a net of regular hexagons over the map) as a means of tracking movement and managing spatial relationships within the game. The advantage of using hexagons, rather than for example squares (as was the case in many previous board wargames) is that the distance between the center of one cell and the center points of all the other adjacent cells is the same; this is not the case for square cells, where the centers of the adjacent diagonal cells are further away.

Hex-grid was first used in the 1961 re-edition of the Gettysburg board game, and soon found its way into the fledgling world of early computer simulations. George Friedman, based on his experience with the Avalon Hill Games company, proposed using a hex grid for DoD computerized simulations, starting with a program developed by the Institute of Defense Analyses, called IDA-HEX. IDA-HEX was an early attempt at a fully computerised simulation software. Like many other computerised wargames of the time (such as the 1970s IDA-TACWAR and IDA-GAM), it was a black-box style program – sets of data were fed into the system, which then simulated the course and the result of an entire game, without any further input from players. In the following decades, all three branches of the US Armed Forces continued their usage of wargames – albeit to a varying degree. Like before, the US Navy led the way, with the Naval War College offering courses in wargaming from 1960 onwards. The Navy also developed a number of computerised and manual wargames during this time, with games such as WARS (Warfare Analysis and Research System), a manual game called Sea Control Tactical Analysis Game (SEATAG) and its computerised version, NAVTAG. Finally, the Navy fielded a WARS replacement called Naval War Game System or NWGS. Each of the systems roughly doubled the computing power of the previous one. Meanwhile the Air Force developed its own wargaming system called the “Big Stick” in the 1960s, while the Army came up first with the ATLAS model in the same decade, and with the CEM (Concepts Evaluation Model), a theater-level computerised simulation model of both air and ground operations, in the 1970s.

Unlike their military counterparts developed by IDA or RAND, which were predominantly interested in modelling future conflicts or operations research, Avalon Hill Games focused on historical

engagements (Gettysburg, Afrika Korps, Battle of the Bulge, Midway, etc.), allowing gamers to re-play famous battles – very much like the Prussian Army did with their Kriegsspiel. From the early 1960s until the 1980s, Avalon Hill, and later 'Simulations Publications, Inc.' (SPI), another board game publisher, produced games which became widely popular with the American public, selling hundreds of thousands of copies a year. At the same time, commercial wargaming contributed to more than just providing the idea of the hex grid. There are at least two known and significant cases where commercial wargames were used by the military. The first is Fire fight, a board wargame developed in 1974 and (after some changes had been implemented) officially adopted by the US Army. A more highly-publicised instance of the military using commercial wargames is Gulf Strike, released in 1983, which depicted a hypothetical conflict in the Persian Gulf and was based on the Iran-Iraq War. Its developer, Mark Herman, was contacted by representatives of the Joint Staff sometime before or during Iraq's invasion of Kuwait in 1990. Within a day he had modified the existing game, and immediately afterwards, both Army and Joint Staff planners were conducting simulations using the modified Gulf Strike – moreover, simulations made using the manual board game ended up predicting the course of hostilities with a high degree of accuracy.

While the commercial market for manual wargames has been in steady decline since the 1980s, the market for computerised simulations – computer games – has increased. Here, the more serious wargames are usually represented by grand strategy and real-time strategy games (RTS). Around the year 2000, the US Department of Defense introduced the JWARS (short for Joint Warfare System) system, a campaign-level computerised model of military operations. Nevertheless it does appear that the first decade of the 21st century was a period of decreased interest in military wargaming – at least in analytical, adversarial wargames. Projects such as DARWARS, SIMNET and Marine Doom, which are used for honing individual soldier skills, flight simulators etc., were and are still being extensively developed and applied.

Recently however, with growing tensions between the world's major powers, there is an uptick in the interest in wargames. In 2013, the then US Deputy Secretary of Defense, Robert Work, issued a memorandum which underscored the need for renewed interest in wargames. "I am concerned," he said, "that the Department's ability to test concepts, capabilities, and plans using simulation and other techniques—otherwise known as wargaming—has atrophied", while US Secretary of Defense Chuck Hagel in his 2015 memo underscored the need for "a reinvigorated wargaming effort [that] will develop and test alternative ways of achieving our strategic objectives and help us think more clearly about the future security environment." In keeping with this approach, the US DoD requested an additional $55 million specifically for wargaming.

Similar views are also expressed by other organizations – as recently as 2017, the British Royal Navy introduced a program of "reinvigorating" the tradition of conducting wargames. As part of this revitalisation, Project Proteus, an advanced, highly complex training system was developed by the RN. More interestingly however, the RN also developed the Wargame in a box, essentially a basic manual wargame, which was sent to Naval assets to be used – but was largely ignored. In the same vein, in 2016, the Royal Military Academy Sandhurst has reintroduced manual wargaming into the curriculum.

(Source: US Army photo)

The professional wargaming of various scenarios in three pivotal areas of high geopolitical importance to the world (the Western Pacific; the Persian Gulf; and Central and Eastern Europe, sandwiched between the Baltic and Black Seas), both table-top and computer-assisted, is therefore on the rise – and not only among governmental agencies and the military. They have been extensively played by the think-tankers and strategic circles in various countries, including Poland. Just recently, in 2019, it was rumoured that a table-top game (a modified civilian market game) simulating global conflict was being played by the US Marine Corps.

It is therefore clear that the use of wargaming will continue, both in the public and private sectors. Aided by modern technological advancements, such as holographic technology and virtual or augmented reality equipment, wargaming is slated to remain a valid tool for military-professional and civilian analysts for years to come. The discussion regarding the future of wargaming, as well as how it should be adapted to the increasingly complex reality of the 21st century is essential. To quote

Matthew Caffrey, *"just as astronomers needed to look at all the data on the past locations of planets before the true nature of the solar system could be discovered, so we must look at all the impacts on, and of, wargaming. When we look at its entire history the conclusion that wargaming can provide an invaluable edge is undeniable. From the battlefields of Europe to the Sands of Iwo Jima to the skies over Vietnam, wargaming repeatedly provided insights that often proved decisive. However, history also shows that wargames have at times misled their users with disastrous results. A balanced assessment needs to look at the good and the bad (…) and if there is a pattern to the bad outcomes perhaps we can devise a strategy to eliminate or at least minimize them."*

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