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**SPECIAL RUSI
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Editorial

Welcome to British Army Review (BAR), No 175, Summer 2019. This edition has been designed to supplement the RUSI Land Warfare Conference - Securing Competitive Advantage. Coming hard on the heels of the Army's Iterative Strategy, launched in January this year, this event seeks to explore the increasing use of 'grey-zone' activity by states and other actors in the contemporary world, and what the UK can do to counter its adversaries more effectively in the Land Domain. As some of you will be aware, the work to implement the Iterative Strategy is already underway and is developing at a challenging pace. Our keynote article is by Director Capability, Major General Chris Tickell, which highlights the elements of this work currently in hand under the purview of his team. Meanwhile, tipping our hat to the 75th anniversary to D-Day and the Battle of Normandy, Dr Matthias Strohn, summarizes the paper he will give during LWC19, discussing the campaign from a German perspective with a focus on command structures and the Wehrmacht's campaign design.

This edition of BAR has a much larger Russian section than usual. Dr Steven J Main has written two of them for us, analysing the so-called *Gerasimov Doctrine*, based on the speeches made by the Russian CGS, and examining Russia's efforts to politicise their serving personnel. Complementing these pieces, former Soviet Conscript Officer, Captain Olex Hryb of the Defence Cultural Specialist Unit, gives a unique perspective exploring Putin's view of the world and Russia's place within it. Finally, from our US equivalent, *Military Review*, Michael Kofman and Matthew Rojansky

JD, discuss Russia's role and influence in Syria and the wider region and consider the effect it may have on the West. Together, these articles provide serious food-for-thought about how Russia is rethinking how it achieves its strategic objectives in the 21st Century.

Looking at Competitive Advantage themes closer to home, we have several articles covering a wide variety of subjects. As we consider how we employ the Army better in contexts below the traditional 'warfighting threshold', we are hugely pleased to have an article by Professor James Derleth which looks at stability operations and methods to improve our understanding of other communities in complex environments. Professor Derleth is the Senior Interagency Training Advisor at the US Army Joint Multinational Readiness Center (JMRC) in Hohenfels, Germany. He has wide operational experience and founded Complexas, a specialist advisory company in this field, in partnership with Major General (Retd) Andrew Mackay CBE. Shifting to the more kinetic end of the spectrum, Brigadier John Mead explores the challenges of fighting the 'deep battle' in contemporary warfare, based on his experiences of 3rd (UK) Division during Exercise Warfighter 18-4. Taking the term 'deep' in a more literal sense, Lieutenant Colonel Marko Bulmer describes the use of subterranean battlefields by VEOs in Syria and Iraq and the efforts to counter them. This will strike a chord with those readers who have grappled with developing urban warfare concepts in recent years.

Warfare in such constrained environments places significant physical and moral challenges to those engaged. Lieutenant

Colonel Ben Watts assesses the growing challenge of obesity to the British Army, the impact it may have on our operational effectiveness, and what is being done about it. Equally important as the institutional response will be our response at the individual level. Should we reflect on our personal contributions in this regard? What more could, or should, we do? Having got personnel fit enough to get into the fight, Major Tim Williamson discusses the ethics of medical support to the contemporary battlefield. Is our ability to balance the tension between military and clinical need effective?

Key to maintaining competitive advantage in the future, will be the ability to learn and adapt. This theme is addressed by Major Sam Bagshaw using natural selection as an analytical tool. Do you agree with his thoughts on variation as a valid concept to develop our capabilities? What conditions does this pose to our perspectives on 'failure'? This article is complemented by one from Major Christopher Hitchens who also suggests biology as framework methodology to support adaptation. Will this help us to adapt more effectively as we are? If not, what would we have to change to make the proposal credible? Finally, we consider adaptation with two historical case studies from Graham Thomas on the Germans at Dieppe in 1942 and the British in Normandy in 1944.

While this edition of BAR continues the tradition of thought-provoking exploration of the military profession across a variety of themes, we are acutely aware that there are significant limitations inherent in its current printed format. However, that will change as we move towards a much greater online presence. Indeed, the plan is for BAR to be uploaded to the Army website (also accessible form the CHACR website) and work is ongoing to achieve this. We will also look at opportunities for readers to be able to comment and get involved in online debates, not just to do with BAR but to do with other events/themes/discussions on the site. We hope to be able to upload single articles on key themes as soon as we can so they are timely and relevant with a forum for comments and debate on each one.

We hope you enjoy this latest edition of BAR.

Keeping the Competitive Advantage

Director Capability, **Major General Chris Tickell**, provides a brief look at the Capability Directorate and how it will keep the Army competitive in new ways of warfare for the next decade and beyond in the context of the RUSI Land Warfare Conference 2019 Securing Competitive Advantage.

A Warrior Infantry Fighting Vehicle fitted with the Marionette Universal Control System that can be fitted to a diverse range of vehicles and equipment shows its stuff on exercise. Leading industrial partners in Robotic and Autonomous Systems (RAS) were invited by the British Army to put their equipment in the hands of soldiers at Copehill Down training facility near Chitterne on Salisbury Plain, Wiltshire, England.
Photo: Beth Squire, Crown Copyright

RUSI LAND WARFARE CONFERENCE 2019

As the Director of Capability for the British Army, I am tasked to deliver the future systems that will keep the United Kingdom's Land force competitive in the next decade and beyond. The threat and the pace of technological change demand a new approach; the status quo is not an option. Our daily fare is often focused upon making balance of investment decisions between various options to extend, evolve or revolutionize capabilities. And the challenge will forever be balancing time, money, and technological risk viewed against the pacing threat. But the opportunity today lies with how we approach science, technology, innovation and experimentation to deliver our modernisation work.

As stated by our Secretary of State in the House of Commons, the former CDS and the former CGS at RUSI, Russia is the pacing threat in Europe. Russia's behaviour, subterfuge and breaking of international order norms concerns us all. We have seen Russia deploy Uran 6, a counter mobility remote platform and Uran 9, a mobile fires platform in Syria and on their May Day parades. As such, Russia is currently ahead of the West in the use of automated systems and is probably not far away from autonomous systems as well. Russia's hybrid warfare, sub threshold activity and deception plays to her strengths and our weaknesses. We must challenge Russian reliance on anti-access and area denial systems in order to gain assured access when we require it and in line with the American doctrine of Multi Domain Operations. We must have effects in more than just the Land domain in order to deliver simultaneous multiple challenges. Russia is a tricky opponent, but not insurmountable. The threat materialises in the breadth and pace of technical change but again, science and technology can help us decide what wins.

In reaction to this period of constant competition, the UK's Capstone Concept for Strategic Integration (CCSI) identifies that the UK must adapt to cope and be capable of retaining our advantage. This advantage comes from driving the conditions and tempo of strategic activity, rather than responding to the actions of others, whilst being adaptable and agile enough to respond and regain the initiative when circumstances dictate. We also recognise that not only are our adversaries continuing to adapt to the changing environment; our allies are also

Pictured is a URAN 9 combat unmanned ground vehicle from the Day of Advanced Technologies of Law Enforcement Authorities of the Russian Federation held near Krasnoarmeysk May 2017. Photo: Vitaly V Kuzman, Creative Commons Attribution-Share Alike 4.0 International license, https://www.vitalykuzmin.net/

transforming at pace: the US Army with their Multi-Domain Operations (MDO), the French with the Scorpion Programme and finally Australia's Accelerated Warfare concept. The British Army will not be left behind, and we seek to capitalise on our intellectual edge and appetite for innovation to create an Army at the forefront of the information age. We aim to deliver this through CGS's 'Iterative Strategy' that provides direction to develop a new Army Operating Concept, fit for the next decade.

We see our new Army Operating Concept as the principal means through which the British Army will optimise its competitiveness, utility and adaptability for the next decade and beyond. Accordingly, this seminal piece of work is explicitly unbounded, freeing it to challenge current assumptions wherever they are a barrier to the stated aim. The concept will seek to fuse land manoeuvre, air manoeuvre and information manoeuvre. The first two being nothing new, but our work with information manoeuvre for advantage is reaping a significant benefit, and we are delighted that the US Army 1st Corps is adopting a similar approach in

Soldiers of 3rd Battalion The Rifles use augmented reality equipment, during testing at the Copehill Down training facility on Salisbury Plain. Over 50 robotic, autonomous and supporting systems made it through the selection process to be exercised on Autonomous Warrior. Photo: Beth Squire Crown Copyright

its MDO experimentation. Information manoeuvre puts narrative at its heart and seeks to reinforce the persuade effect to shatter the enemy's will to fight. Consequently, these three areas of manoeuvre combine to deliver their effects in more than one domain, making enemy manoeuvre almost impossible as they have no space in which to gain advantage.

The new Army Operating Concept will make the British Land force more competitive, useful, and adaptable in the next decade. The Concept will face the pacing threat of states like Russia while also increasing the Army's utility by conducting Secure, Engage, and Contest activities in the Grey zone. We will create the new Army Operating Concept by drawing on seven years of AGILE WARRIOR experimentation, such as Conceptual Force (Land) 2035, and testing it against our most likely and most dangerous scenarios. Our ambitious experimentation process will also be an opportunity to buy-in our other national Services and international partners; a lot of the format will look familiar to your staffs who attend our AGILE WARRIOR events. The concept will embrace thinking from the ongoing people strategy work and the implementation of the Collective Training Transformation Programme.

The British Army is seeking to become an incubator for innovation that attracts the best people from an increasingly competitive and diverse talent pool. We will seek to generate new dynamic capabilities as part of a new approach encouraging Prototype Warfare that enable advantages our competitors cannot match. Prototype Warfare seeks to achieve operational advantage by prioritising experimentation, adaption and integration of new concepts or technologies at a faster pace and more effectively than the adversary. It is a philosophy and an approach to Force Development that embraces increased risk in training and acquisition, so we can generate more agile capability development and more responsive forces.

The most obvious example of this new approach is the Army Warfighting Experiment series, of which Exercise AUTONOMOUS WARRIOR (Land) – the testing of Robotic and Autonomous Systems (RAS) - was the most recent. Exercise AUTONOMOUS WARRIOR (Land) fits within a broader programme of technological demonstrators. This programme seeks to accelerate capability development aimed at areas of capability risk in the British Army. One area of technological demonstrators includes novel approaches to counter

mobility and signature control, both of which involve addressing emerging electro-magnetic pulse technology. Another key area of technological demonstrators is the requirement to improve our ISTAR at reach to enable a more effective area effect than our current capabilities. The requirement to improve our ISTAR at reach must be balanced with developing the ability to simultaneously counter our adversary's ability to do the same to us.

Following Exercise AUTONOMOUS WARRIOR (Land) we launched, on the Force Development Nexus[1], our initial RAS Roadmap. Recognising that developments will not be linear we are keen to seize opportunities emerging with RAS as they evolve. We have therefore designed the roadmap to have four pathways or lanes: Additive Assistance; using RAS technology brought in to augment or assist human operators to improve capability and efficiency (e.g. driver navigation aids that operate in a GPS-denied environment or augmented reality assisted training); Manned and Unmanned Teaming (MUM-T); fitting RAS to existing equipment; and finally designing new systems to exploit RAS technologies. Each of

these RAS pathways will lead to a significant change in how the Army will operate through augmentation and assistance; it is not a replacement for our current and planned capabilities.

It is worth briefly reflecting on the transformative role MUM-T will provide for the British Army. MUM-T is the theme for the Army Warfighting Experiment 2019 because we realise embracing such technology operations combines the strengths of manned and unmanned platforms to increase situational awareness, tempo, lethality and combat mass. This unique approach will allow tactical units to conduct a range of operations. Firstly, MUM-T can be massed to saturate complex environments like the urban canyon, with different sensor platforms passing data between each other. Secondly, MUM-T can allow the mass of a force to be increased - to have a series of surrogate platforms, each with a different role, from ATGW to close support infantry weapons or intelligence sensors. With each platform (both in the air and on land) projected in front of the unit, the risk to soldiers in the close battle is reduced. Finally, by

Pictured is M-AUDS, a mobile Counter UAV detection system mounted on the back of an in-service Coyote platform which can identify, classify, track and defeat UAV's. Unmanned Aerial Vehicles and Unmanned Ground Vehicles will be trialled to measure how they can support surveillance, resupply, command and mobility. Photo Sergeant Peter George, Crown Copyright.

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1   *https://fdnexus.mod.uk accessed via the Defence Gateway*

exploiting MUM-T, commanders will be able to react faster ultimately increasing their tempo to decide and act against the adversary.

This year's MUM-T focused Army Warfighting Experiment will help deliver relevant land capability, designed to ensure the Army remains at the forefront of technological change. The experiment will involve mechanisms to offer the early testing and integration of technologies and doctrine on operations and in training. This will increase the conversion rate of ideas into capabilities. These game-changing and innovative ideas can only be rapidly developed through continued collaboration with allies and industry. Hence the Army is implementing an Industry Engagement Framework that seeks to draw both the Army and Industry into a collaborative relationship based upon risk and burden-sharing and a mutual understanding of where innovation can drive forward transformation within the Army. The recent announcements from the Secretary of State for Defence Transformation Fund is a great example of where collaborative innovation and a strong relationship with Industry can prove advantageous.

The Defence Transformation Fund was an opportunity to identify technology and capabilities that can be integrated into field units and deployed operations within a year, or very soon thereafter. Key capabilities being introduced because of the fund include: Unmanned Air Surveillance Systems (UAS) for platoon and company level and medium UAS for specialists at brigade level; remote-controlled, unmanned ground systems to support front-line troops by providing a platform to carry equipment, move casualties and provide better surveillance and additional weapons; robotic logistics systems to conduct resupply using robotic ground and air systems; and finally, remote-controlled fighting vehicles, fitting existing vehicles (such as Warrior) that allow them to be remotely operated for high threat zones or to facilitate deception. This process has provided the impetus to stimulate industry, thereby allowing the Army to leverage their R&D and potentially reduce future unit price. Moreover, the Army submissions act as a catalyst for export, which in turn enhances prosperity.

As we seek to transform, I reflect upon the significant technological transformation the British Army undertook

Sherman crab flail tank under test, 79th Armoured Division. **Copyright IWM H38080, Wikimedia.**

75 years ago. The capabilities that enabled the fight in Normandy were genuinely innovative, borne out of tactical necessity and driven by innovators and talented leaders who took the risk to adapt. Breaking out of the beachhead was made possible by the Hobart's Funnies, named after Major-General Sir Percy Hobart, a unique set of capabilities including the Duplex Drive 'swimming' tank, the 'Crocodile' flamethrower tank and the 'Crab' mine-clearing flail tank. Many of these new capabilities were simple, affordable and ingenious and led to operational advantage in a critical time. Inspired by these historical examples, I feel it is important to embrace innovation, daring and technological risk in order to transform. The Army needs more of this kind of thinking. We must set the pace; falling behind will cede more advantage to our adversaries.

Hence, it is an exciting time to be a force developer. The debate at events such as the Land Warfare Conference, and in our conceptual studies under the AGILE WARRIOR banner, are vital to keeping us aligned to the technology and tactics appearing over the horizon. These informative events offer a platform to address the academic challenge in addition to keeping allies, partners and industry informed how the Army will adapt to the opportunities and challenges associated with the 4th industrial revolution. With the anniversary of D-Day upon us, I hope we can show an equally agile appetite for innovation as our forefathers displayed within 21st Army Group. We must harness this approach to challenge the pacing threat in Europe and around the globe in a credible way that excites our people and maintains our cutting edge.

Pictured is the QinetiQ Titan Strike, a large tracked UGV with a laser rangefinder system and fitted with a machine gun undergoing tests in the toughest of simulated combat environments at Copehill Down training facility near Chitterne during Exercise AUTONOMOUS WARRIOR.
Photo: Corporal Rebecca Brown, Crown Copyright

An Absolutely Harrowing Organisation[1]

Dr Matthias Strohn, M.St., FRHistS, Head of Historical Analysis, CHACR, examines the German Army in the West on the Eve of D-Day 1944 in the context of the RUSI Land Warfare Conference 2019 Securing the Competitive Advantage.

The Battle of Normandy, summer 1944, a US Cargo truck passes a destroyed Panzer IV tank. **Photo: National Archives USA and the Archives** *Normandie 1939-45, Released, Wikimedia.*

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1   *With these words Major-General von Glydenfeldt, Chief of Staff of Army Group G, described the organisational structure of the German armed forces in the west, See Bundesarchiv-Militärarchiv, MSg 1/1508.Kriegsaufzeichnungen aus den Jahren 1941/45, vol. 2, entry from 11.5. 1944.*

❜…and the Führer is still asleep'. Every popular history of the Allied landings in Normandy on 6 June 1944 knows the story that Hitler slept until mid-morning and that the Germans lost the initiative - if they ever possessed it - of the campaign in the early hours of D-Day and would never regain it. In contrast to this popular belief, Hitler's habit of being a late riser did not decide the outcome of the Normandy campaign. So, if it was not Hitler's sleep that lost the battle for the Germans, what were the reasons?

