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Beating a Dead Horse: How Institutions Perpetuate Concepts Into Irrelevance

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Military institutions attempt to preserve and replicate past practices at the expense of innovation. Here, I present two cases during the Interwar Period that demonstrate military institutions' bias towards incremental change and reprehension of change that makes them question their existing identity, beliefs and paradigm. The case studies describe opposing philosophies of General George Patton and Brigadier General Billy Mitchell after World War I. One perpetuated outdated traditions and service identity while the other struggled to prove the efficacy of air power. These cases show the need for military institutions to reconceptualise innovation, emphasising the need to transcend institutional paradigms and encourage creative thinking to address evolving threats effectively. It calls for a shift in military culture that values imagination over adherence to outdated norms to navigate the complexities of modern warfare. Above all, we need to honestly consider the institutional delay in appreciating mavericks until well after the damage is done, and our historical amnesia in sweeping certain institutionally forced errors such as horse cavalry charges under the rug.

1. Introduction

Modern warfare, largely executed in the last three centuries in a Westphalian, nation-state versus nation-state or aligned non-state actor context, renders conflict differently than it was previously considered. The modern war paradigm draws extensively from a scientific framing where the intuitiveness of ancient heroic warriors is tempered with inductive logic, empirical testing of a hypothesis, and an incremental, ordered reality (Jullien, 2004, pp. 1–12). Imagination remains a key aspect of modern warfare, but often it is relegated to a secondary or spontaneous, magical quality reserved for the 'geniuses' that Clausewitz argued could ignore the orthodoxy of warfare that all others must follow. Clausewitz, drawing from German Romanticism of what was a nineteenth-century genius cult movement, sought to restore some of the metaphysical into what in the preceding few centuries had been rendered mechanistic and near completely Newtonian (Protzen & Harris, 2010, p. 123).

To this day, Clausewitz's maxims on 'genius in war' remain largely accepted in modern military theory and education. Genius simply emerges and might break all rules, change the course of history, and institutional attempts to imitate, mass-produce, or reapply traditionally successful processes of past geniuses toward future wars are entirely wrongheaded (Fuller, 1925, pp. 100–102, 127–128). The genius leader innovates, and then the rest of the profession study the results and adapt to the novelty. While this is the dominant position across the U.S. Department of Defense and writ large across most of the western, industrialised

world, it also marginalises (or mystifies) how innovation actually occurs.

This paper is part three of a four-part series. The first two papers explored how and why militaries stifle new ideas (Zweibelson, 2024b) and how militaries are inhibitive of innovation especially in new domains such as cyberspace, cis-lunar, quantum, artificial intelligence (AI) and other emerging warfighting domains (Zweibelson, 2024a). Here, I will discuss the struggles of innovators and how institutions perpetuate outdated traditions, rituals and service identity.

2. Finding comfort in status quo and incremental innovation

Innovation in security affairs, just as in any other human activity, is an emergent, non-linear, and most often an institutionally critical act of creative destruction. Pragmatic reasoning and orderly extensions of current practices into new, improved ones only occur in stable systems where tomorrow unfolds in the same manner as yesterday. In complex reality, such patterns clearly exist and often are found in reliable patterns of conformity, order and predictive behaviours that do include conflict and organised violence between different groups of people. If pragmatic reasoning and problem-solving mindsets, which rely upon historically and culturally sanctioned tools, are the preservation mechanisms of institutions, they operate in paradox to the innovators that thrive in the margins of institutional power and reach (Durand & Vergne, 2012). Pragmatic strategy and correlating warfare into 'theory for action' projects the modern scientific interpretation of far earlier ancient Greek

natural philosophy¹ and operates only within the institutionalised limits of knowledge, historic experiences, shared values and the overarching belief system that governs the social paradigm in operation. Rapoport explains this mindset with:

The pragmatic orientation is the problem-solving orientation. When the existing state of affairs does not correspond to a desired state of affairs, the problem-solving attitude turns attention to the concrete nature of the discrepancy. To formulate a problem means to spell out in concrete terms – that is, in terms that can be related to concrete observations – just what it is about the existing state of affairs that distinguishes it from the desired state. One then scans one's memory or experience or store of knowledge to see whether means are available to remove undesirable features or to add desirable ones to what is given. If these deletions or additions can be accompanied by manipulating matter, one resorts to technological solutions. If changes are required in relations among people, solutions can be sought in the realm of politics. One takes account of where one is and at each step decides where one wants to be next, given the constraints of the situation and the means at one's disposal. The past is examined only to see which means have worked and which have not in (presumably) similar situations. The horizon of the future is limited by how much can be expected to be accomplished starting from where one is (Rapoport, 1995, p. 237).

Such thinking does extend the historically useful into tomorrow's emerging requirements, but often at the risk of adversarial innovation occurring in parallel to our own institutional blinders. This conceptualisation of innovation is one that is 'a simplified image of the nineteenth-century ideal of the mechanics of progress', where the institutional frame that functioned yesterday should continue to work with tomorrow's challenges within this reverse-engineered framework of pragmatic orientation and 'known solution paired to seemingly distinguishable new problem' formulation (Protzen & Harris, 2010, p. 53). Rittel explains this as 'evolutionary innovation' which modifies existing devices and patterns, 'improves them from a certain aspect but leaves the rest unchanged' (Protzen & Harris, 2010, p. 54). In other words, one may choose any crayon to colour the picture, but the institution produces the preconfigured drawings, and organisational compliance limits creativity to new colour combinations within the lines. This permits incremental innovation recognisable and complicit to all institutional norms and beliefs, while rendering any radical transformations or disruptions all but impossible. Shimon Naveh, the founder of the modern military design movement, remarked that military institutions are more like religious organisations than the scientific ones they imitate, including how they establish doctrine that codifies behaviour toward institutionalised beliefs and away from any formal ability to think divergently or creatively. 'Just as liter-

acy facilitates bureaucratic, administrative centralization, it also makes possible the codification and logical centralization of doctrine' (Naveh et al., 2009, p. 23). One can be clever in war, but only so long as one remains within the guardrails of all indoctrinated beliefs and practices.

Thus, heretics are cast out, and visionaries remain in the margins if they generate the alien and unfamiliar. Above all else, all future artworks might be realised in myriad colourful outcomes, but all will be firmly within the preconfigured lines. We tend not to be able to shift outside of our institutionalised limits because we are unwittingly operating our shared paradigms collectively, just as when a person might be searching for their glasses all over the house but suddenly realises they have been there on their face the entire time. Paradigms are structured to preserve the infallibility of their authority for making sense of reality so that institutionally shared beliefs, values and identity are maintained and protected. This means it is exceptionally hard to realise one's own paradigm in operation, tougher still to venture beyond those paradigmatic limits, and near impossible to appreciate reality using an alternative paradigm and to bring those new perspectives back into the institutional sanctum freely or easily (Gioia & Pitre, 1990; Lewis & Kelemen, 2002; Weaver & Gioia, 1994).

Often, when groups operate under alternative social paradigms they are in conflict, they shout past one another not because of different words being used, but that they use different dictionaries for the same words. The different dictionaries render entirely incommensurate comprehensions of the same reality. Thus, one can comfortably insist that all future military strategic innovation must begin at the pragmatically grounded, institutionally understood baseline that defines the current legacy system and is encoded by the operational paradigm our group espouses. Francois Jullien provides a compelling juxtaposition of ancient Chinese and European or Western war paradigms with:

In Europe, the next historical period that reinforced the autonomy of the subject was the Renaissance, when, particularly in Machiavelli's works, the autonomy of the subject received a considerable boost. Machiavelli no longer believed that the ideal for action was to be discovered by contemplation of the order of things ... Instead, a Machiavellian subject was bent on making his mark on the world by imposing his own order. In the face of the caprices of fortune, Machiavellian *virtù* was an ability to confront a situation, however risky, and impose upon it a form that suited his own plans. Finally, with Clausewitz, when post-Kantism moved beyond morality, that affirmation of a subject confronting a situation boiled down to willpower. 'Resistance', according to Clausewitz, is the product of two combined factors: the extent of one's means (material forces) and 'strength of will' ... Only through willpower can he subdue the doubts that are bound to arise on account of the slowness and difficulty of 'execution' and do away with all 'friction' (Jullien, 2004, pp. 185–186).