The battle of Normandy and thus the outcome of the war in the west had been decided already before the first Allied soldier set foot on French territory. The sheer military superiority of the Allies was certainly the key factor, it should not be forgotten that Germany had been fighting an extremely bloody war on the Eastern Front for nearly three years when D-Day happened. The German armed forces, the Wehrmacht, had lost a staggering 1.85 million men between June 1941 and May 1944 through death or captivity alone, excluding the even higher number of wounded soldiers.[2] And on 22 June 1944, just over two weeks after D-Day and exactly three years after the German invasion of the Soviet Union, the Soviets launched Operation BAGRATION, which led to the rapid collapse of the entire German Army Group Centre.[3] This was arguably the gravest military defeat that the German armed forces ever suffered in its history. The campaign in Normandy has to be seen in this context. To say it clearly: due to the losses sustained on the Eastern Front the Germans had already lost the war by June 1944. D-Day did not alter the outcome of the Second World War, although it accelerated the decline of the Third Reich.

As a result of the heavy blood loss on the Eastern Front the Wehrmacht in the west was not strong enough to be able to repel an invasion of 'Fortress Europe'. On paper, it was still a formidable force: about 1.5 million men were stationed in the west - 900,000 men in the Army, 350,000 in the Air Force, 100,000 in the Navy and 100,000 in the Waffen-SS. However, most of these men were not of the required quality to fight a determined invader. To give the reader an idea: At the beginning of January 1944 the Luftwaffe (Air Force) had a total of 2395 fighter pilots. Within the following five months it lost 2262, which equates to a casualty rate of 94%.[4] The new pilots who were to make good these losses were no longer trained sufficiently before they were thrown against the enemy and sustained similar losses. The situation in the Heer (Army) was equally dire. On 6 June 1944, the Heer could muster 58 divisions in the west[5] which were, however, of varying quality. The bulk of these units were standard infantry divisions with only limited mobility. More than half of these infantry divisions were classed as 'bodenständig', which indicated an even lower mobility compared to the 'normal' infantry division. These divisions were deployed along the so-called Atlantic Wall and had no sufficient means of transport available. Most of the divisions had been formed in the west from 1941 onwards, either as occupation forces or as replacements for divisions destroyed on the Eastern Front. Their equipment was a hotchpotch of booty weapons and material captured in earlier campaigns. Only approximately 40% of the troops (60% among the officers) had combat experience, mainly won on the Eastern Front. To alleviate the manpower shortage, the Germans became inventive: About 10% of the troops fighting in German uniform were not ethnic Germans. The most peculiar of these were the so-called 'Osttruppen' (Eastern troops), which included Russian, Georgian and Azerbaijanian soldiers, and the units consisting of formerly medically unfit soldiers, the famous 'stomach battalions'. The dubious quality of the troops did not stop at the higher ranks. Most Generals had been posted to the west because of poor performance on the Eastern Front, health problems or because they had spoken out against the war of annihilation that the Wehrmacht waged in the east. The exception to this rule was Field Marshal Erwin Rommel, commander of Army Group B, the famous Desert Fox and youngest Field Marshal of the Wehrmacht. He inspected the Atlantic Wall nearly daily; in contrast, his superior, Field-Marshal Rundstedt, the oldest Field-Marshal of the German Army, hardly left his headquarters in St. Germain-en-Laye close to Paris.

2   Lieb, Peter, *Unternehmen Overlord. Die Invasion in der Normandie und die Befreiung Westeuropas*, Munich 2014, p. 53. For comparison, the United Kingdom lost approximately 450,000 dead during the entire Second World War. Peter Lieb is a former member of the Department of War Studies at the RMA Sandhurst. This department has an unrivalled collective knowledge of the Normandy campaign.

3   This operation is all but forgotten among the former Western Allies; hence, the literature in English is scarce. For an introduction, see Karl-Heinz Frieser, 'Collapse in the East: The Withdrawal Battles from the Summer of 1944', in, Militärgeschichtliches Forschungsamt, ed., *Germany and the Second World War, vol. VIII: The Eastern Front 1943-1944: The War in the East and on the Neighbouring Fronts*, Oxford 2017, pp. 489-599.

4   Lieb, p. 53.

5   For comparison, on 1 June 1944 the Wehrmacht had 156 divisions on the Eastern Front, 27 in Italy, 25 in the Balkans and 12 in Norway. 53 % of the German armed foces stood in the east. For the figures, see Hans-Adolf Jacobsen, *Der Weg zur Teilung der Welt, Politik und Strategie 1939-1945*, Koblenz 1977, p. 571.

*A knocked-out Cromwell observation post tank, commanded by Captain Paddy Victory of the 5th Royal Horse Artillery, 7th Armoured Division is stuck in Villers-Bocage, 5th August 1944. Captain Victory had attempted to do a neutral turn to escape more quickly but a loose large paving slab jammed the track and immobilised the tank. **Photo: Sergeant J Mapham, No5 Army Film and Photographic Unit, Released, IWM 4700-29, Wikimedia***

However, Rommel's energy was not enough to overcome home-made structural problems that the Wehrmacht was facing in the west. In 1943, Rommel and his staff of Army Group B had been moved from Italy to France and put in charge of increasing and strengthening the defensive works along the coastline and also developing plans for the dispositioning of army units. This task was actually the responsibility of Rundstedt as 'Oberbefehlshaber West' (OB West or Supreme Commander in the West).[6] The Oberkommando der Wehrmacht (OKW or Supreme Command of the Armed Forces) formally placed the staff of Army Group B under the command of OB West on 1 January 1944, but, only two weeks later, it put Rommel in command of all divisions from Holland to the Loire estuary – the troops of the Wehrmacht commander in the Netherlands together with 15th and 17th Armies. For Rommel, this was not enough. With Hitler's support he tried to extend his responsibilities even further. He wanted to have a say in the deployment of mechanised

forces and also the two German armies in the South of France. This was met with resistance from Rundstedt and his staff. Rundstedt had made it clear that he thought it pointless to continue as OB West unless these confusing structures were sorted out. The struggle ended with a partial victory for Rundstedt.

A new structure was decided upon, which was to come into force on 12 May 1944 - less than a month before the invasion took place. This tightened the command structure at the top and Rundstedt was now answerable directly to the OKW: he was now also in command of Rommel's Army Group B, the newly formed Army Group G in the South of France and Panzergruppe West (Panzer Group West), which had been set up at the turn of 1943-4 as a command authority for the mechanised divisions. In addition to being a command centre, OB West's staff now also became responsible for co-ordinating tasks. This was the result of the expectation that the Allies would

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6   For the organisational structure of the 'Westheer', see Detlef Vogel, 'German and Allied Conduct of the War in the West', in, *Militärgeschichtliches Forschungsamt*, ed., *Germany and the Second World War,vol. VII, The Strategic Air War in Europe and the War in the West and East Asia 1943-1944/5*, Oxford 2006, pp. 518-520.

land in more than one place. On paper, this created a tighter command structure. In reality, however, in-house fighting over competencies continued. Panzergruppe West now came under OB West, but he had only indirect control of the mechanised divisions. Four tank divisions - named the 'OKW Reserve' were under direct command of the OKW, and the remaining six divisions were split between Army Groups B and G. As before, there was no joint command structure and the air force and the navy were merely under instructions to 'co-operate' with OB West. They continued to receive their direct orders through their own chains of command. The Waffen-SS also stood partially outside Rundstedt's control: He was responsible for the operational deployment and use of the Waffen-SS, but otherwise these divisions answered to the quartermaster-general and the Oberkommando des Heeres (OKH or Army High Command).

The end-result of this in-house fighting and Hitler's leadership approach of *divide et impera* was a muddled command structure with overlapping responsibilities and duplication of effort. General Blumentritt, OB West's Chief of Staff, summed this up in mid-January 1944 by saying: 'In the East there is one enemy, here everything is so complicated - entangled in a web of a hundred possible departments - that it takes a long time for a newcomer to understand what is going on behind the scenes'.[7]

The duplication of effort led to a monumental amount of staff work. From 1 to 15 February 1944, a total of 4,047 secret command documents were received by OB West. In one period of 24 hours, 8,788 telephone calls were received. In April 1944, over 50,000 members of the Wehrmacht were employed in a myriad of positions in Paris alone.

Organisational matters were made more complicated by an on-going debate among the senior commanders about the deployment of the tank reserve, the iron fist of the army in the west. Everybody agreed that the so-called Atlantic Wall alone would not stop an invasion. The design for the defensive battle was characterised by a two-step approach: The troops deployed along the coast-line were to slow down the enemy, thus buying time for the more powerful reserves to be brought up to the battlespace in order to defeat the landed enemy. The question that was heatedly debated was where these reserves should be placed. The two protagonists were Rommel and General Leo Geyr von Schweppenburg, commander of Panzergruppe West, and their arguments were based on their experiences in

A re-touched photo of Two Tiger Panzer VI Main Battle Tanks at Villers-Bocage of the SS-Leibstandarte, Adolf Hitler, Division on a country road. No 181 is up front and Number 231 is in the rear. **Photo: Arthur Grimm, Creative Commons Attribution-Share Alike 4.0 International License, Wikimedia**

7   *Quoted in Vogel, p. 520.*

the war. Rommel wanted to break up the reserves and deploy the tank divisions as closely to the beaches as possible. He argued that Allied air superiority, as he had experienced in North Africa, would make it impossible to bring forward the reserves once the enemy had landed. Geyr, on the other hand, had gathered his experience mostly on the Eastern Front (although he had served as military attaché in London between 1933 and 1937). As a consequence, he insisted that the tank reserve be held back and only be deployed once the Allied forces had landed. On the Eastern Front, the Luftwaffe had at least achieved parity over the battlefield and the Allied air threat was therefore a new phenomenon to him. He argued that the superior operational skills of the Wehrmacht would be able to defeat the Allies - as had often been the case against numerically superior enemies on the Eastern Front.

This debate was of utmost importance. Not only was it one of the reasons for the confused command structure, but it went straight to the heart of the army's ability to fight successfully against an invader. The tank reserve was the perceived trump card of the German army in the west. In contrast to the rather sorry state of the rest of the army, it was well-equipped: The tank force comprised of 10 divisions, four of which were Waffen-SS divisions (at the end of June two further Waffen SS tank divisions were deployed from the Eastern Front: 9th 'Hohenstaufen' and 10th 'Frrundsberg'). In addition, there were three heavy tank detachments of battalion size, two of which came from the Waffen-SS. In total, this force had about 1,600 tanks and tank destroyers. These units were -cum grano salis- at full strength and with extensive combat experience. The divisions were supposed to turn the tables and ensure that Germany would win the campaign in the west. Unfortunately for the Germans, reality would prove different. The command structure, Allied air superiority and re-supply issues[8] meant that the divisions were brought up to the front-line piecemeal. The envisaged powerful knock-out stroke with an iron fist in reality turned out to be a mere number of slaps in the enemy's face.

These deficiencies at the organisational and operational levels and the lack of experienced troops meant that the German Army did not stand a chance against the Allies once they had landed and consolidated their positions. The question should not be why the Germans did not win in Normandy, but how they could last and fight for

as long as they did. Tactical prowess that some of the German units showed could not avert the inevitable defeat nor could the willingness to sacrifice one's life for 'Führer, People and Fatherland'.[9] The German soldiers

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8   The question of re-supply was of utmost importance for the conduct of the Normandy campaign. A detailed analysis is outside of the scope of this short article. The interested reader should consult Russell A. Hart, 'Feeding Mars: The Role of Logistics in the German Defeat in Normandy, 1944', in, War in History 1996 (4), pp. 418-35.
9   By 24 July OB West reported the loss of 116,863 men; see Ba-MA RH 19 IV/44.

Dead German troops litter an ambushed convoy in Chambois, France during the Battle of Normandy. Photo: US National Archives and Archives Normandie 1939-45, Released, Wikimedia

who fought and died in Normandy fought a losing battle from the beginning. Even if Hitler had been awake when the Normandy landings occurred, the outcome would have been the same.

'Light' Instead Of Heat: The Gerasimov Doctrine Part 3

In this third instalment of the series by **Dr Steven J Main** on the views of the Russian Chief of the General Staff (CGS), General Valery Gerasmiov, the General's geopolitical views from 2015-2016 are examined in detail.

This photo shows the new Russian T14 Main Battle Tank from the May 3rd rehearsal in Moscow for the 2018 Victory Day Parade.
Photo: Vitaly V Kuzman, Creative Commons Attribution-Share Alike 4.0 International license, Wikimedia

This time period under review covers a significant anniversary for many in the former Soviet Union (fSU), namely the 70th anniversary of the end of the Second World War. Given the importance of the anniversary, this provided Gerasimov with the opportunity to discuss the issue of strategic leadership during a time of military conflict. As examined in previous articles, the issue of command and control, especially at a national level, has been an important one and it is no surprise that, on the occasion of his annual address, delivered at the Academy of Military Science in 2015, he chose the issue of strategic leadership as his main theme.[1] His address in 2016, however, covered the equally important topic of how Russia proposes to defend itself in the era of 'traditional' and 'hybrid' warfare.[2]

His 2015 address contained many examples of the historical experience of both the USSR and the Red Army during the 1941-1945 Soviet German War (better known in Russia as the 'Great Patriotic War'). In its own way, it underlines OUR need in the West to be aware of the importance, still, of the wartime record of the USSR in ascertaining current Russian military thinking; after all, without the use of nuclear weapons by an enemy state, the USSR survived a near-decapitating, conventional military strike whose effect was just as devastating as anything that has been unleashed in our contemporary period of super-accurate, deep range, missile strikes. Thus, from the opening remarks of his address, Gerasimov linked events of 1941-1945 with the current contemporary international situation:

> It appeared that the events of those [1941-1945] years had been so deeply studied that there could be no argument about heroes and anti-heroes. However, in our time, both in Europe and on the territory of the former Soviet Union, we observe a rebirth of Nazism,

> and it has become ever more urgent to remember what our nation sacrificed in the name of Victory.

> This was more than 26 million human lives, the [subsequent] pain and loss for those left living, tens of thousands of burnt out towns and villages. Thus, as we approach the 70th anniversary of the Great Victory [the end of WW2] – this is a good time [povod] to think anew about Russia's present and future, to evaluate the capability of the Russian Armed Forces in repulsing contemporary threats and challenges, to determine the future development of the military.[3]

Uppermost in the minds of Russia's senior political and military leadership is that Russia never ever goes through what the USSR went through, particularly in the opening stage of the Soviet-German War. As long as the current political and military leadership are in charge in the Kremlin and on *Frunzenskaia Naberezhnaia*, this mind set will not change. Indeed, Russia's almost genetic obsession with questions of security, particularly in relation to the external threats, will only deepen and harden. Learning from past experience, including the first 10-15 years of the post-Soviet collapse period of history of Russia, (the USSR collapsed in 1991) - a time when the current political and military leadership of Russia were learning their trade, so to speak[4] - has been a trade mark of Gerasimov's analysis of Russia's military structure, in his evaluation of whether, or not, the country's Armed Forces are fit for purpose, being able to defend the country under ALL circumstances and protecting, as well as advancing Russia's national security interests on the global stage. In other words, not only does he have the practical experience of commanding troops in the field, but also personal, life and career, experience of living and serving in an army which, at that time when he was a young officer,

1   Gerasimov, V.V., 'Opyt strategicheskogo rukovodstva v Velikoi Otechestvennoi voine i organizatsiia edinogo upravleniia oboronoi strany v sovremennykh usloviiakh', ('The experience of strategic leadership in the Great Patriotic War and the organisation of a unified command defence [system] under modern conditions') - Vestnik Akademii Voennykh Nauk, no. 2(51), 2015, 5-15.

2   Gerasimov, V.V., 'Organizatsiia oborony Rossiyskoi Federatsii v usloviiakh primeneniia protivnikom 'traditsionnykh' i 'gibridnykh' metodov vedeniia voiny', ('the organisation of defence of the Russian Federation under conditions of the use by the enemy of 'traditional' and 'hybrid' methods of conducting war') – Vestnik Akademii Voennykh Nauk, no.2 (55), 2016, 19-23.

3   Gerasimov, 'Opyt…', ibid., 5.

4   Gerasimov, for example, was born in 1955 and, throughout the 1990s, steadily rose from commander of a motor-rifle division to Commander of 58th Army, North Caucasus Military District (MD) by 2001. He earned his combat 'spurs', so to speak, in the Chechen Wars of the 1990s, (Voennaia elita Rossiyskoi Federatsii. Kratkiy ensiklopedicheskiy slovar'. M.2014, 46-47).