¹ Heroic individual and action to achieve preconceived future goal.

Jullien then explains Ancient Chinese thought which never explored or explained what individual will was, other than it was 'sought to postulate God' (Jullien, 2004, p. 186). Feudal China 'never tried to think through human person-ality by isolating and abstracting it from a situation in order to set it up as a subject (of action)' (Jullien, 2004, p. 186). Ancient Greek generals through feudal knights would seek glory in battle with victorious outcomes that they willed into reality through individual action, while ancient Chinese generals were men without such qualities. We might also compare and contrast the modern Westphalian war paradigms with a Marxist or socialist paradigm such as how the Soviet Union and the United States stood in stark opposition through most of the twentieth century during a 'Cold War' that reflected two strikingly different outlooks on their conflict. How humanity ought to resolve their conflict, and why one side should be victorious over the other. Different war paradigms stand not just in opposition to one another, but they act internally upon their users to enforce conformity and obedience, particularly at the expense of thinking 'outside of the box' where such activities threaten the stability and order of the war paradigm itself.

Orthodoxy and convergence to institutional norms will stamp out the 'flights of fancy and overactive imaginations that make theory useless as a guide to practice', but such a warfighting mindset kills initiative and improvisation when it crosses what the institution declares as 'useful practice' (Sheldon & Gray, 2011, p. 14). There is an institutional assumption that discipline cannot coexist with creativity (Mrazek, 1968, p. 5), and if such divergent thinking might be needed, it ought to be allowed only in safe contexts pursued by senior leaders who magically become qualified to think differently once reaching a particular rank or status. Frequently, those few able to reach high positions and charged with steering the intellectual direction of a Service are already entirely conditioned or compromised. Mrazek biting offers, '[a]lthough few of them will admit it, military leaders are unwary victims and willing purveyors of archaic and intellectually stultifying military dogma that kills the very initiative they praise so highly' (Mrazek, 1968, p. 7). Thus, we tend to bring things into the future war that were useful or cherished in past wars, regardless of whether such ideas and things might now be irrelevant or obsolete.

3. Case 1: Outdated traditions and service identity

For thousands of years, cavalry horse charges were quite useful practice and advocated by institutions well into the Interwar Period between the two World Wars. Even General George Patton would, in 1930 as a major and the former commander of the U.S. tank school in World War I, author articles in the *Cavalry Journal* in defence of horse cavalry as superior to armoured tanks (Hoffman, 2009, p. 54; Patton, 1930). Granted, Patton is considered a creative giant in terms of his entire career, yet in this example during the Interwar Period, his published ideas suggest that even he fell victim to the institutional pull of tradition, rituals and service identity over all else. As an example of the earlier observation that institutional opaqueness and paradigm in-

commensurability might conflate military history with that of heritage, Major Patton would argue on behalf of the proud, historic institution of Army horse cavalry units with:

A third limitation is that imposed by natural and artificial features of the terrain. Obstacles that appear trifling to a well-mounted Cavalryman often put a serious handicap upon machines ... In rough going, the wheeled machine has less mobility than the Cavalryman, and its weapons are almost useless because the gunners cannot take good aim. In close country where the machine has to stick to roads, its value as a fighting vehicle is materially reduced. The present Cavalry weapons, if resolutely and resourcefully used, are sufficient to neutralize wheeled vehicles on the roads (Patton & Benson, 1930, p. 236).

Patton would also, from the institutionally protective stance of a horse cavalry officer in 1930, not just articulate the future warfare continued relevance of horse cavalrymen on battlefields against mechanised tanks, but also competing against aviation. Still in the Interwar Period, where militaries faced profound uncertainty in how the next war might unfold, Patton held to the pragmatic orientation that Rapoport (1995) explained earlier, 'only to see which means have worked and which have not in (presumably) similar situations'. Patton, seeking a rational extension of horse cavalry and his own skills and mastery of this manner of warfare, argues that future wars will still have the horse cavalryman necessary to accurately provide reconnaissance on the ground that aviation will not be able to produce:

The ability of the airplane to execute strategic reconnaissance irrespective of the activities of ground troops has to a degree deprived counter-reconnaissance [using horse cavalry forces] of its strategic importance; still as we have seen the airplane does not secure sufficient details even to wholly fulfil this mission. Since these missing facts must be obtained by ground troops and since they alone are capable of tactical reconnaissance, the necessity for counter-reconnaissance [using horse cavalry forces] is still important (Patton, 1930, p. 339).

In fairness, Major Patton might have had some plausible points in 1930, but in the broader flow of where future warfare was rushing toward, he was in this case dreadfully outdated and still adherent to institutional desires to extend cavalry identity and purpose well beyond relevance. He took less risk by promoting what was 'known for thousands of years of historical precedent' and 'proven in battle' and dismissed 'new theories with thin or flimsy proof of value' as advocates of the institution perpetually yelp over. General Patton would of course go on to fame and glory as 'Old Blood and Guts', the charismatic and aggressive commander of the Seventh Army in the Mediterranean Theatre and then the Third Army after the Allied invasion of Normandy. He would command continental forces where horse cavalry would no longer exist, nor would there be much of a need for horse-led sabre attacks using the Model 1913 cavalry saber he invented for traditional hand-to-hand warfare that defined centuries of earlier conflicts. Indeed, despite his early thinking on horse cavalry in the 1930s, Patton

would later embrace mechanised armour and aviation once the German Army invaded Poland in September 1939. Yet he would only adapt these things on the backs of those willing to risk creativity in the earlier periods where such ideas were unproven, fantastic or of ‘science fiction and fantasy’.

A cavalry officer steeped in the heritage of his unit’s form and function, Patton would unwittingly conceptualise ‘how the future ought to be’ not by remembering the past to imagining novel futures, but by imagining the past so that military identity (heritage, beliefs, purpose) would unfold as one can remember it so (Weick, 2006).² Patton is certainly one of a multitude of prominent military leaders and strategists that tilted toward a pragmatic, somewhat institutionally self-serving, but relatively common bias of preparing for future wars by studying past ones to glean enduring or stable concepts. Indeed, as late as 1938, the last chief of cavalry in the U.S. fiercely defended the notion of independent horse mounted cavalry troops just as Patton did and would vigorously object to the mechanisation of cavalry forces. They made these arguments even after the German blitzkrieg in Poland and France (Jarymowycz, 2001, p. 68). Often, such instances only become illuminated in hindsight, further troubling military theorists seeking innovation, change and improvisation upon earlier yet not necessarily causal forms in war (Weick, 1998).³ Again, Patton’s military excellence is not under question here. His arguments during the Interwar Period were one of many different perspectives. In isolation, his efforts to extend horse cavalry usage into the next war offer important framing for how easy it is to cheer for the institution, perhaps unwittingly and with great enthusiasm and vigour.

4. Case 2: The rise of air power

It would be unfair to critique the efforts of military strategists such as General Patton for failing to anticipate how much the next war would differ from the last without considering what happened to those innovators that could pierce through the clouds and fog. Brigadier General William Lendrum ‘Billy’ Mitchell, also a World War I veteran and hero like Patton, would anticipate the rise of air power, and fight his institution throughout the Interwar Period. His fight would result not in his ascension in power and influence, but in his court martial and forced retirement. Patton’s experiences in the Interwar Period differed strongly with Mitchell’s, and some must be in part to how modern military institutions deal with thinkers who advo-

cate incremental change and those who threaten to blow up the entire system to redesign anew.