A 9A34 Strela - 10 of the 4th Separate Tank Brigade of the Russian Federation, 2011. **Photo: Vitaly V Kuzman, Creative Commons Attribution-Share Alike 4.0 International license, Wikimedia.**

was an important part of one of the world's two great super-powers but which, by the mid-1990s, struggled to put down an internal rebellion which, just a few years previously, the previous military establishment would have dealt with easily. By the 1990s, that great military power had all but vanished and the standing of the men and women in uniform in general society had been greatly reduced and was becoming lower with the passing of every year. Obviously, things have significantly changed for the men and women in khaki since the late 2000s, but one of the 'constants', one of the pillars of the old Soviet regime/modern Russian power, has been the unimpeachable memory of Soviet victory in the Second World War. In his address in 2015, Gerasimov makes this patently clear, in reminding the audience of who achieved what during World War Two:

> *Today, in a number of Western countries, there is a big attempt to re-write the history of XX century, in particular, the Second World War. This has an absurd aim - to put on the same bench the aggressor - Nazi Germany - and the victim of aggression - the Soviet Union and attempt to show that the fundamental harbinger of victory in the war was not the USSR, but the USA, in alliance with Great Britain.*

> *One has to remind them that it was the forces of the Red Army in the Great Patriotic War which destroyed 507 divisions of the Wehrmacht and [a further] 100 divisions of [their] allies - almost x3.5 more than on all the other fronts and for the entire length of the Second World War [put together]…Facts are also telling about how Europe waged war against Fascism. For instance, Poland was destroyed in 3 weeks [he conveniently forgets to mention, however, that as Nazi Germany was invading Poland from the West, the USSR was invading Poland from the East]. [Despite] having numerical military superiority, France 'lasted' only a month of battle before capitulating. Belgium, Denmark and Holland were all occupied in the space of a few weeks. Fascist Germany was on a victory parade throughout the whole of Europe [no mention of Great Britain involved in the war from the very beginning in 1939, or part of the reason behind Nazi Germany's successful onslaught against Central and Western Europe in autumn of 1939 was the conclusion of the Nazi-Soviet Non-Aggression Pact in August of that year, virtually guaranteeing Soviet non-interference in Germany's military aggression towards its neighbours].*[5]

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5   Gerasimov, 'Opyt…', ibid., 6.

Putting aside history, Gerasimov is attempting to retrieve the moral high ground - 'it was the Red Army which won the War' - as well as emphasising the importance of not relying on others to ensure your country's defence, almost proposing a form of security autarky. The main purpose of the address, overall, however, was to emphasise the utility of creating a unified civil and military command structure, long before war breaks out:

> *In difficult circumstances, when the basic direction in the world…was directly pointing towards…a big war…the Soviet military-political [leadership] placed its main emphasis on preparing for war. In particular, it looked at [ways of] improving the military and state organs of command and control. In the pre-war era, at the very heart of preparing the country and the Armed Forces to repel aggression was the principle of unity of the political and military leadership. All the most important issues, touching defence, were decided by the Central Committee and the Politburo of the All-Union Communist Party (Bolsheviks).[6]*

The last statement is a very rare mention of the wartime role of the Communist Party of the Soviet Union, uttered by any of the current senior political-military leadership of the country. Using the historical record, Gerasimov seeks to underline the importance of unity of views - and purpose - of the country's senior political and military leadership. Thus, whilst Putin may be no Stalin, nor Gerasimov a new Zhukov, nevertheless, both Putin and Gerasimov have striven to create a defensive structure which, if so required, could carry out *a proportion of the duties and responsibilities* associated with the work of the 1941-1945 State Defence Committee, namely the National Defence Management Centre of the Russian Federation. In his address, Gerasimov underlined the overall importance of the Centre:

> *An important step in the creation of a unified system of state management in the military sphere of the Russian state, taking into account the experience of the Great Patriotic War in centralising strategic leadership, was the creation of the National Defence Management Centre of the Russian Federation [hereinafter simply referred to as the 'Centre']…Its main function [prednaznachenie] is the monitoring, analysis and forecasting [prognozirovanie]of the unfolding situation on the strategic axes and in problem areas,*

> *informational support of decisions, adopted by the leadership of the country and its Armed Forces, as well as coordinating the activity of the country's federal executive power organs on questions of maintaining the defence of the state.[7]*

Gerasimov also described the Centre as a 'permanent', i.e. 'standing' organ of state, whose structure will remain unchanged [neizmennoi] during a time of war, in other words, as it is structured currently, *it is already on a semi-war footing*, requiring few actual structural changes should war break out.[8] During wartime, it would come under the control of the Supreme Commander-in-Chief (C-in-C) of the Armed Forces, the country's President, (currently Putin). In a power-point slide - entitled *The Organs of Strategic Command and Control of the Military Organisation of the Russian Federation* - which would appear to have been part of Gerasimov's presentation, the diagrammatic representation of the Centre places it between the General Staff and the subordinate command centres of Strategic Missile Forces; 'Combat' and 'daily activity' (of Armed Forces). At the top is the President/Supreme Commander-in-Chief, directly subordinate to him is *Stavka* (HQ of the Armed Forces), then comes the MoD followed by the General Staff and right underneath that - the Centre.

As described further by Gerasimov, its wartime role would be supplying information to *Stavka*, including operational analysis of the situation unfolding in the theatres of military operations [*teatr voennykh del*] and ensuring that *Stavka's* instructions reach the troops (forces) in a timely manner and are carried out.[9] This marks it out as one of the most important organs involved in Russia's overall civil-military apparatus, whose true value will become apparent should Russia wage war (in fact, its value may already be apparent in the way that Russia has conducted its military campaign in Syria). Along with *Stavka* and the General Staff, should Russia go to war, the Centre, as outlined, would become one of the key components in Russia's war-time civil-military apparatus. Given the increasing importance of receiving, analysing and then processing information in real time, it is surprising that it has been so little examined here in the West.

In concluding his address, Gerasimov, emphasised, once again, the importance of the country's previous military experience:

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6   *Ibid.*

7   *Ibid., 13.*

8   *Gerasimov, 'Opyt…', ibid., 13.*

9   *Ibid.*

Russian BM-21 9K51 Grad MLRS battery on exercises in Russia. **Photo: Vitaly V Kuzman, Creative Commons Attribution-Share Alike 4.0 International license, Wikimedia.**

In conclusion, I wish to note that the experience of the past war will never lose its importance. The command of the Russian Army and Navy can and will extract from this experience all which has not lost its importance and, relying on the [continuing] development of military art in the post-war period, will creatively resolve modern problems and increase the combat effectiveness and [further] the development of the Armed Forces.'[10]

2016

In 2016, Gerasimov availed himself of the opportunity to address the Academy of Military Science on the range of military threats facing Russia in the early part of the 21st century.[11] In the address, Gerasimov discussed 'hybrid' warfare in relation to Syria; the so-called 'coloured revolutions'; the importance of military science in helping the country find solutions in combatting the range of threats to national security, etc. Interestingly,

despite the range and importance of the subjects under review, Gerasimov's 2016 address was less than 50% of the length of the one he made in 2015 and, unlike the previous address, would appear to have been made without any accompanying power point slides.

Opening his address with a few, general remarks on how military conflict had changed from 'frontal engagements of troops' to 'advanced technological wars' which now achieve their aims by means of 'long-range, non-contact' weaponry 'striking from air, sea, space.'[12] Discussing further the way military conflict is now fought, Gerasimov linked the development of certain types of weapons with the way conflict itself has developed in a whole range of arenas, not just military:

In modern conflict, more and more often, the chosen methods of combat are mixed in with…complex application of political, economic, information and

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10   *Ibid., 15.*

11   *'The organisation of the defence of the Russian Federation under conditions of the enemy's use of 'traditional' and 'hybrid' methods in the fighting of a war', Vestnik Akademii Voennykh Nauk, no.2 (55), 2016, 19-23.*

12   *Gerasimov, Organizatsiia…', ibid., 19.*

other non-military measures...These are the so-called 'hybrid' methods.[13]

The 'essence' *['soderzhanie']* of these 'hybrid' methods is *to achieve political aims with minimum military interference ['vozdeistvie'] primarily by undermining his military and economic potential, information-psychological influence, active support of the internal opposition, partisan and diversionary methods of waging war.*[14]

Linking the two together, Gerasimov proceeded to discuss another 'hot' topic for Russia's senior political and military leadership, that of the so-called 'coloured revolutions', particularly important when looking at events in Ukraine over the past 6 years. Given the 'flow' of the address, it is without doubt that, as far as he's concerned, there is a strong link between 'coloured revolution' and 'hybrid' methods of waging conflict. In his estimation, the main aim of 'coloured revolution' is quite simple: *it is the non-violent change of power in the opposition-state. In essence, every 'coloured revolution' is a state coup, organised from the outside.*[15] Essential to the success of the latter is 'information technology', particularly its ability *at manipulating the protest potential of the population, in conjunction with other non-military means.*[16]

Explaining further how the role of the Internet - and information technology, in general - can 'stir up' (his phrase) the situation from the inside, Gerasimov stated that the 'Internet' could manipulate people by 'a targeted' focus *on the consciousness of the citizens of the object-state of aggression…In essence, the information resource is one of the most effective types of weapon. In a matter of days, the wide scale use of the former [information] can 'stir up' a situation from the inside.*[17]

In using the Internet to foment and manipulate any potential internal crisis situation, regime change can happen almost overnight, if the 'weapon' of information is used in a focussed way, along with other non-military means, the protest potential of the population - unknowingly manipulated by 'outside' forces - can lead to a situation of political and economic disruption leading to the overthrow of the sitting regime. Little, if any, outside military force needs to be deployed in any meaningful way: the regime can easily fold under the weight of its own internal, carefully directed, opposition. This may seem to a be a cynical presentation to make but, as far as the way the Russian military and political leadership are concerned, it is the one which, outside of the strategic nuclear arena, makes most sense to them in interpreting events on the global stage and the one which the Kremlin must do most to combat against.

*A Beriev A50U Airborne Warning and Control System displays at the celebration of the Centenary of the Russian Air Force at the Zhukovskiy Lii airbase 10th to 12th August 2012. **Photo: Vitaly V Kuzman, Creative Commons Attribution-Share Alike 4.0 International license, Wikimedia***

13   *Ibid., 20.*
14   *Ibid.*
15   *Ibid.*
16   *Ibid.*
17   *Ibid.*

Harking back to more 'traditional' times, as he has done in previous statements, Gerasimov alluded to the work of G. S. Isserson, pre-Second World War Soviet military theorist. Although Gerasimov did not mention Isserson by name, he certainly obliquely referred to his work, (published in 1940), on how war had changed, even before the outbreak of the Soviet-German War of 1941-1945:

> As distinct from 'traditional' military conflict of the last century - the [formal] declaration of war [at the beginning] and the act of capitulation at its end, 'hybrid' war is not [now] officially declared. 'Traditional' military operations are undertaken according to the laws of military art, their character and consequences, in principle, can be predicted. One can only guess at the consequences in using non-direct methods [of conducting military operations]. A state, falling under 'hybrid' aggression, as a rule, is plunged into a state of absolute chaos, internal political crisis and economic collapse. Murder of the civil population, along national or confessional lines, the explosion of criminality, the mass, uncontrolled, illegal, migration of refugees - all of this are the results of coloured revolutions.[18]

Once again, for him, the link between 'hybrid' warfare and 'coloured revolution' is incontrovertible: the one directly flows from the other, or is an integral part of the other. This is important in that it underlines Russian opposition to any further attempts at 'coloured revolutions' breaking out in the fSU; as far as he's concerned, they are simply an attempt to seize power by an attempted coup, having duped the civilian population beforehand in order to prevent any substantial support coming forward to help protect the sitting regime. Given this interpretation of events, the incumbent power must adopt whatever steps necessary in order to secure its future survival hence Russia's Plan of Defence, mentioned in previous addresses by Gerasimov:

> The trends of development of traditional and particularly 'hybrid' wars compelled it necessary to introduce changes in the organisation of defence of the Russian Federation. Preparing for armed defence and the military defence of the country can no longer be by military measures alone, but demands consolidating the efforts of practically all the organs of state power. In this connection, the leadership of the country adopted a number of important decisions aimed at unifying inter-departmental efforts at ensuring the military security of the state. The fundamental, consolidating component is

> the Defence Plan of the Russian Federation…The new approach to military planning takes into account all the potential possibilities of the country and binding them [together] on a systematic basis. First of all, this means improving the effectiveness of containing and averting military conflict.'[19]

As described by Gerasimov in earlier addresses, the Defence Plan is viewed as crucial in Russia's future attempts to defend itself against any attempt to foster a 'coloured revolution' inside Russia and/or wage 'hybrid' warfare, in any guise, against the ruling power. Expanding on the idea of 'containment' and/or 'averting' military conflict, as he had done earlier, he once again underlined the overall importance of the country's strategic nuclear arsenal:

> At the present moment in time, in Russia's arsenal are nuclear weapons which, as in the past, remain the fundamental factor in the strategic deterrence of probable enemies…against our country and its allies. At the same time, in neutralising military threats and dangers to the Russian Federation, including combatting 'hybrid' methods of pressure ['davlenie'] an additional complex of agreed general-state military and non-force measures has been organised. The basis of the non-military steps, aimed at strengthening the international position of the Russian Federation, is maintaining and broadening ['sokhranenie i rasshirenie'] Russia's presence in regions, involving the country's national interests.[20]

Whilst this may appear to be non-threatening, i.e. falling into the category of non-military steps, it could still have military consequences, not least in Russia's defence of its national interests, where military force may have to be used in order to defend the former. As events have shown over the past couple of years, it has only been by the Grace of God that 'national interests' of the major powers - either global or regional - have not clashed in any significant way in Ukraine, Syria, South China Sea, etc. If, in relation to Russia, the latter were to develop its presence in a part of the world where one of the other major global powers was also heavily involved, what then? Competing 'national interests' could easily lead to a situation where the issue could be settled primarily, if not solely, by force of arms.

Of course, in his address, Gerasimov's take on future events is different, arguing that Russia's increasing

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18   Gerasimov, 'Organizatsiia…', ibid., 20; Isserson, G.S., 'Novye formy bor'by', (Moscow, 1940).

19   Ibid., 21.

20   Gerasimov, ibid., 21-22.

international position could mean 'greater cooperation with foreign countries in the interests of collective security' as well as the possibility of *targeted, joint activity at improving the system of regional and global security within the framework of international law and involve…the United Nations.*

Without prejudicing the case too much, Russia's actions on the global stage since the address was delivered in 2016 would seem to strongly indicate the general direction of travel, a direction which would appear to underline Russia's 'maintaining and broadening' its international position at the expense of the civilians of Syria, Ukraine and even Britain.

Soldiers from the 4th Tank Division Recon Company demonstrate single and group shooting with RPG-7 and RPG-26, assault rifles, machine guns and pistols, as well as sniper work during a major exercise of the 4th Guards Kantemirovskaya Tank Division in Naro-Fominsk. **Photo: Vitaly V Kuzman, Creative Commons Attribution-Share Alike 4.0 Internatio**

Putin's Eurasianism: Lebensraum Revisited?

Captain Olex Hryb, of the Defence Cultural Specialist Unit (DCSU) and a former Soviet Conscript Officer in the Eighties, provides a unique look at Putin's view of the world and Russia's place within it.

Commander-in-Chief of Russia President Vladimir Putin at the final stage of strategic command post exercises 'Center-2015' at the 'Donguzskij' Military complex in the Orenburg region. **Photo: Press and Information Office, Russian Federation, Creative Commons Attribution 4.0 License, Wikimedia.**

Western ability to understand future projection of Russian power has been challenged when Moscow invaded and annexed Crimea in 2014. The Pentagon's Defence Intelligence Agency allegedly briefed US congress that concentration of Russian troops around Ukraine is a bluff only few weeks before the invasion in 2014. No mainstream Western politicians predicted that Russia would challenge the existing security framework in Europe despite the fact that Moscow warned about its 'red lines' in Eastern Europe on numerous occasions, including such extreme actions as rehearsals of nuclear strikes against a major Central European capital. The only politicians who predicted the invasion of Crimea were such mavericks, right of the mainstream centre, as ex-Alaska governor Sarah Palin and President of Poland Lech Kaczynski. Palin explicitly predicted invasion of Crimea as a follow up of Russia's war in Georgia (2008), thus showing a better insight into Moscow's intent than the US' intelligence services with their formidable funding. Lech Kaczynski warned that invasion of Georgia will be followed with invasion of Ukraine and then Poland. Neither statement was taken seriously at the time. Indeed, Putin's foreign policy is often characterised as unpredictable. Understanding Eurasianist ideology, which has been semi-officially accepted by the Kremlin as a state ideology since 2011, could help make sense of what seems like unpredictable Russian foreign policy and help the West gain a better future insight. The Kremlin's interpretation of various Eurasian ideas became known as Putin's Eurasianism.

WHAT IS PUTIN'S EURASIANISM?

It is often assumed that Putin's regime lacks any national ideology and some analysts even claim that corruption is the only thing that binds modern Russian elites. Indeed, unlike Lenin, Stalin and other Soviet leaders, Putin produced a modest PhD thesis dedicated to the political economy of natural resources' industry in Russia with

no grand design for Russia or the world. Putin's public speeches are the only official source of his publicly declared views but not necessarily an expression of his inner beliefs. Qualitative content analysis of all Putin's public speeches available on the Kremlin's website (over one million words) performed by a group of American scholars produced little insight, except that Vladimir Putin values state control slightly more than an average international leader. However, who would expect a former KGB officer to tell the public what he really thinks as opposed to what he wants the public to believe? In this sense it might be just as important to understand what Putin does not say in public but is likely to believe as it can uncover his real intent far more than a million words published online. This is not to say that there are no public pronouncements that express views shared by both President Putin and the Russian public. So what is safe to believe and what is relevant to the outside world?