Patton would go on to command at the highest levels in the next war, while Mitchell (in forced retirement) would continue to write about air power until he died in 1936 of a heart attack. In 1941, the Army named the B-25 medium bomber after Mitchell, acknowledging the intellectual debt the military institution owed the man and his ability to see much further than his peers. Mitchell, despite being a visionary, would be frustrated with fighting the institution to move quickly, often failing to convince the bureaucracy of the needed transformation. Similar to Patton in audaciousness, Mitchell would routinely get into trouble because of outrageous public comments. Unlike Patton in the Interwar Period, Mitchell sought not to preserve the legacy system for tomorrow’s war, but usher in a radically different future force detached from historic norms and established practices.

Traveling home on the Cunard liner *Aquitania* after World War I and his audience with King George V after being awarded the Croix de Guerre by France, he told passengers and the media that ‘the [American Army] General Staff knows as much about the air as a hog does about skating’ (Correll, 2021). Mitchell, despite working under a Director of the Air Service who was a career artillery officer and had never once flown in an airplane, would attempt to drag the American Army and Navy into the future by demonstrating how air power would, in fantastic and almost unimaginable ways, destroy the existing military order. Mitchell had no crystal ball yet was uniquely positioned and skilled to anticipate radical changes in war that would be highly unpalatable to the existing institutions mired to historically validated yet increasingly disrupted war systems, techniques and doctrines.

First, he targeted the Navy’s most important weapon system and symbol of modern naval power, the battleship.⁴ The battleship presents both a historically significant and a centuries-old naval symbol of service heritage that would generate powerful institutional beliefs and assumptions about maritime warfare past, and how emergent and future war ought to unfold. Second, Mitchell would disrupt the Naval institution by introducing emergent theory that had not yet demonstrated any conclusive ‘proof’, of which such evidence would require significant change and uncertainty for future paths.

In the Interwar Period, Mitchell argued that battleships were too slow, too expensive, and unable to keep pace with

2 Weick would use the term ‘imagining the past to remember the future’ to invert the traditional, functionalist framework of ‘remembering the past to imagine the future’.

3 Weick’s treatment of improvisation offers multiple examples of this. Additionally, his studies of the Mann Gulch firefighting disaster and NASA shuttle losses provide additional study of how improvisation is an overlooked and undervalued component of breaking out of institutionalised practices.

4 Students of history may know that Mitchell, in the last year of World War I, created a plan to drop thousands of infantry soldiers and machine guns behind German lines. Approved to begin preparations, the Germans would surrender before his idea of paratroop operations could mature. Later while he was sent to Japan, he crafted a 350-page report to the Navy that detailed an eerily accurate prediction of the Pearl Harbor attack.

the increased precision and lethality of airplanes. As the Army's responsibility was bounded by the edge of continents, coastal defence as a service mission was traditionally that of the Navy. Mitchell argued the Air Service should take over and secure the budget for this too (Correll, 2021). He wanted to demonstrate that not only could airplanes be flung off flat deck ships, to later be named aircraft carriers, and could rapidly reach and strike any adversarial naval threat, but a battleship itself could be destroyed by aircraft dropping lethal ordnance. Airplanes striking a battleship would make the massive and expensive platform extinct. Admiral William Benson, Chief of Naval Operations in 1919, fought Mitchell's experimental attempts while also secretly trying to purge the Navy of their entire aviation division. He famously stated that he could not 'conceive of any use that the fleet will ever have for aircraft', and that 'the Navy doesn't need airplanes. Aviation is just a lot of noise' (Correll, 2021). Mitchell would announce a demonstration of how a modern airplane could sink a battleship, which would further enrage some of the Navy leadership.