When Putin claimed in public that he is 'the biggest nationalist in Russia' it could be interpreted on a number of levels. First, that the President of Russia is an ultimate national leader and nobody is allowed to position himself as bigger patriot (nationalist). Second, that Putin is the right kind of nationalist i.e. patriot but not a kind of xenophobic thug denying the rights of minorities to be part of the Russian nation (*Rossiyskiy narod*). Third, that Putin is indeed the greatest Russian nationalist but publicly admits only the politically correct interpretation of the term. If we accept Gellner's definition of nationalism[1] as a political principle that one culture should coincide with its own state then understanding of Putin's nationalism would enlighten us with his vision where Russian state borders should end. In other words, establishing the geography of Putin's nationalism will inform us as to where he sees the ideal existential space for Putin's Russia vs Europe and Asia i.e. Putin's 'Lebensraum' as mentioned by leading Russian expert in Germany and Eurasianist himself Alexander Rarh. The key similarity between the discredited concept of Lebensraum and Eurasianism is that both share a common belief in the natural 'biological habitat' for nations whether it is an Aryan race (German nation) or the Russian super-ethnos (people).

PUTIN'S NATIONALISM: KNOWN KNOWNS

Newly elected President Putin accepted in his Millennium message (2000) Yeltsin's term *Rossiskiy Narod* (Russian

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1   Gellner, Ernest, *Nations and Nationalism*, 1983, Ithaca, Cornell University Press

*A BMPT-72 known as Terminator 2 is the latest armoured fighting vehicle of the Russian Federation in this range of vehicles. It is seen here as part of the rehearsal parade for Victory Day in Moscow 2018. **Photo: Dmitriy Fomin, Creative Commons Attribution 2.0 Generic Licence, Wikimedia***

people or nation) as opposed to ***Russkiy Narod*** (more narrow ethnic definition). He stated explicitly that Russia is a multi-ethnic nation while addressing the United Russia Conference in 2011: *Let those who proclaim the slogans of social and ethnic intolerance and are smuggling in all kinds of populist and provocative ideas that actually lead to national betrayal and ultimately to the break-up of our country, know that: we are a single Russian nation, a united and indivisible Russia.* In this context Putin could be considered as a 'statist' (*gosudarstvennik*) as he is preoccupied first of all with survival of the Russian state with its 20 millions of Muslims and over a hundred officially recognised ethnicities. He disbanded (in 2001) Russia's first Ministry for nationalities set up by academician Tishkov under president Yeltsin to deal with bilateral treaties demanded by Tatarstan and other national (ethnic) autonomies. Putin explained clearly that he would not tolerate any regional (ethnic) movements towards greater autonomy or self-determination:

> *As for notorious concept of self-determination, a slogan used by all kinds of politicians who have fought for power and geopolitical dividends, from Vladimir Lenin to*

Woodrow Wilson, the Russian people made their choice long ago. The self-determination of the Russian people is to be a multi-ethnic civilization with Russian culture at its core. The Russian people have confirmed their choice time and again during their thousand-year history - with their blood, not through plebiscites or referendums.

Putin's article *Russia: The National Question* appeared in ***Nezavisimaya Gazeta*** in January 2012 and two years later the Russian government criminalised any public pronouncements that could be considered as expressions of separatism. The above quote is important not only as a warning against future attempts to claim the right of self-determination but also as a clear rejection of Soviet (Leninist) nationality policies. Putin openly criticised Lenin in the past saying that Soviet Nationality policy, that accepted the right of self-determination for 15 Soviet republics, was a 'time-bomb' laid under the foundations of the Soviet Union.

By 2012 Putin openly disassociates himself from Lenin whom he listed among other 'all kinds of politicians', including a US president, who believed in the 'notorious

Vladimir Putin performs honor ceremony for Russian soldiers killed in World War I. **Photo: Russian Presidential Press and Information Office, Creative Commons Attribution 4.0 License, Wikimedia**

concept of self-determination' and merely fighting for personal power dividends.**2** Putin's 'national question' manifesto proclaims a clear departure from Marxist-Leninist postulate about evolution of nationally divided oppressed peoples into a future class-less culturally homogenised (communist) society. Instead, Putin states his belief in 'A multi-ethnic civilization with Russian culture at its core'. This is effectively Putin's statements of his civic nationalism i.e. a political principle assuming that Russian culture should coincide with the borders of the multi-ethnic Russian state. Borders, in Putin's view, that could not be challenged from inside or outside, but not limited to expand.

PUTIN'S NATIONALISM: KNOWN UNKNOWNS

In August 2014, a left-wing activist Darya Polyudova was charged with a crime of inciting separatism and placed in pre-trial detention soon after she finished serving a previous two-week sentence over a rally demanding a broader autonomy for the Krasnodar region. *Grani.ru* reported it was the first time Russian authorities had brought criminal charges under a

new law that took effect that year criminalizing calls for separatism. The rally organizers' page on the social network *VKontakte* called for broader economic autonomy and self-governance rights for their region, but made no demands for succession. Several newspapers commented that while Russian government calls for a broader autonomy for eastern Ukraine (Donbas), it has jailed a domestic activist for advocating the same kind of federalization rights for a southern Russian region, accidentally populated historically by the Cossacks from the Don region and Ukraine.

The irony is of course that while Russian borders cannot be challenged - they could be expanded by the Kremlin's design. NATO-sponsored research conducted by the GLOBSEC Policy Institute states that Russia started an information warfare campaign targeting Crimea two years before the invasion and illegal annexation. That timeline coincides with Putin's above-mentioned nationalism manifesto proclaiming the reign of 'Russian civilization'. The GLOBSEC report *Countering Information War. Lessons Learned from NATO*

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2   *Mr. Putin: Operative in the Kremlin. (2012) Fiona Hill, Clifford G. Gaddy. Brookings FOCUS Book*

and Partner Countries explained that similar information war tactics have been applied to other Central and Eastern European countries: *Propaganda effects are similar to cooking a frog - heating up the water until it is too late to react. … Russia's influence in CEE works like a microwave - heating up water molecules inside the meat (these countries) that are home-grown for their purposes.* It is clear that Putin's nationalism is conservative inside Russian Federation borders and expansionist on the outside. In fact, the Russian President staged a TV statement in 2016 saying that Russia's border 'doesn't end anywhere', while addressing a televised awards ceremony for geography students. He asked a nine-year-old boy where Russia's border ends and the boy replied 'at the Bering Strait'. Mr Putin provided his own answer, which he then said was meant as a joke.

In the past, Mr Putin has pledged to defend ethnic Russians wherever they live, so 'the known unknown' is where does Putin believe the Russian borders should naturally be in order to coincide with culturally 'Russian civilization'. Is his vision limited to the former USSR countries, Warsaw pact countries or can it include 'Russian Alaska'? Answering these questions could provide insight to the real intent of what General Philip Breedlove called 'the most amazing information blitzkrieg we have ever seen in the history of information warfare' waged by Russia.

Soldiers of the 1st Guards Sapper Engineering Brigade practice their assault and other military skills during a major exercise.
Photo: MOD of The Russian Federation, Creative Commons Attribution 4.0 Licence, Wikimedia

NEW EURASIANISM: IMPLICATIONS, CONTRADICTIONS AND VULNERABILITIES

Adoption of Eurasianism as a semi-official Kremlin ideology has contradictory implications for Putin's Russia. On the one hand, Eurasianism does have potential to unite multi-ethnic societies around the idea of a neo-imperial project with a Russian majority at its core i.e. 'making Russia Great again'. This could be presented as a joint project with ethnic minorities who can share in civic Russian patriotism. This would, however, require ethnic Russians admitting an equal role of Turkic-speaking minorities in their empire-(nation)-building project, which could be difficult, considering the high level of xenophobia against the very Turkic speakers who come to the Russian capital often as feared labour migrants. Russian 'ethnic' nationalists explicitly attack the new Eurasianists for attempts to promote 'Turaninan' minorities at the 'expense' of ethnic Russians.

At the same time, 20 million Russian Muslims would find it difficult to share the ideology of the Christian Orthodox 'Russian World', which is promoted alongside Eurasianism by its founding fathers and Patriarch Kirill. Muslims of Tatarstan are more likely to support Nazarbayev's anti-imperial version of Eurasianism than that of Putin's. Different interpretations of Eurasianism could lead to a rift between the two key participating Eurasian states - Russia and Kazakhstan, if not to open confrontation. Additional complication comes from unexpectedly fierce Ukrainian resistance to accept Putin's notion that Ukrainians are the same people as Russians. Most Eurasianists admit that predominantly Catholic Western Ukraine does not belong to the 'Russian World' and that undermines their whole idea that the rest of Ukrainians (even Russian-speaking Christian Orthodox ones) are spiritually closer to the Muscovites than to residents of Galician Lviv. Considering that most new Eurasianists accept the thesis about super-ethnos as a biological organism, the compromise with what is considered 'biological parts' of Russian super-ethnos is not really possible. Zero-sum game in inter-ethnic conflicts usually means war of attrition until physical destruction of the opposition. Messianic Christian mysticism underlying the 'Russian World' in Aleksandr Dugin's interpretation does not help either. All of these considerations explain Dugin's appeal in 2014 to stop any negotiations with the Ukrainian government and kill all Ukrainians resisting expansion of the Russian world: *Kill them, kill them, kill them. There should not be any more conversations. As a professor, I consider it so.*

CONCLUSIONS: UNKNOWN UNKNOWNS OF PUTIN'S EURASIANISM

Although Alexander Dugin's links to FSB, GRU, Russian General Staff, Duma and presidential administration are well-documented[3], it is not quite clear whether he is a product or an inspiration of Putin's Eurasianism. He is often referred to as Putin's 'favourite philosopher' or even 'Putin's brain', although others consider him not influential in the Kremlin. Dugin certainly does not hide his fascination with the Russian leader: *There are no more opponents of Putin's course and, if there are, they are mentally ill and need to be sent off for clinical examination. Putin is everywhere, Putin is everything, Putin is absolute, and Putin is indispensable.*[4]

Taking into account KGB's tradition of social engineering ('active measures'), it would be prudent to assume that the Eurasian movement is a test laboratory where one could safely play out ideas before implanting them into the wider Russian society and beyond. Not all ideas will take root, so experimenting might be essential in order to avoid negative political consequences i.e. popular rejection of ideas associated with Russia's leadership. The Novorossiya Project is a good example where the 'Young Eurasians' Movement was sponsored by the Presidential administration to penetrate Eastern Ukraine and test the idea that soon failed and was quickly withdrawn from the state-controlled Russian media. Dugin's public appeals to kill more Ukrainians in Donbas caused a public outcry and cost him his professorship at the Moscow State University after 10,000 people signed a petition.

So, what are other relevant ideas that the new Eurasianists are playing with? Shaping Europe as a joint living (settlement) space with Germany at the expense of Central European neighbours is a persistent one. Some Eurasianists even entertain the idea that Germany can 'buy into' the great bargain with Moscow if Berlin will be 'granted' East Prussia (Kaliningrad) back. Could Putin's success in 'Schroderization' of Germany be a hint of more things to come?

Formation of major Russia-Eurasian alliances with Tokyo and Teheran is another consistent theme, even though slightly corrected with Putin's reorientation towards China. Despite pursuing aggressive policies of 'land-grabbing' in the FSU area, the Kremlin seems to be quite liberal in settling territorial disputes with Japan that date back to the Second World War. Could the formation of

3   Bassin, Mark, (Ed.) *The Politics of Eurasianism: Identity, Popular Culture and Russia's Foreign Policy, (2017), Rowman & Littlefield International*

4   *Ibid*

the Berlin-Moscow-Tokyo axes be on the mind of the Russian leader as portrayed on the geopolitical drawings of the new Eurasianists?

Isolation of Great Britain as an American 'floating air-carrier' in Europe is another prominent theme in opposing American 'atlanticism' and making sure that Russia controls the entire Eurasian landmass and therefore, in Mackinder tradition, the whole world. How many of these ideas are shared by Vladimir Putin personally? The answer is unknown but might be irrelevant in the same way as nobody really knows whether Hitler believed in theories of Arian racial superiority or just used them to impose his will on the Germans and the outside world. What is clear is that more Eurasianist ideas could be tested unless the rest of the affected world will offer credible deterrence to halt the start of World War Three.

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The Robot Nerekhta taking part in the dynamic display of prospective samples of IWT within the first day of the Forum Army-2018.
Photo: Alexey Ivanov, MOD of the Russian Federation, Creative Commons Attribution 4.0 License, Wikimedia

The Russian Main Military Political Directorate

Dr Steven J Main, Russian Military Studies Office, provides a brief analysis of the new Military-Political Directorate of the Russian Federation.

Russian soldiers march in the 2018 Moscow Victory Day Parade. **Photo: The Presidential Press and Information Office, Creative Commons Attribution 4.0 License, Wikimedia.**

*'Without ideology, a soldier is not a warrior':
the creation of the Main Military-Political
Directorate of the Armed Forces of the Russian
Federation,(GlavVoenPUR), July 2018.*

Given the previous history of the role of the Communist Party of the Soviet Union (CPSU) in the creation, organisation and decades-long development of the Soviet Armed Forces (1918-1991), it would be tempting, on first sight, to think that the decision to re-create a military-political apparatus specifically for the country's Armed Forces was a bit of a romantic throwback to times past, when the world was painted in stark vivid colours of 'Red' and 'White', when the enemies (both internal and external) of the regime were all too obvious and the 'cause' - building a Communist society - 'right' and 'just'.

In the commemorative, anniversary year of the creation of the Red Army in 1918, the idea that, after an absence of 27 years, the state was now paying a belated acknowledgement and thanks to the selfless sacrifice and militarily important role of generations of CPSU and Komsomol (youth wing of the CPSU) members both in the development of the USSR's Armed Forces and the defence of the USSR does seem to have a degree of traction.[1] After all, under the guidance and leadership of the CPSU, the USSR did see off the threat of Nazi Germany in the 'Great Patriotic War' (1941-1945) and, during the Cold War (1948-1991), did keep at bay both the USA and NATO. However, whilst the weight of history is important in analysing the contemporary picture of both Russia and its Armed Forces, there is more to this decision than simply history and/or it being a romantic gesture. Given the seniority of the man placed in charge of the new Main Military-Political Directorate of the Armed Forces of the Russian Federation, (hereinafter

referred to by the English transliteration of its Russian abbreviation, *GlavVoenPUR*,or simply the Directorate) - Colonel-General Andrey Valerievich Kartapolov; the 'cost' (both in terms of training up the number of qualified personnel required and the actual running costs of operating potentially, at least, quite a large Directorate in a sanctioned-hit economy) and the combat experience of the Russian Armed Forces operating in Syria, it is clear that this decision has less to do with history, never mind 'romance', and much more to do with further preparing the country's Armed Forces to meet the new security challenges facing Russia.

At the end of July 2018, quoting an official decree on the President's official *portal*, the Russian News Agency, TASS, announced the (re-) creation of a military-political organ specifically for the country's Armed Forces, namely *GlavVoenPUR*. TASS further revealed that the former Commander of Western Military District (MD), Colonel-General Kartapolov is to head up the new body, when it begins operating properly towards the end of the year. In line with the new appointment and emphasising its overall importance, it was also revealed that Kartapolov has also been promoted to become one of Shoigu's - the Russian Minister of Defence - deputy defence ministers.[2] Although he will be discussed in more detail later, Kartapolov is already a name familiar to readers of BAR; he was profiled in this journal in the winter 2017 issue.[3]

Given the previous history of political work in the old Soviet Armed Forces between 1918-1991, the announcement created a flurry of speculation concerning the precise meaning of the nature of 'military-political work' to be carried out by *GlavVoenPUR*.[4] TASS itself - mindful of the fact that a section of its readership would not know much about the previous political apparatus of the Soviet Armed Forces, abolished over a quarter of a century ago, thought it helpful to publish, along with

1   *'Glavnoe voenno-politicheskoe upravlenie Vooruzhennykh Sil Rossiyskoi Federatsii', (https://ru.wikipedia.org/wiki%D%93%D%93%D%BB% D0%B0%D0%B2%D0%BD%D0... Accessed, 3/8/2018); A Nikol'sky, 'V Minoborony sozdano Glavnoe voennnno-politicheskoe upravlenie. Tak otmetili stoletie Glavnogo politupravkeniia Krasnoi armii, no kopirovat' sovetskiy obrazets ne budut', (https://www.vedomosti.ru/politics/ articles/2018/07/30/776924-glavnoe-upravlenie. Accessed, 3/8/2018).*

2   *Ukaz Prezidenta Rossiyskoi Federatsii o zamestitele Ministra oborony Rossiyskoi Federatsii-nachalnike Glavnogo voenno-politicheskogo upravleniia Vooruzhennykh Sil Rossiyskoi Federatsii, (Krasnaia Zvezda, 1/8/2018, 2); Glavnoe voenno-politicheskoe upravlenie sozdano v Minoborony, TASS, 30/7-2018, (http://tass.ru/armiya-i-opk/5413977. Accessed-31/07/2018).*

3   *Main, Steven J., 'Operational Strategic Command – the Western Military District (MD)', BAR, no.168, winter 2017, 37-47.*

4   *'Kartapolovu pridetsia borotsia s informatsionnymi voinami – voenniy ekspert o novom naznachenii v sfere Minoborony Rossii', (https:// news.rambler.ru/troops/40448082-kartapolovu-pridetsya-borotsya-s-informatsi… Accessed – 3.8/2018; S Gomzikova, 'GlavPUR, kak viasnilos', bessmerten', (https://www.discred.ru/2018/07/31/glavpur-kak-vyasnilos-bessmerten/ Accessed-3/8/2018); Yu Gavrilov, 'General na 'dvoinom' postu', (Rossiyskaya Gazeta, 30/7/2018 – https://rg.ru/2018/07/30/v-minoborony-poiavilsia-voenno-politicheskiy-glavk.html. Accessed – 3/8/2018); I Alksnis, 'Rossii nechego stesniat'sia. Na sozdanie voenno-politicheskogo upravleniia', (https://ria.ru/ authors/20180801/1525705815.html. Accessed-3/8/2018).*

*Armoured breakthrough at the Visla beachhead by the 1st Belorussian Front during the Great Patriotic War 1941-45. **RIA Novosti archive, image #611869, Alexander Kapustyankskiy, Creative Commons Attribution-Share Alike 3.0 Unported license, Wikimedia***

the announcement, a summary history of the old political apparatus of the nation's Armed Forces both immediately prior to the 1917 Revolutions and during the Soviet era (1918-1991).[5] In terms of rooting the proposed new system within a historical framework, TASS may have had a double purpose: first of all, to show continuity between the past and the contemporary situation and secondly to re-establish in the minds of its readership the idea that the military-political apparatus of the past was not solely a system whose main purpose was designed to politically 'brainwash' the men and women in uniform to serve blindly the ruling political regime, but also an important educational, combat, disciplinary, morale-boosting machine in the hands of the military command staff. For instance, the potted history produced by TASS reminded its readers that over 200 of the Armed Forces' political staff were made Heroes of the Soviet Union during the 'Great Patriotic War' (1941-1945) alone and that the *Wehrmacht*, realising the potentially

(still) dangerous importance of captured Red Army political workers, was placed under strict instructions to summarily execute all such prisoners.[6]

Without going into unnecessary detail about the misfortunes faced by the political apparatus of the nation's Armed Forces post-1991, by 1992, the Main Political Directorate of the Soviet Army and Navy became the Main Directorate for Working with Personnel of the Ministry of Defence. Following further name changes and re-organisation throughout the 1990s-2000s, it became the Main Directorate for Working with Personnel of the Armed Forces of the Russian Federation in 2010.

By 2017, its Head was Colonel V Baryshev.[7] According to 'sources in the MoD', *GlavVoenPUR* will either 'replace or take over completely the Main Directorate for Working with Personnel' and/or/ the latter will be the 'base' organisation for the formation of the new organ.[8] Thus,

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5   *Istoriia voenno-politicheskikh organov v rossiyskoi armii. Dos'e. Biografii i spravki. TASS. 30/7/2018 9http://tass.ru/info/5414711. Accessed –
    31/7/2018).*

6   *Istoriia…Ibid.*

7   *Ibid.*

8   *'Glavnoe voenno-politicheskoe upravlenie Vooruzhennykh Sil Rossiyskoi Federatsii', (https://ru.wikipedia.org/wiki%D%93%D0
    %BB%D0%B0%D)5B2%D0%BD%D0...Accessed-3/8/2018; A Ramm et al. 'Upravlenie patriotizma. GlavVoenPUR sozdaetsiia v Minoborony i
    drugikh silovykh vedomstvakh', Izvestiia, 1/8/2018 (https://iz.ru/772897/aleksei-ramm-aleksandr-kruglov...Accessed -10/8/2018).*

The military parade on red square to mark the 73-th anniversary of victory in the great patriotic war of 1941-1945 years.
Photo: The Presidential Press and Information Office, Creative Commons Attribution 4.0 License, Wikimedia

other than taking on the role of the previous directorate, sources also claim that the new Directorate will be 'responsible for the mass youth organisation, '*Yunarmiia*', ('Army of Youth') and for the conduct of 'all patriotic education' in the country's Armed Forces.[9] Interestingly, the initiative behind the decision to create the new Directorate, according to one source, came from Baryshev himself, apparently keen on further strengthening his own directorate and 'broadening the functions of the educational structures' in the Armed Forces.[10]

Obviously, it would appear that Baryshev's lobbying was perhaps too successful, if the decision means that his directorate is subsumed by *GlavVoenPUR* in time. The precise functions of *GlavVoenPUR* will not be known yet: according to another source from the Russian MoD:

The Ministry of Defence will [finish] forming the Main Military-Political Directorate by 1st December this year. The main task of the new structure will be to teach [educate] patriotism amongst the personnel. In order to achieve this, a number of [military] departmental newspapers may be passed to the control of GlavVoenPUR. If successful, similar structures may also be created in the other power structures

e.g. Ministry of Emergency Situations, FSB, Russian National Guard Service, etc.[11]

Thus, in the meantime, the Russian MoD will develop 'the establishment structure of *GlavVoenPUR*, its duties, as well as take decisions concerning its staffing.'[12] Ramm et al. were also quick to emphasise that, as currently envisaged, the new Directorate 'will not take part in the political life of the country. The main task of the structure is to educate ['*vospityvat*'] patriotism amongst [service] personnel.'[13]

Given the overall political nature of both the current use of the country's Armed Forces and its likely use in the medium-to long-term future, it is hard to envisage how the new Directorate will succeed in keeping nationalist – even with a small 'n' – politics out of 'patriotic education'. If, as is likely, *GlavVoenPUR* does take control of the country's military press, both central and local, then, as in Soviet times, the press - never mind the wider public military media outlets - will be an important element in disseminating the 'patriotic' message amongst the troops that will not be critical of the central government on anything, either in terms of domestic policy, never mind on questions of national security or foreign policy.

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9   '*Glavnoe voenno-politicheskoe upravlenie…*', ibid., 1.
10   Ibid., 2.
11   Ramm et al., ibid., 1.
12   Ibid., 1-2.
13   Ibid., 2.

Thus, the work undertaken by *GlavVoenPUR* from the start will be 'political', hiding behind the fig leaf of 'patriotism', as it seeks to influence the minds of the men and women in uniform, as well as counter-act what it perceives to be the wider Western campaign, criticising Russia and its Armed Forces.[14] 'Patriotism' may appeal to the heart, but *GlavVoenPUR* will also make a direct appeal to the head, as well as the heart or, at least, attempt to control what goes into the head of the soldiers. However, given the increasing use of other media, it will probably also be likely that the Directorate will be given control of other MoD media-related outlets, not just the 20th century mass media outlets, like the press and TV. The 'patriotic' message, delivered by whatever means, will be pro-Putin, pro-the Kremlin interpretation of events, be they internal or external, and will attempt to further cement the loyalty of the Armed Forces to the Kremlin. In itself, this should come as no surprise; all ruling governments, through a variety of steps, must ensure the loyalty of their Armed Forces to the sitting government. In this respect, Russia is no different.

However, Russia is different in other ways - and this is where history becomes ever more important in analysing and understanding Russia today - and, over the course of the last century, accumulated a great deal of experience and knowledge in using 'political work' both to destroy one Army and help create an entirely new one, almost from scratch.[15] In short, it is disingenuous, even at this stage, for both commentators and officials to say that '*patriotic*' work will only be carried out. It will come as no surprise when those who decide what is meant by the term, 'patriotism', will take all necessary steps to ensure that, mixed in with the 'patriotic' nature of the work to be undertaken will be a very strong dose of Kremlin politics. Of course, it will take time for the work to take root and develop but the old post-Soviet mantra - 'the Army is outside of politics' - has now been cast aside and the accumulated experience of the old political apparatus in controlling a multi-ethnic, multi-national, multi-confessional, technically specialised, Army will

be used, with modifications, given both the political and military changes that have taken place on a global-scale over the past quarter of a century. In this context, there can also be very little doubt that the role of the Military University of the Russian MoD - formerly better known as the V I Lenin Military-Political Academy - will be crucial in developing the new military-political apparatus.

In light of operations in Eastern Ukraine and, more importantly, Syria, there can be no doubt that Russia's senior political and military leadership are very aware that leaving 'patriotic' work to the caste of 'military priests' simply was not producing the expected results and have opted to go back in order to go forward, by re-creating a military-political apparatus better suited for today's modern military force, required to operate in a multi-dimensional operational environment. As will be examined below, given the recent past, one can speculate what potential avenues the future work of the Directorate will take but what can be said at the very start is that one of the main tasks of *GlavVoenPUR* , as in the past, will be to more tightly bind the country's Armed Forces even closer to the political interests of the ruling power in the Kremlin, for better or worse.

Before examining the potential future work of the new Directorate, it would be useful to examine in a bit more detail its Head, Colonel-General Kartapolov.

COLONEL-GENERAL ANDREI V. KARTAPOLOV
Without repeating what has already been written and published on Kartapolov in this journal, what follows below is an update on the man, based on information and comment made public since his appointment to head *GlavVoenPUR* in July 2018.[16] In general, the overall press comment and expert analysis has been very positive, with many focussing on his (admittedly brief) handling of Russian military operations in Syria (December 2016-March 2017).[17] One article, published in the highly respected international affairs/business weekly, '*Kommersant-b*', outlined his involvement in Russia's Syria campaign:

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14   Gomzikova, ibid. 1.

15   There is a wealth of literature on this, in Russian, published over the space of decades. A few of the best examples are the following:
       Miller, V.I., 'Soldatskiie komitety Russkoi Armii v 1917 g.', (M.1974); Frenkin, M. 'Russkaia Armiia i revoliutsiia' 1917-1918, (1978); 'Voennye
       organizatsii partii Bol'shevikov v 1917 godu', (M.1986); 'Revoliutsionnoe dvizhenie v Russkoi Armii. 27 fevralia-24 oktiabria 1917 goda',
       (M.1968); Klochkov, V.F., 'Krasnaia Armiia – shkola kommunisticheskogo vospitaniia sovetskikh voinov. 1918-1941,' (M.1984); Kavtaradze,
       A.G., 'Voennye spetsilaisty na sluzhbe Respubliki Sovetov. 1917-1920 gg.; (M.1988).

16   Main, 'Operational…', ibid.

17   'Kartapolovu pridetsia borot'sia s informatsionnymi voinami – voenniy ekspert o novom naznacehnii v sfere Minoborony Rossii', (https://
       news.rambler.ru/troops/40448082-karatapolovu-pridetsya-borostya-s-informatsi... Accessed 3/8/2018); Gomzikova, S., 'V Minoborny sozdano
       Voenno-politicheskoe upravlenie', (DISCRED.RU:https://www.discred.ru/2018/07/31/glavpur-kak-vyasnilos-bessmerten/ Accessed 3/8/2018);
       Alksnis, I., 'Rossii nechego stesniatsia. Naz sozdanie voenno-politicheskogo upravleniia', (https://ria.ru/authord/20180801/1525705815.
       html. Accessed 3/8/2018). Interestingly enough, his Syrian service is not recorded in his official Russian MoD biography: 'Ministerstvo
       oborony Rossiyskoi Federatsii: informatsiia o rukovoditele. Kartapolov Aandrei Velerovich. (https://structure.mil.ru/management/deputy/more.
       htm?id=11960036@SD_Employee…Accessed 3/8/2018).

Commander of the Western military district Colonel General Andrey Valerievich Kartapolov. *Photo: Ministry of Defence of the Russian Federation, Creative Commons Attribution 4.0 License, Wikimedia.*

Andrei Valeriyevich Kartapolov commanded the Russian Troops Grouping in Syria from 19 December 2016 through 1 March 2017. He participated in the development of the plan for the return of Palmyra to government forces control. In a Rossiya 24 Television Channel interview, the General acknowledged that not only Russian aviation but also special operation forces… conducted reconnaissance [patrols] and destroyed the most important facilities [of the terrorists], played an important role in the liberation of Palmyra.[18]

Another analyst, referring back to his time when he commanded the Western MD, stated that 'colleagues' of Kartapolov have noted his 'politeness and intelligence', qualities that helped him establish a 'good relationship' with regional authorities when he was in charge of the Western MD.[19] Prominent Russian military commentator, Viktor Litovkin, in his initial reaction to the news surrounding Kartapolov's appointment, stated that:

Kartapolov is a very authoritative figure, who not only has experience of leading troops in peace time, but also of managing them in combat operations in Syria.[20]

Combining both elements of his recent career, a number of analysts have hinted at the distinct possibility that his time at the Western MD prepared him well for his time in Syria: in the words of one, he developed 'combat operations in the event of war, or armed conflict', when he commanded the Western MD, whilst another noted that, under his command, the MD held some 350 'snap' exercises, whose overall performance was rated as 'good'.[21]

In the words of the President of the Academy of Geopolitical Issues, Colonel-General L G Ivashov:

He [Kartapolov] has not only witnessed combat operations against terrorists, but has profound experience of the different forms of demoralisation [which can break out amongst] of [service] personnel, has seen what hybrid warfare is, the information-psychological component.[22]

Finally, in the words of one who admits to knowing the man 'well', further praises his intimate knowledge of service life:

The military man who heads the Directorate must enjoy authority amongst [service] personnel. I know General Kartapolov well. He has risen from squad leader to command a military district. He knows the life of an officer, a soldier and one cannot get better than that when approaching the post of Chief of the Main Military-Political Directorate. This is not a Party-worker, but a real commander, who will guide ['orientirovat'] the [service] personnel to carry out their constitutional duty.[23]

CONCLUSION

In some respects, the 'patriotic' education of Armed Forces personnel should not be too difficult an area for the new Directorate to develop. After all, the military higher-educational institutions have prepared a wide variety of specialists in the areas of 'morale-psychological support of the troops', information-educational work',

18   'Russian MoD's new department to boost 'patriotism among staff', (BBCM, 1/8/2018).
19   Lazarcheyev, K. 'Glavnoe voenno-politicheskoe upravleni sozdano v Minoborony', (https://defence.ru/article/glavnoe-voenno-politivheskoe-upravleni-sozdano-v-minoboro... Accessed 3/8/2018).
20   'Kartapolovu pridetsia borotsia....', ibid.
21   Gavrilov, Yu., 'General na 'dvoinom' postu', (Rossiyskaya gazeta, 30/7/2018: https://rg.ru/2018/07/30/v-minoborony-poiavilsia-voenno-politicheskiy-glavk.html. Accessed 3/8/2018); Lazarcheyev, ibid.
22   'Zhizn' i geopolitika brosaiut nam novye vyzovy', (https://www.znak.com/2018-07-31/v_rossiyskuyu_armiyu_vernutsya_politruki_dlya... Accessed 3/8/2018).
23   Ramm, ibid., 4. The author of the quote was A Kan'shin, Deputy-Chairman of the Public Council of the Russian Ministry of Defence.

A Russian Mig 31 works out a simulated missile interception during an exercise. **Photo: Ministry of Defence of the Russian Federation, Creative Commons Attribution 4.0 License, Wikimedia**

'military-social work', etc. There are also programmes designed to qualify 'educator-psychologists' ['*pedagog-psikholog'*]. And yet something must not be working properly. After all, if the system was not broken, why fix it?

Although this is speculative, it could be that the fighting in Syria, for instance, revealed a number of defects in the 'patriotic' education currently being undertaken in the Armed Forces and that steps have had to be taken in order to repair the current system of military-political education.

A few years back, a very limited edition of a book commemorating the 95th anniversary of the creation of the first effective centralised political organ for the Red Army - *Political Directorate of the Revolutionary Military Soviet of the Republic (PUR)* - was published.[24] Although there is no space to go into any detail about a lot of what was discussed in the book, the book concluded that what the Armed Forces really lacked was not simply good technology, better service conditions, better pay, but a strong sense of commitment to a national, never mind societal, ideal:

For more than a quarter of a century, our society has lived in a state of spiritual and ideological indeterminateness. Namely the overly cautious attitude towards a state ideology has not allowed the formation of a national idea, a societal ideal, even to the extent of determining what society we live in. Against this background, there is a growing unease, a lack of the necessary attention, on the part of the leadership of the country and the Armed Forces, to the main component of developing the military – the morale-moral element. In many conversations and debates on reforming the Armed Forces and no less in many official documents… on military reform, the spiritual-moral aspect is either totally lacking or, in the majority of instances, simply mixed up [with something else]…Unfortunately, the question of what type of person, in the not too distant future, the future defender of the Motherland will be, his spiritual base, the morale side of his service and everyday life, attracts no attention.[25]

Is this what the re-creation of the military-political apparatus of the country's Armed Forces is ultimately

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24   *Glavnoe politicheskoe upravlenie Sovetskoi Armii i Voenno-morskogo Flota – v zerkale istorii i sovremennosti. 95-letiyu Glavnogo politicheskogo upravleniia Sovetskoi Armii I Voenno-morskogo Flota posviashchetsia. (M.2014).*
25   *Ibid., 525.*

*An MI35M attack helicopter of the Russian Federation hovers during a display at the International Aviation and Space Salon, MAKS-2017 that took place in Zhukovsky 17th to 23rd July 2017. MAKS-2017 showcased products from more than 880 companies including 180 foreign manufacturers from 36 countries. **Photo: Vitaly V. Kuzman Creative Commons Attribution-Share Alike 4.0 International license, Wikimedia.***

tasked to achieve: returning the 'soul' back to the 'warrior'? As Ivashov remarked, *it has taken us almost three decades to realise: a soldier, in general, without ideology - is not a warrior.*[26]

It would appear that Russia's senior political and military apparatus are now further readying the soldiers not just physically, or even militarily technologically, to fight for the space on the Earth called 'Russia', but also for the country's very identity - its heart, mind and soul.