In 1920, as Mitchell was preparing and announcing to the media that a demonstration would be made of air power supremacy over battleships, the Navy arranged their own test. This test appeared to be prepared so that the institution could pragmatically defend existing beliefs about how the future war should extend existing strategies, beliefs and historically 'proven' truths about maritime warfare. Returning to Rapoport, 'if changes are required in relations among people, solutions can be sought in the realm of politics'. The Navy would allegedly prepare the test to fail, and despite the ship being sunk by multiple airplane hits, the Navy would not promote the results and attempt to mask the effectiveness of air power by using dummy bombs filled with sand (Correll, 2021). Rapoport's statement that 'One takes account of where one is and at each step decides where one wants to be next, given the constraints of the situation and the means at one's disposal' applies in how the Navy did not want to consider the fantastic disruption that a future war might bring, if it meant disrupting so many contemporary and cherished symbols, routines, doctrine and honed skills. Like Patton and the horse cavalry, they wanted the next war to retain sabre-waving charges despite the emerging reality that such things would be suicidal.

Mitchell would prepare a joint test between the Army and Navy, with Secretary of the Navy Josephus Daniels declaring in response, 'I would be glad to stand bareheaded on the deck or at the wheel of any battleship while Mitchell tried to take a crack at me from the air. If he ever tries to aim bombs on the decks of naval vessels, he will be blown to atoms long before he gets close enough to drop salt on the tail of the Navy' (Correll, 2021). The Navy set the rules for the test and attempted to make them as difficult as possible to prevent Mitchell from threatening the endur-

ing supremacy of the battleship. No aerial torpedoes were allowed, and the planes would be allowed only two hits to sink a ship. Mitchell had special 2,000-pound bombs made for the test, as the largest in aviation inventory at the time were insufficient to sink a battleship.⁵ A week before the test, Mitchell's own director would, under pressure from the Navy, try to fire him. Despite all of this, Mitchell would endure and conduct the test, causing significant military and media attention to cover the contentious exercise.

The Navy prepared the captured German battleship *Ostfriesland*, which was engineered to be nearly unsinkable and took 18 hits from British battleships in World War I, to be the main target. Naval officers knowledgeable about the ship's design told *The New York Times* that 'the fliers will never sink the *Ostfriesland* at all' (Correll, 2021). While the Navy rejoiced at the first two days of experiments using smaller bombs that did not sink the ship, on the third and final day of the exercise, Mitchell ordered the 2,000-lb bombs to be used in near-miss bombings that would 'form a water hammer' and disrupt multiple sealed compartments on the ship. Six bombs broadsided the ship and, on 21 July 1921, after 22 minutes the battleship sunk, shocking the Naval officers witnessing the demonstration. Still, the Navy institution would fight back in the early 1920s postwar period, continuing to declare that aviation might supplement naval power, but never replace it:

'The battleship is still the backbone of the fleet and the bulwark of the nation's sea defense, and will remain so long as the safe navigation of the sea for purposes of trade or transportation is vital to success in war,' said the Joint Army and Navy Board report on bombing tests, made public Aug. 19 and reported in *The New York Times*. 'The airplane, like the submarine, destroyer, and mine has added to the dangers to which battleships are exposed, but has not made the battleship obsolete' (Correll, 2021).

The battleship would not be obsolete, yet. The Navy would use them extensively in World War II and beyond, with the final combat application being in naval fire support during the First Gulf War by American Forces in 1991. Yet the symbolic supremacy of the battleship ended with the Mitchell demonstration, as the aircraft carrier would prove decisive in naval combat in World War II, along with air power unlike previous warfare. Once more, military institutions would attempt to extend obsolete or outdated beliefs into future wars using the same pragmatic orientation where known solutions are paired with emerging problems in an effort to retain symbols, artefacts and patterns of behaviours that often are nested in deep, institutionalised belief systems, doctrine, military practices and organisational identity. Cold War theorist Carl Builder (1989) would critique modern military services as institutionally grounded in their own ritualised narratives stemming from a 'golden era' World War II orientation that would extend many

⁵ The largest bombs in the Air Service inventory at that time were limited to 1,100lbs.

decades later. Indeed, RAND Corporation (a nonprofit think tank) would revisit Builder's original premise in 2019, maintaining most of his original findings where military services seek to win the next war entirely via institutionally self-relevant beliefs and values established in previous conflicts (Zimmerman et al., 2019).