26   *Gomzikova, ibid., 2.*

What kind of Victory for Russia in Syria?

This article by **Michael Kofman** and **Matthew Rojansky, JD**, is reprinted with the permission of *Military Review*, the Professional Journal of the US Army, Combined Arms Centre, Fort Leavenworth, Kansas. It was originally published in the March/April 2018 issue of *Military Review*.

President of the Syrian Arab Republic Bashar al-Assad (second from left), Russian President Vladimir Putin (centre), Russian minister of defense General of the Army Sergei Shoigu (second from right), and chief of the general staff of the Russian Federation armed forces General of the Army Valery Gerasimov (right) meet 21 November 2017 in Sochi, Russia, to discuss the closing phases of Russian support for operations in Syria.
Photo courtesy of Administration of the President of Russia

The war in Syria has ground on for more than half a decade. Hundreds of thousands have died, entire cities and towns have been destroyed, and billions of dollars in infrastructure have been decimated. Millions of refugees have flooded into neighbouring Middle Eastern states that can ill afford to house them, while others have sought safety as far away as Europe and North America, exacerbating divisive battles over immigration, jobs, and cultural identity in Western democracies.

Syria has tested every world leader individually and collectively, and has laid bare the failure of international institutions to deal effectively with the problems those institutions were designed to manage and prevent.

Despite a prolonged commitment of U.S. military and diplomatic resources to the conflict, a peaceful settlement remains remote, and the bloody-handed Assad regime remains firmly in control of population centres along the Mediterranean coast. The impending battlefield defeat of the Islamic State (IS) in the desert interior of Syria and Iraq is qualified by the fact that its fighters have joined and inspired more elusive terror cells outside the region.

Meanwhile, the Russian-led coalition, including Syrian forces, Iran, and numerous allied militias, appears to be closing in on its own military and political objectives. The Syrian conflict will likely enter a new phase, as both IS and the Syrian opposition cease to be relevant forces, and the two coalitions seek to negotiate a post-conflict settlement. While it is far from assured that any settlement acceptable to the principle domestic and international players can be struck, for now the main outcome of this war is that President Bashar al-Assad will stay, but the Syria that existed before the war is gone.

Russia has only been directly involved in this conflict since September 2015, but its intervention has radically changed the war's outcome. The natural question is whether Russia has, in fact, won a victory. The answer to that question depends first on what Moscow intended to achieve - in other words, how did and does Russia define victory in Syria, what are its continuing interests there, and have those interests been secured or advanced?

How did the Russians achieve their successes, both on the battlefield and on the wider diplomatic and political stage? Finally, armed with a better awareness of how Russia's Syria campaign measured up in terms of Russian objectives and capabilities, what lessons should

Americans take away for future U.S. engagement in Syria, the Middle East, and beyond?

ORIGINS OF THE RUSSIAN INTERVENTION

That American and Russian military power came to meet on the ground and in the skies over Syria in 2015 is a kind of historical accident. The country was hardly the centrepiece of either state's global strategy, or even their respective regional policies.

Russian-Syrian relations draw on a Cold War legacy, since Moscow first began to support Syria after the 1956 Suez Crisis. However, Syria did not become a true client state of the Soviet Union until 1971. The Soviet Union gained a well-situated naval base in Tartus, on Syria's Mediterranean coast, to support its Fifth Eskadra - an operational naval squadron - along with intelligence-gathering facilities ashore. Following the collapse of the Soviet Union in 1991, Soviet fleets departed the Mediterranean, and the importance of Syrian bases rapidly declined. Moscow had far less cash available to sustain its patronage network of client states; relations with Syria became decidedly transactional, as Russia sought payment for continued arms sales. Russian ships continued exploiting the port of Tartus as a minor resupply point, but with little military significance. Tartus was, in any case, ill-equipped for Russian ships to dock, and for a lengthy period, there was little Russian naval activity to even merit its use. That changed in the wake of the 2015 Russian intervention.

The expanded Tartus port is now much more capable of supporting operations and resupplying the Russian Mediterranean squadron, which was stood up in 2013 for the purpose of supporting Syria.

In general, Russia did not seek bases in Syria; it had to establish them and expand existing infrastructure to save the Syrian regime. Buoyed by perceived success, and looking to stay, in 2017 Russia signed a forty-nine- year lease on Tartus, which is still in the process of being upgraded into a serviceable naval base. What the Syrian relationship truly offered for post-Soviet Russia was a position in the Middle East, which helped confer Great Power status in international politics. A confluence of events led to what would become Moscow's most significant military foray beyond the immediate post-Soviet space in over a quarter century.

Although Russia had lingering interests in Syria, the changing context of U.S.-Russia relations beginning in 2011 was a more influential factor in how Moscow would come to view this conflict. Russia's response to the U.S.-led intervention in Libya in that year was categorically negative, and Moscow sought to draw a line in the sand in Syria, opposing U.S. use of force to advance what it viewed as a 'regime change' agenda. Foreign Minister Sergei Lavrov applied the Libya logic to Syria directly in May 2011, when he said, *The calculation is that foreign players will get imbued with this problem and will not only condemn the violence there, but subsequently repeat the Libyan scenario, including the use of force.*[1]

The cornerstone of Russian policy in Syria became preventing the United States from carrying out a Libya-like intervention to overthrow Assad. Lavrov warned,

'Some leaders of the coalition forces, and later the NATO secretary-general, called the Libyan operation a 'model' for the future. As for Russia, we will not allow anything like this to happen again in the future.'[2] The fear of yet another U.S. military intervention, this time much closer to Russia itself, and targeting its only remaining client in the Middle East, was seemingly vindicated when President Barack Obama called for Assad to step aside.[3] Russia was determined to check U.S. interventionism, initially by supplying the Syrian regime with arms and equipment, and by blocking efforts to pressure the regime in the UN Security Council.

Equally important was the firm belief among Russian elites that Assad's downfall would result in IS and al-Qaida affiliates taking over the country, spelling disaster for the region and creating a potential super-highway for

Members of the Russia-Syria-Iran-Iraq coalition after the liberation of Palmyra. Photo: Jawad Shaar, Tasnim News Agency, Creative Commons Attribution 4.0 International License, Wikipedia

1 Sergei Lavrov and Russian Media, 'On Syria and Libya,' Month ly Review (website), 17 May 2011, accessed 15 December 2017, https://mronline.org/2011/05/17/on-syria-and-libya/. Th text is an excerpt from 'Transcript of Russian Foreign Minister Sergey Lavrov's Interview to Russian Media Following Attendance at Arctic Council Meeting, Nuuk, May 12, 2011,' published on the Russian Foreign Ministry website on 13 May 2011.

2 Sergey Lavrov's Remarks and Answers to Media Questions at Joint Press Conference with UAE Foreign Minister Abdullah Al Nahy- an,' The Ministry of Foreign Affairs of the Russian Federation (web- site), 1 November 2011, accessed 10 January 2018, http://www.mid. ru/en/vistupleniya_ministra/-/asset_publisher/MCZ7HQuMdqBY/ content/id/186758.

3 Phillips, Macon, 'President Obama: Th Future of Syria Must Be Determined by Its People, but President Bashar al-Assad Is Standing in Th r Way,' White House Press Offi e (website), accessed 19 December 2017, https://obamawhitehouse.archives. gov/blog/2011/08/18/president-obama-future-syria-must-be-deter- mined-its-people-president-bashar-al-assad.

Sunni extremists into Turkey and the Caucasus. This concern was somewhat vindicated as the ongoing civil war combined with the displacement of civilians due to the rise of IS resulted in a massive refugee flow into Turkey, neighbouring countries, and central Europe, causing uncertainty and threatening regional stability. Unlike distant Libya, a complete implosion of Syria was not only too close for Russia's comfort, but thousands of Russian citizens and thousands more Russian-speakers from the wider region had already joined militant extremist groups fighting there.[4] Moscow feared that in the event of an IS victory, some of those fighters would enter Russia and join insurgencies in the North Caucasus or plot attacks against the Russian heartland. Accordingly, some Russians described entering the fray in Syria as launching a preventive war against terrorism.

Russian interests and objectives in the Syrian intervention also stem from the collapse in Russia-West ties following Moscow's invasion of eastern Ukraine and annexation of Crimea in 2014. In this sense, U.S. and European sanctions and diplomatic pressure catalyzed the Russian decision to intervene in Syria. Rather than giving in to Western pressure and offering concessions on Ukraine, Moscow looked to Syria to broaden the confrontation on terms more favourable to itself. Eventually, Russia hoped its Syrian intervention could force Washington and its European allies to abandon Ukraine-related sanctions and diplomatic isolation in the interests of achieving a negotiated settlement with Russia over Syria.

Russian domestic political considerations were also a factor, though their role should not be overstated. Russia's military dealt Ukraine a blow at the battle of Debaltseve in February 2015, leading to the second Minsk ceasefire agreement, which appeared to be a political victory for Moscow. The agreement quickly broke down, however, and Western sanctions remained in full effect, taxing the Russian economy at a time of persistently low energy prices. Struggling to stabilize the economic situation at home, and with policy in Ukraine increasingly adrift there was little prospect for Russian leadership to gain further victories either at home or in Russia's near abroad. Although Moscow hardly saw entering a bloody civil war in the Middle East as a path to easy gains, Russia's tolerance for the risks attendant on intervention grew dramatically in the face of these domestic and international pressures.
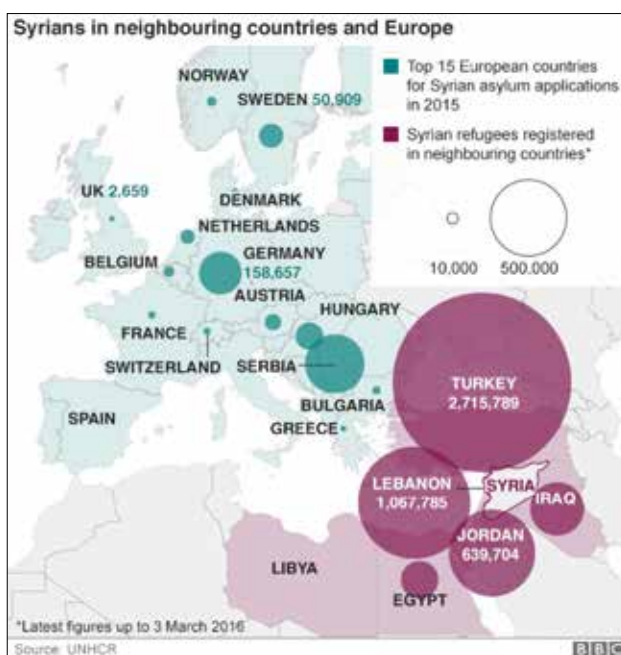

Figure 1: Map courtesy of the BBC. The latest figures show up to 03 March 2016. Source UN High Commissioner for Refugees.

A limited Syrian intervention, calibrated to reduce political risk at home, became the less perilous proposition. By mid-2015, Moscow had few alternatives to use of force if it hoped to shore up the Assad regime, its ally in Damascus. In April, the situation for Assad's forces was dire. Al-Qaida's affiliate in Syria, Jabhat al-Nusra, had assembled a coalition of fighters into the 'Army of Conquest,' which drove back regime forces in the northwest and threatened major population centres further south. At the same time, IS was pushing westward, and had captured the historic city of Palmyra. Assad's forces were being squeezed, and they were falling back on almost all fronts. That summer, the head of Iran's Quds Force, Qassem Soleimani, together with senior Syrian officials, made several trips to Moscow in an effort to coordinate a military intervention.[5] By August that year, there were clear indicators that Russia was preparing to intervene, and when Russian tactical aviation began arriving at Hmeimim Air Base in September 2015, the die was cast. Figure 2 depicts the approximate Syrian situation in terms of territorial control exercised by participants in the conflict near the outset of Russian operations initiated in support of the Assad regime.

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4   Frolov, Vladimir, 'Signing In is Easier than Quitt ng,' Vedo- mosti (website), 29 September 2016, accessed 19 December 2017, https://www. vedomosti.ru/amp/a00ffd6a64/opinion/ articles/2016/09/29/658952-voiti-legche-viiti.

5   'Iran Quds Chief Visited Russia despite U.N. Travel Ban: Iran Offi al,' Reuters, 7 August 2015, accessed 19 December 2017, http://www. reuters.com/article/us-russia-iran-soleimani-idUSKCN- 0QC1KM20150807; Michael Kofman, 'A Tale of Two Campaigns: U.S. and Russian Military Operations in Syria,' Pathways to Peace and Security 1, no. 52 (2017): 163–70.

Figure 2: Syrian Civil War: Territorial Control Map as of November 2015. Graphic by edmaps.com: Twitter, @edmapscom; © 2017 Christian Ionita

FRAMING THE RUSSIAN INTERVENTION

Although hemmed in by tactical necessities, Moscow's entry into the Syrian fray was also strategically ambitious.

A successful intervention could offer victory on three fronts: preventing U.S.-backed regime change in Syria, breaking out of political isolation and forcing Washington to deal with Russia as an equal, and demonstrating at home that Russia is a great power on the main stage of international politics. Moscow hoped Syria would offer a new and more favourable front, where the United States could be outmanoeuvred in the broader confrontation, which up to 2015 centred almost entirely on Russian actions in Ukraine.

Once military operations began, as is often the case with military campaigns, the intervention would take on additional objectives, reflecting secondary or tertiary vested interests. 'Ambition creep' is a common illness afflicting most great powers when they deploy military forces. Russia may not have come to Syria with hopes of regaining power and status in the Middle East at the top of its agenda, but regional aspirations grew with each success on the battlefield. As a consequence, Russia has become a potential powerbroker, and perhaps a balancer against U.S. influence, even if it did not embark on the Syrian campaign with those goals in mind.

Whatever Russian expectations of success may have been - and there are indications that the Syrian leadership misled Moscow early on as to the true state of its forces (historically not an uncommon practice for Damascus) - Moscow pursued a campaign with both political and military objectives in fairly close alignment. These efforts were mutually reinforcing, but a path to victory had to overcome steep challenges.

On the ground, Russian forces had to find a way to quickly and dramatically alter the balance in Assad's favour by destroying the opposition's capacity to continue the fight, while working under severe resource constraints. In parallel, Russia had to change the calculus and policy of its principal opponents in this conflict, including Turkey, the United States, and Saudi Arabia, while entering into arrangements with other potential actors in the region. Otherwise, military gains would quickly disappear in the sand, and a political victory would be elusive. Russia also needed a political process running concurrently to lock in military gains on the ground, since as Mao Zedong wrote, political power would 'grow from the barrel of a gun.'

Relations with allies like Iran, co-belligerents in the form of local militias, or potential spoilers such as Israel had to be carefully managed. The compound risk of conflicting political incentives and operational objectives among these parties made for a complex battle space. The risks of escalation to direct conflict between the intervening powers were considerable, as under-scored by Syria's use of chemical weapons in March 2017, resulting in a prompt retaliatory U.S. cruise missile strike, or the Turkish shoot down of a Russian Su-24M2 in November 2016. Russia led the coalition, but never controlled it; thus, it had to be comfortable with uncertainty and the associated risk of having the likes of Syria, Iran, and Hezbollah on its team.

Success for Russia entailed securing a commitment from the other parties to pursue a political settlement largely on its terms. This meant convincing Saudi Arabia and Turkey that their respective proxies had no chance of victory in the war, and pushing the United States to abandon its policy favouring regime change. Over time, Moscow achieved success on both the military and political fronts, coercing adversaries and negotiating changes to their positions one by one, though the pathway to this outcome was hardly a smooth or straightforward one. Russia's success is not unqualified, but at the time of this writing, it appears that if the campaign in Syria is not a victory for Russia, it is certainly a defeat for those who opposed the Russian-led coalition.

A Russian air defense battery in December 2015. A Pantsir-S1 close-range defense system and two launch vehicles for S-400 long-distance flight missiles at Latakia. **Photo: Ministry of Defence of the Russian Federation, Creative Commons Attribution 4.0 licence, Wikimedia**

RUSSIAN STRATEGY IN SYRIA

To achieve this success, Russia had to secure some leverage in Syria, which in turn rested on being able to destroy the Syrian opposition and compel opponents to change their policies, forcing them and their proxies in the conflict to the negotiating table on terms favourable to Russia's coalition. Moscow also sought the opportunity to reframe itself as a positive force in the battle against terrorism, and press the United States into military cooperation. Russian leaders hoped this would ultimately fracture Western cohesion on punitive measures imposed over Ukraine, and grant Russian President Vladimir Putin recognition as a prominent player in international affairs.

These were the desired ends, yet the Russian strategy was not deliberate. If anything, Russia pursued an 'emergent,' or 'lean,' strategy. This was an approach characterized by the 'fail fast, fail cheap' ethos of startup business, with iterative adjustments to the operation. The centrepiece of this strategy was flexibility, with a preference for adaptation over more structured strategy. In emergent strategy, success begets success, while

failure is never final or disqualifying. Several vectors are pursued simultaneously, and at times, they may even appear to be contradictory. Resources are added in favour of the approach that shows the most progress, while others are discarded without regard to 'sunk costs.'[6]

To be successful in implementing a lean strategy, leadership must be agile, politically unconstrained, and uncommitted to any particular approach in the battlespace. In Russia's case, it actually helped being an authoritarian system, and having relatively few allies or other geopolitical constraints on decision-making. But Russia also had few other options. Given resource constraints and high uncertainty, including poor information about the reality on the ground from its allies, Russia was not in a position to pursue a more deliberate strategy. That limitation ultimately played to Russia's advantage relative to other powers, which expended considerably more blood and treasure via structured and deliberate, but ultimately less successful approaches in the region.

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6   Kofman, Michael, 'The Moscow School of Hard Knocks: Key Pillars of Russian Strategy,' *War on the Rocks* (website), 17 January 2017, accessed 19 December 2017, https://warontherocks.com/2017/01/ the-moscow-school-of-hard-knocks-key-pillars-of-russian-strategy/.

Russia's lean strategy worked, because when flawed assumptions were proven wrong in the conflict, it could quickly pivot and adapt.

Still, the limitations of the Russian armed forces imposed hard constraints on Russia's overall operation. The Russian military had almost no experience with expeditionary operations after withdrawing from Afghanistan in 1989, Syria itself had limited capacity to host a major military footprint, Russia's long-range supply and support capabilities were weak, and the Russian military was in the midst of major reforms and modernization. Coordinating with Iran and its associated Shia militias like Hezbollah was an added complexity on an already crowded battlefield, while Russian commanders had a generally low opinion of Syrian forces' combat performance. In short, it was far from clear how the forces Russia could deploy would make the impact needed to turn the conflict around. Early on, outside observers doubted the prospects for Russia's intervention, especially given recent Western experiences in expeditionary operations in the Middle East.

The campaign Russia envisioned would be based on a small footprint to keep its exposure low, reducing the chances of being steadily dragged into a conflict where local actors increasingly gain leverage over a stronger international benefactor. Russian leadership instead sought room to manoeuver, retaining flexibility and the option of quick withdrawal should things go badly. In the early days of Russia's intervention, physical constraints limited its presence. Tartus was not a real naval base, Hmeimim Air Base lacked apron space for a large contingent of Russian aircraft, other Syrian bases were exposed, surrounded, or ill-equipped, and Russian logistical support would have limited throughput.

In short, reality helped dictate a more conservative and ultimately smarter approach to the battle space. It was not Moscow's skill or experience, but the absence of abundance and limited options that made the Russian armed forces savvier in how they approached the conflict. That said, even after expanding the Syrian air base and making major investments in the naval facility, Russia's General Staff continued to calibrate presence down to the

A Russian Su-34 fighter-bomber drp[s a LAB-550S, a 560kg satellite-guided bomb, on an enemy position 9 October 2015 in the Aleppo or Raqqa region of Syria. **Photo courtesy of the Ministry of Defence of the Russian Federation**

bare minimum necessary. By 2017, it became clear that despite increased local capacity to host Russian forces, and improved infrastructure, Moscow was reluctant to use it. The opportunity to expand the means applied to this conflict was there, but Russia did not want it, judging that Syria would not be won with a means-based approach, the all too familiar 'more is more' school of thought.

The Russian strategy was about Syrian, Iranian, and Shia militias doing the fighting and Russian forces providing support, not the other way around. Syria continued to reveal the general Russian preference to use local forces first, mercenaries and other Russian proxies second, and its own forces last, only for decisive effect on the battlefield. Russian military power would pulse, peaking when necessary in support of offensives and withdrawing when judged unneeded.

RUSSIAN COMBAT OPERATIONS IN SYRIA

When Russian forces first arrived in Syria in September 2015, they inherently introduced a new dynamic, compelling what became a dialogue on 'deconfliction' arrangements with the United States. Several Su-30SM heavy multirole fighters were shown on the runway at Hmeimim Air Base as Su-24M2 bombers began to deploy. Leveraging an upcoming UN Security Council General Assembly summit, Moscow pressed for a high-level bilateral meeting between Putin and Obama - a break from what had been more than a year of U.S.-imposed diplomatic 'isolation' of Russia in the wake of Russia's annexation of Crimea.

Though the Obama administration rankled at the appearance that it had been coerced into restoring military dialogue, the risk of a military incident between the two big nuclear powers in the skies over Syria trumped other considerations.[7] In a ninety-minute discussion, the two sides agreed to continue efforts to 'deconflict' operations. Within days, Russia had achieved its first political gains from the intervention, which had yet to conduct a single sortie.

Still, it was clear that there was no agreement on the political way forward in Syria, and early Russian targeting in the air campaign, which launched on 30 September 2015, revealed that Russia's air wing would focus on the 'moderate' Syrian opposition under the rubric of a counterterrorism fight. Moscow's rules of engagement were relatively simple: there was little to no distinction between the various non-government armed groups in Syria, as all except for Kurds and pro-regime militias would be considered 'terrorists.' Putin declared at the UN assembly, *We think it is an enormous mistake to refuse to cooperate with the Syrian government and its armed forces, who are valiantly fighting terrorism face to face. We should finally acknowledge that no one but President Assad's armed forces and Kurdish militias are truly fighting the Islamic State and other terrorist organizations in Syria.*[8]

This was not just a matter of convenience for the sake of establishing a free-fire zone. Indeed, from Russia's perspective, there was no such thing as a 'moderate' opposition in Syria, and the entire term was a misguided Western invention aimed at legitimizing extremists opposed to Assad. The Russian political strategy at home and abroad was to frame the conflict as binary - only Assad's regime had legitimacy, and all others were de facto terrorist groups of varying stripes allied with IS or Jabhat al-Nusra.[9] Over time, Russia would also seek to create a systemic opposition, cobbling together forces that would be amenable to sharing power with the Assad regime.

Taking advantage of the momentum in 2015, Russia set up an intelligence sharing and coordination centre in Baghdad, which included Syria, Iran, Iraq, and Israel. The centre's purpose was to deconflict Russian air operations with neighbouring countries. Moscow also hoped to create the public sense that it was leading a coalition of countries in a counterterrorism effort no less legitimate than the U.S.-led coalition against IS. Russia's leadership sought to parlay this posture and the U.S.-Russian deconfliction dialogue into more formal recognition of U.S.-Russia cooperation in Syria. Indeed, Moscow repeatedly asked for Washington's acknowledgment of the Russian-led coalition as a legitimate partner in the Syrian war, which would have amounted to a recognition of Russia as Washington's geopolitical 'equal,' at least in this context.

7   Welsh, Teresa, 'Obama, Putin Meet in New York,' U.S. News & World Report (website), 28 September 2015, accessed 19 December 2017, http://www.usnews.com/news/articles/2015/09/28/ obama-putin-meet-in-new-york.

8   Washington Post Staff, 'Read Putin's U.N. General Assembly speech,' Washington Post (website), 28 September 2015, accessed 19 December 2017, https://www.washingtonpost.com/ news/worldviews/wp/2015/09/28/read-putins-u-n-general-assembly-speech/?utm_term=.48d2be2b7823.

9   Gvosdev, Nikolas K., 'Moscow's War in the Air: Russia Sends a Message in Syria,' The National Interest (website), 1 October 2015, accessed 19 December 2017, http://nationalinterest.org/ feature/moscows-war-the-air-russia-sends-message-syria-13983.

A Russian Su-24 stands ready to go from Latakia air base in government-held Latakia Governate. **Photo: Mil.ru, Russian Ministry of Defence, Creative Commons Attribution 4.0 Licence**

Initial Russian combat operations were intended to change the momentum on the battlefield, providing a substantial morale boost to the Syrian forces and allied militias. Russia also hoped the United States would cede the battle space, at least by default, by focusing on its own combat operations against IS in Northern Iraq, and Kurdish allies in Syria. This would mean a rapid abandonment of the moderate opposition and other proxies seeking Assad's overthrow, who would be powerless to deal with Russian airpower and increasingly isolated on the battlefield. In many respects, this goal was accomplished, as Russia and the United States established a de facto division of labor in Syria and complementary campaigns.

The first Russian deployment to Syria consisted of thirty-three aircraft and seventeen helicopters. These included twelve Su-24M2 bombers, twelve Su-25SM/ UB attack aircraft four Su-34 fighter-bombers, four Su- 30SM heavy multirole fighters, and one Il-20M1 reconnaissance plane. The helicopter contingent consisted of twelve Mi-24P attack helicopters and five Mi-8AMTSh transports.[10] Later in 2015, this number would grow with four more Su-34 fighter-bombers and four additional Su-35S air superiority fighters. Mi-35M attack helicopters and

Mi-8 transports arrived in the following months. A Mediterranean squadron led by the Black Sea Fleet would support the operations from the sea, though the Russian navy mostly concerned itself with providing logistical supplies to the intervention via landing ship tanks in what was dubbed the 'Syrian Express.' In order to supplement limited transport capacity at sea, and equipment brought in by air via Russian An-124 cargo planes, Russia purchased eight Turkish cargo vessels and pressed four of them into service.

Initial Russian objectives focused on regaining access to key roads, linking infrastructure, breaking isolated Syrian bases out of encirclement, and softening up opposing forces by destroying as much hardware as possible - much of it captured earlier from the Syrian army. Although in the early months Russia had supposedly only helped Syria regain control of 2 percent of its territory, by February 2016, it was clear the air campaign was having an effect in shaping the battlefield, and with it, the political fortunes of the Syrian opposition. The opposition's momentum stunted, Syrian morale began to recover.

Territorial control in Syria was always elusive, as local leaders would sign up with whoever was winning.

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10   Pukhov, Ruslan, 'Russian Military, Diplomatic and Humanitarian Assistance' in Syrian Frontier, ed. M. U. Shepovalenko, 2nd ed. (Moscow: Centre for Analysis of Strategies and Technologies, 2016), 105–7, accessed 9 January 2018, http://cast.ru/upload/iblock/686/6864bf9d4485b9cd83c- c3614575e646a.pdf.

Thus, 'control' could swing rapidly toward the side that had the clear momentum, and Russian forces oversaw numerous 'ceasefire agreements' between Syrian forces and village leaders. In reality, Assad's forces had control over much of the population of Syria, while large tracts of opposition or extremist held territory were depopulated from the fighting. Thus, it would take less than two years for the Russian-led coalition to make the leap from gaining only 2 percent of territory to appearing to be the victor in the conflict.

Russian aircrews flew sorties at a high rate, averaging perhaps forty to fifty per day, but spiking to one hundred during peak combat times, such as January 2016. Two crews per airframe were needed to sustain the intensity of operations, along with a small village of defense contractors to support the newer platforms being fielded in Syria. Russian airpower in Syria never exceeded thirty-to-fifty combat aircraft and sixteen-to-forty helicopters of various types, a deployment many times smaller than the combat aviation group the Soviet Union fielded in Afghanistan.[11] The rate of mechanical failure or combat loss was also magnitudes less than previous Russian or Soviet air operations.

During the conflict, Russian aerospace forces would be supported by around 3,000 ground troops, with perhaps 1,500 based at Hmeimim alone. These would include Naval Infantry from the 810th Brigade based in Crimea, elements from the 7th Airborne Assault Division, armored companies fielding T-90A tanks, MSTA-B towed artillery, and a host of air defense units including Buk-M2, Pantsir-S1 and S-400 units. Sophisticated electronic warfare equipment was deployed as well, alongside Russia's Special Operations Command. After the capture of Palmyra in the spring and of Aleppo in the fall of 2016, Russia also introduced demining units and specialized military police units from the North Caucasus.

Russia's special operations command featured prominently throughout the conflict, conducting diversionary operations, targeted killings, and reconnaissance. Another two thousand or so private military contractors (PMCs), the largest of which is known as the Wagner Group, bolstered Syrian forces and absorbed most of the casualties on the battlefield. With Russian air power in support, veterans-turned-PMCs made a difference amidst the poorly trained militias, taking the risk for $4,000-$5,000 per month.

On the whole, Moscow sought to keep its presence small. The initial force did not field long-range air defenses or dedicated air superiority fighters; rather, their arrival was prompted by an unexpected incident with Turkey, when Russia's Su-24M2 was shot down by a Turkish F-16 in November of 2015. The Russian bomber had been attacking Turkmen militias in Syria, and had strayed through Turkish airspace. Indeed, Russia's air force repeatedly violated Turkish airspace in an effort to coerce Turkey to change its policy in Syria and reach a *modus vivendi* with the Russian-led coalition. The crisis between Russia and Turkey was arguably the most dangerous moment of the entire intervention, and likely the closest a NATO country had been to military conflict with Russia in decades.

The Russian reaction to the incident was to impose harsh economic and political sanctions on Turkey, while showing on the battlefield that Turkish-backed forces had little hope of achieving victory over Assad. By the summer of 2016, Ankara gave in, issuing a quasi-apology in order to restore normal relations with Moscow. One by one, Russia would seek to change the positions of the major parties backing anti-Assad forces in Syria. First, Moscow pushed Washington to concede that a policy of regime change was not only unrealistic, but that its support for the Syrian opposition had no chance of success, all the while dangling the prospect of a ceasefire and humanitarian relief for civilians in the conflict. The United States did inch toward tacit acceptance of the Russian intervention, and of Assad's de facto victory over the radicals as well as the U.S.-backed opposition.

Russian ambitions were also well served by competition among U.S. allies in the region, who frequently and vocally disagreed with Washington's approach. Turkey was more hostile toward Kurdish fighters in Syria than toward Assad or IS, yet the Kurds were Washington's chief ally against IS on the ground. Washington also had no interest in supporting Sunni extremist groups favored by the Saudis and other Arab states, nor were extremists seen as a viable alternative to the bloody Syrian regime. Eventually, after crushing Turkish- backed proxies in Syria, Russia got the cooperation it sought with Ankara. Saudi Arabia, too, began to show flexibility, and in October 2017, the Saudi king visited Russia for the first time in recognition of Moscow's growing significance in the Middle East.

11   Pukhov, Ruslan, 'The War that Russia Won,' Izvestia (website), 13 October 2017, accessed 10 January 2018, https:// iz.ru/652856/ruslan-pukhov/voina-kotoruiu-rossiia-vyigrala

Citizens of Aleppo display portraits of fallen Russian servicemen killed while fighting in Syria during a 22 December 2017 parade in Aleppo, Syria. The Syrians were expressing appreciation for the Russian Federation's contributions during the first anniversary celebrations of the capture of Aleppo. Photo courtesy of the Russian Embassy's Twitter account, @EmbassyofRussia

Russia also saw Syria as a testing ground for new weapons and platforms, giving as much of its military an opportunity to participate in the conflict as possible. This included rotating countless crews through the theatre of operations, giving ships and bombers the opportunity to fire cruise missiles, and fielding a small ground force as well. After a period of military reforms from 2008 to 2012 and a large modernization program begun in 2011, Moscow wanted to bloody its air force in conflict.

Syria has had a profound impact on the Russian armed forces, as countless officers have been rotated through the campaign on three month stints to gain combat experience. According to Russia's Chief of General Staff Valery Gerasimov, the commanders of military districts, combined arms armies, air force and air defense armies along with many of the divisional commanders have gained experience in Syria.[12] Promotions in 2017 further advanced those who served in Syria. The experience will shape Russian military thinking and personnel decisions for years to come.

Alongside these training objectives, Russia also used combat operations in Syria as a technology demonstration for arms sales abroad, showing off the latest generation of Russian tech alongside older Soviet workhorses that did most of the fighting.

Starting with an initial strike on 7 October 2015, over the course of the conflict, Russian ships and submarines fired numerous Kalibr land-attack cruise missiles from the Caspian Sea and Eastern Mediterranean. Similarly, Russia's long-range aviation joined the fray in November 2015, and since then, Tu-95MS and Tu-160 strategic bombers have flown a substantial number of sorties deploying Kh-555 and newer Kh-101 air launched cruise missiles against targets in Syria.[13] The Tu-22M3 medium bomber force supplemented combat sorties from Hmeimim Air Base, though these aircraft exclusively dropped FAB unguided bombs from medium to high altitude. Later Moscow would also field Iskander-M short-range ballistic missile systems, Bastion-P anti-ship missiles, and other advanced weapons in an effort to demonstrate their capability.

Although the precision-guided weapons involved in the conflict represented a tiny portion of the actual mixture of weapons used, perhaps less than 5 percent, Russia demonstrated the capacity to employ long-range guided weapons from various platforms. Syria showcased both the advances Russian airpower forces had made since their dismal performance in the Russia-Georgia War of 2008 as well as the remaining limitations of Russia's armed forces. Much of the bombing was done by older Su-24M2 and Su-25SM aircraft, and almost all of it with

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12   Gerasimov, Valery, 'We Broke the Back of Terrorists,' in- terview by Victor Baranets, *Komsomolskaya Pravda* (website), 26 December 2017, accessed 10 January 2018, https://www.kp.ru/ daily/26775/3808693/.