5. Conclusion

As fantastic as the aircraft carrier was for the Interwar Period strategic theorists' conundrum to prepare and equip for the next war, today's carrier group is facing a similar potential elimination in 21st century wars. Hypersonic missiles, swarms of drones, and artificial intelligence capable of synchronising actions faster than any contingent of human sailors can are disrupting the pragmatic, ordered war paradigm with the fantastic and unimagined (Axe, 2023; Farley, 2022a, 2022b; Giri, 2022). Yet military recruitment, training, education and promotion processes continue to cultivate convergent thinkers, institutionally sanctioned and obedient to the legacy system, which prevents anything new from being explored without placing oneself in great peril. Further, as Mrazek illustrates, highly creative people including great military innovators are well known non-conformists or divergent thinkers, or were outsiders who 'simply don't go along with the crowd' (Mrazek, 1968, p. 135). These free-thinking mavericks often resent the pressures of a society, institution or system that desires such conformity, and thus vital talent is quickly driven out of the military along with any chance of retaining different ideas and perspectives. Unlike how Hollywood likes to depict military 'mavericks', they often have short and frustrated careers, frequently cast out or ostracised until later recognized for their penetrating ideas (Zweibelson, 2023, pp. 112–130, 233–235, 321–324).

Militaries need to reconceptualise how innovation occurs and implement an organisational awareness of this within their cultures and patterns of behaviour. For this to happen, the military institution must not only adjust decision-making methodologies and doctrinal terminology, and examine preferred military theories and philosophies. The entire war paradigm must be clearly and excruciatingly examined so that the legacy mode of strategic thinking and organisational management of organised violence be clarified in no uncertainty. The earlier dominant position artic-

ulated by Sheldon and Gray (2011) must be inverted. Flights of fancy and overactive imaginations are what generate not useless theory as a guide to legacy practices but useful and novel theory *as a guide to necessary future opportunities* otherwise outside the imposed institutional limits of the existing war paradigm (Sheldon & Gray, 2011). To explore beyond our paradigmatic limits, we first must admit that all social paradigms are incomplete with respect to complex reality, and that no matter how insistent our own paradigm might appear, any progress toward change and innovation lies not within those limits, but beyond them (Gioia & Pitre, 1990; Schultz & Hatch, 1996).

For space power, cyber power, all-domain warfare, irregular warfare, and in emerging areas such as quantum, artificial intelligence and human-machine teaming, the intellectual guardians might declare science fiction and overactive imaginations off-limits, but they are the guardians of yesterday's institutional relevance and identity. The innovators, provocateurs, heretics and improvisers who can imagine and anticipate what most guardians are indeed ignorant of can usher in necessary change ahead of rivals and competitors. Such a military 'pagan' can disrupt, challenge and shatter the existing institution through ways that likely seem alien, ironic or perplexing to those of the orthodoxy attempting to silence such radical suggestions (Lyotard, 1995, p. xv; Naveh et al., 2009, p. 26). It is not the worst excesses of innovators that militaries must fear but the worst excesses of intellectual guardians fixated on preserving the existing, legacy war paradigm at all costs. Both groups are difficult to identify in the swirling, emergent landscapes of the present, but often those that decry horse cavalry charges or insist on standing bareheaded on battleship decks will persist in our military institutions, ready to fall on their cavalry swords to protect the next artefacts, symbols, beliefs or theories of war that they believe must remain unmolested. Indeed, such arguments are always couched in the language of pragmatic realism and historic ritualisation that provides military identity.

The next paper in the last of this four-part series identifies recommendations to get militaries in novel directions (Zweibelson, in press).

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