13   The initial employment of long-range aviation was in response to the terrorist bombing of Russia's MetroJet flight out of Egypt.

Unloading Russian S-400 anti-aircraft missile systems at "Hmeymim" air base in Syria. **Photo: Mil.ru, Russian Ministry of Defence, Creative Commons Attribution 4.0 Licence**

unguided area-of-effect munitions. With the exception of systems on the Su-34, which was used to employ the KAB-500S satellite-guided bomb, among other precision weapons, Russian fixed-wing aircraft as a whole lacked targeting pods to effectively employ precision-guided munitions.[14]

Russian naval aviation was not impressive. The carrier strike-group sortie to Syria ferried by Russia's vintage *Kuznetsov* heavy-aviation-carrying cruiser in 2016 was a publicity disaster, losing a Su-33 and Mig-29K to equipment failures. Otherwise, remarkably few Russian aircraft were lost, with most of the casualties among helicopter crews. Russian technicians kept both older and newer-generation aircraft in the sky, with only one Su24M2 lost to technical failure.

Russian air strikes were certainly effective, but incredibly costly in civilian casualties and collateral damage inflicted, some of which appeared intentional. Much of the ordnance used was for area of effect, and much too large in payload for targets in Syria. The Russian Aerospace Forces as a whole are still confined to an early 1990s form of fighting (though still a generational leap

from where they were in 2008), but relying almost entirely on unguided weapons and, more importantly, lacking in the ISR assets necessary to conduct information-driven combat operations. Russia's Aerospace Forces also lack the means to engage small moving targets with guided precision, relying on unguided weapons and munitions that are truly overkill.[15] Just as the Soviet Union before it, the Russian military is a brutal mauler in close quarters, but continues to struggle in finding and seeing its target.

Russia made heavy use of drones to supplement its manned air campaign, conducting battle damage assessment and reconnaissance. Russian drones are rumoured to have flown more sorties than manned aviation over Syria. The best Russian drones were licensed production variants of Israeli models - a product of Russian-Israeli defense cooperation. Despite substantial spending on development, Russia still has no armed unmanned aircraft systems, and thus lacks a real time recon-strike option for its drone platforms. Syria highlighted the need for Russian armed forces to invest further in the development of unmanned strike systems, and develop a larger repertoire of guided weapons for the Aerospace Forces, particularly for tactical employment.

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14   Pukhov, 'The War that Russia Won.'

15   Pukhov, Ruslan, 'Polygon Budushego,' Russia in Global Af- fairs (website), 8 March 2016, accessed 10 January 2018, http://www. globalaffairs.ru/number/Poligon-buduschego-18032.

Those limitations aside, Moscow did use the Syrian campaign effectively as part of a broader diplomatic and political engagement with the United States, demonstrating capability and resolve to use long-range guided weapons, many of which have nuclear-tipped variants. Syria did much for Russian coercive credibility, painting a clear picture about the resurgent capability and capacity of its armed forces to impose costs on NATO in a conventional conflict and its ability to reach out at long ranges to hold much of Europe at risk, if need be. Long-range strikes by strategic bombers, ships, and submarines should not be viewed simply as combat tests to gain experience; they were also intended as strategic messaging to boost Russian credibility writ large.

NOT HOME BY CHRISTMAS

Upon entering the conflict, Russian armed forces quickly discovered that the intervention would take considerably more time than initially expected or desired. Syria's army had degenerated into armed militias that were formally unified under the Assad banner but that no longer represented a coherent fighting force. Russian leadership

was aghast at the large amount of Syrian and Iraqi hardware captured by the opposition and various militant groups while the Assad regime held barely 10 percent of territory. Some Syrian units were still capable of action, but Russian officers would have to embed across these units to conduct military operations and start rebuilding the Syrian army's fighting potential.

Despite an influx of Iranian and Hezbollah troops in October 2015, it was clear that the warring sides were all leveraging proxies on a battlefield with a low density of forces. Their combat effectiveness was poor, and Syrian forces would continually call in Russian air strikes, make small gains, and retreat at the first sight of counteroffensives by well-motivated Jabhat al-Nusra or other fighting groups.

Over time Russia would train up lower ranking Syrian officers, and establish the 5th Volunteer Assault Corps, led by Russian commanders and equipped with more advanced Russian equipment. The 5th has been Syria's primary assault force for the past year. Combining Syrian

In March 2016 a group of Russian sappers cleared the liberated areas of Palmyra, which was previously mined by Islamic State jihadists.
Photo: Russian Ministry of Defence, Mil.ru, Creative Commons Attribution 4.0 Licence, Wikimedia

fighters, PMCs, and Russian leadership to put together offenses has yielded battlefield victories at minimal cost.

Russian operational objectives were suited to its strategy: make decisive gains where possible, fragment the Syrian opposition, and seek to parlay victories in Syria into broader political objectives with the United States.

To this end, the Russian General Staff sought to avoid exhaustive battles over population centres, especially given that Syrian forces lacked the manpower to hold anything they took. Such an approach would, and eventually did, result in having to retake the same terrain multiple times, as in the case of Palmyra. Russia also genuinely wanted to turn the fight eastward toward IS in an effort to glue together its effort at cooperation with the United States. Syria and Iran were not interested, instead seeking near total victory over the opposition and the recapture of all the major population centres in the west.

While Russia retained the image of a powerbroker and leader of the coalition, in reality, it did not have buy-in for such a strategy from its allies and co-belligerents; nor could Moscow compel them. In this regard, Russia suffered from the same deficit as the United States. Both were outside powers intervening in Syria without the necessary influence over local and regional allies to broker big deals. These differences came to the fore in March 2016, when Russia declared its withdrawal from Syria while turning the attention of its forces to Palmyra. In fact, Moscow had no intention of withdrawing, simply deleveraging and settling in for a longer fight, while Assad was focused on retaking Aleppo.

With its March declaration, Russia sought to recast the intervention in Syria as a sustainable longer-term security presence in support of a political settlement, rather than combat per se. The idea was to normalize Russian operations in the eyes of Russia's domestic audience and to declare victory in some form. Medals were handed out and a small contingent was rotated back home, but meanwhile, Russia prepared to turn the Syrian campaign into smaller 'campaigns' to avoid the perception that the intervention could take years. The first segment was concluded with the Russian capture of Palmyra in March 2016. Syrian and Iranian forces then turned toward Aleppo, a battle that ultimately scuttled Russian attempts to negotiate a joint integration group with the United States. The second cut was made in January 2017, after the seizure of Aleppo, and a third 'victory' has been set at the closing of 2017 as Syrian forces capture Deir ez-Zor and IS appears on the verge of defeat. This latest declaration of victory is fraught with

risk since Russian forces are not just staying but further expanding the infrastructure at Tartus and Hmeimim. As Gerasimov said in a recent interview, 'we're not going anywhere.' Not long thereafter, a mortar attack on 31 December damaged several planes and killed a number of Russian soldiers at the airbase. The strike was followed by a drone attack from militant groups against both bases on 6 January. Both were a stark reminder that triumphalism is somewhat premature, and Russian forces in theater remain at risk. Figure 3 depicts the approximate Syrian situation as of November 2017 in terms of territorial control exercised by participants in the conflict near the official close of Russian operations initiated in support of the Assad regime.

Figure 3: Syrian Civil War: Territorial Control Map as of November 2017 (Graphic by edmaps.com; Twitter, @edmapscom; © 2017 Cristian Ionita)

POST-CONFLICT SETTLEMENT AND BEYOND

Now that the bulk of Syrian territory and population centres have been wrested from the hands of anti-regime opposition groups, Russia can turn its full attention toward the post-conflict settlement. It is true that Assad has committed to retake 'every inch' of Syrian territory, and that even if Russia does not support this ambition, it will have little choice but to back continued regime efforts to secure energy and water resources in the country's north and south. However, the main focus of both the Russian military and political action will be around the diplomatic settlement and supportive conditions on the ground.

Most importantly, Russia has apparently gained Washington's acceptance of its role as a key broker in Syria's future. In their November summit meeting in Vietnam, Presidents Trump and Putin confirmed not

only continuing U.S. and Russian deconfliction dialogue and support for 'de-escalation zones,' a largely Russian initiative, but also underscored the centrality of the political process for negotiating a post-conflict future for Syria. That process is shaping up in line with Russia's main strategic interests.

First, Russia has broken the monopoly of the Geneva process and of U.S. diplomatic leadership. It has successfully integrated both the Astana-based negotiations it launched in 2016 to the formal UN-backed international process and has regularly convened meetings of various opposition groups in an attempt to foster the emergence of a common opposition grouping, which will be amenable to compromise with the Assad regime. Moscow's progress on the political front is fitful, but at this writing it appears to be the only plausible path forward.

Second, Russia has managed to maintain productive ties with each of the other key regional players, ranging from Saudi Arabia on one end of the spectrum to Iran on the other. In fact, despite continuing disagreement with Saudi Arabia over the composition of the 'legitimate' Syrian opposition to be represented at Geneva, and with Turkey over the role of the Kurdish self-defense forces, Russian diplomacy (backed by military force) has won recognition from both, a fact that is especially welcome in Moscow in the run-up to Russia's March 2018 presidential election. Iran has proven a thorny ally for Russia; however, the relationship between the two countries remains largely stable, since the Iranians expect to be able to maintain their de facto dominance on the ground in much of Syria, solidifying their corridor of power from Iraq to Lebanon.

Finally, Russia will retain its ally in Damascus, because for the foreseeable future, the Assad regime appears back in control. In fact, Assad's stock has risen so much since the Russian intervention two years ago that he is largely able to set the terms of his participation in the Geneva process. The opposition can howl in protest, but the regime has simply refused to engage in negotiations if the question of its own departure is on the agenda.

This is also clearly a victory for Russia, since Moscow has capitalized on its victories to secure long-term leases on its military facilities at Hmeimim and Tartus, as well as to position Russian firms to play potentially prominent and lucrative roles in Syrian reconstruction, especially in the energy and energy transit sectors. Russia not only needs these bases to continue supporting Syrian forces, but the conflict is now also for becoming a power broker in the Middle East, and a balancing option for those seeking to hedge against U.S. influence.

The main area in which Russia's Syria campaign fell clearly short of initial objectives was in the effort to broaden the platform for diplomatic engagement with Europe and the United States in the wake of the Ukraine crisis and associated Western sanctions.

Although Moscow did break through the Obama administration's attempted isolation policy by forcing Washington to conduct deconfliction talks, those talks have not expanded into the full-fledged Russia-U.S. co-operation for which the Kremlin had hoped. Moreover, there has been zero willingness from Western capitals to think of Syria and Ukraine in quid pro quo terms.

The Russian military has been preparing parachute platform P-7 with humanitarian aid for landing in Deir ez-Zor. Photo: Russian Ministry of Defence, Mil.ru, Creative Commons Attribution 4.0 Licence, Wikipedia

As much as Westerners may lament the death toll and flood of refugees from the Syrian civil war, the Ukraine conflict is simply much closer to home, and European governments have held firm in their support for sanctions tied to fulfilment of the Minsk agreements, while the United States has actually ratcheted sanctions dramatically upward in the wake of Russia's apparent attempts to meddle in the 2016 U.S. election.

In sum, Russia appears to have won at least a partial victory in Syria, and done so with impressive efficiency, flexibility, and coordination between military and political action. On the one hand, Russia's embrace of the Assad regime and its Iranian allies, its relative indifference to civilian casualties, and its blanket hostility to anti-regime opposition groups are fundamentally at odds with widely held U.S. views on Syria. On the other hand, Russia's 'lean' strategy, adaptable tactics, and coordination of military and diplomatic initiatives offer important lessons for the conduct of any military intervention in as complex and volatile an environment as the Middle East. More than a decade and a half into the U.S. involvement in Iraq and Afghanistan, with ongoing fighting in Libya and Yemen, and countless other tinderboxes that could ignite wider regional conflict threatening U.S. interests, Washington should pay close attention to the Russian intervention and how Moscow achieved its objectives in Syria.

Fostering Stability: Understanding Communities in Complex Environments - Part One

In Part One of a two-part article, **Professor James Derleth**, founding partner of Complexas, a specialist advisory company, provides a unique understanding of how to undertake successful stability operations using the Tactical Conflict Assessment and Planning Framework (TCAPF).

Sappers from 21 Engineer Regiment lay steel beams while rebuilding a bridge, known as the Golden Egg in Afghanistan to assist the local population. The bridge links the main highways and local communities within the city of Gereshk in Nahr-e Saraj. The bridge helps the Afghanistan National Army (ANA) maintain communications and gives them the freedom to operate bringing further stability and security to the region. Photo: Corporal Jamie Peters RLC, Crown Copyright

The last 20 years have seen significant and unprecedented changes in the international system. Changes in logistics, media, and technology and the speed at which they have occurred, have diminished national and geopolitical boundaries, transforming the way individuals, companies, and states interact. These groups are being replaced by networks which range from sponsoring terrorism to identifying human rights abuses. While these changes have lifted millions out of poverty, increased life expectancy, and created a global middle class, there have also been less beneficial consequences. They include a large and growing gap between rich and poor, the manipulation of social media to influence policy, declining access to resources and arable land, and increasing instability which has led to more than 50 million internally displaced people and refugees. Consequently, Multi-National Companies (MNCs) and governments are faced with a complex and challenging environment which has increased the number, diversity, and potency of challenges.

While there have been numerous commercial, government, and military attempts to understand the local environments where they operate, they have been ad hoc and too often, ineffective. A key reason has been an inability to understand the local environment in order to create a baseline which can be used to measure the impact or the effectiveness of their activities. This problem is reinforced by metrics that either have little relevance or don't improve decision-making. In contrast to previous eras, local instability has significant national, regional and international ramifications and impact. This situation has been amplified by the growth of interconnected networks and a 24/7 media.

This environment requires a change in the way we think about and foster stability, how we identify the networks which facilitate and mitigate conflict, how we measure the effectiveness of activities which attempt to foster stability, and how these activities and networks impact society. A simple, standardized, population-based, data driven, analytical tool that generates understanding from numerous sources of data (perceptions, cultural, scientific) is required. Therefore, it is necessary to provide a definition of stability and an analysis of why conflict and instability occur as well as describing challenges to mitigate it, along with reasons why most previous attempts have failed, and how the use of the techniques and tools of the Tactical Conflict Assessment and Planning Framework (TCAPF) creates more effective stabilization programming for commercial and governmental entities in complex and dynamic contemporary environments.

WHAT IS STABILITY?

Since there is no internationally recognized definition of stability, definitions range from the narrow 'normal economic activity and nonviolent politics'[1] to the broad *political systems which are representative and legitimate, capable of managing conflict and change peacefully, and in which human rights and rule of law are respected, basic needs are met, security established and opportunities for social and economic development are open to all.*[2] A more useful definition is *conditions which the local populace regard as legitimate, acceptable, and predictable.*[3] At the very minimum, an understanding of local conditions should include the level or potential for violence; the functioning of governmental, economic, and societal institutions;
the general adherence to local laws, rules, and norms of behavior and whether inward investment can make a difference. Since the environments where MNCs and governments operate differ culturally, economically, and politically, there is a need to integrate local perspectives regarding both local sources of instability and solutions to them. Too often, outsiders' erroneous assumptions are used to determine whether an area is stable. For example, if a community has never had electricity, the lack of electricity would not likely foster instability. However, if a neighboring community obtains electricity, the lack of electricity could be a source of instability. Now that we have a definition of stability, let's examine the dynamics that foster instability.

1   U.S. institute for Peace and U.S. Army's Peacekeeping and Stability Operations Institute define stability as 'Ending or preventing the recurrence of violent conflict and creating the conditions for normal economic activity and nonviolent politics.' Guiding Principles for Stabilization and Reconstruction. United States Institute for Peace, Washington DC: 2009, 14.

2   United Kingdom, Stabilisation Unit. The UK Government's Approach to Stabilisation. London: Stabilisation Unit, 2014.

3   United States Army, Army Doctrinal Publication 3-07: Stability Operations (Washington, DC: Department of the U.S. Army, 2012.

Engineers from 10 (Air Support) Squadron, Royal Engineers based at RAF Leeming, North Yorks increased the Force Protection of the Camp at Lashkar Gar. The Camp was the home to the Provincial Reconstruction Team (PRT), 216 Signals Squadron and HQ for the Helmand Task Force. The PRT provided Force Protection Duties for the RE's while they carried out their work of reinforcing the camp security. Photo: Corporal Mike Fletcher, Crown Copyright

WHY INSTABILITY AND CONFLICT?

Regardless of whether one has a broad or narrow definition of stability, in order to stabilize an area, the factors fostering conflict must first be identified. As with stability, there is no universally recognized definition of conflict. However, conflict is closely associated with change. Change can be a powerful positive force if it creates new opportunities, expands access to scarce resources, improves livelihoods, fosters equality, facilitates security, etc. However, it can also foster conflict if only a few benefit. In other words, conflict can be the result of change which is not equitable.

Conflict is usually preceded by instability. While instability can come from many sources, there is a consensus that if certain factors are present, conflict is likely.[4] Key factors include grievances, key actors with means and motivation, and events which bring them together. Instability starts with frustrations (grievances). They are based on popular perceptions of unmet expectations or that their interests are being threatened. Noteworthy, grievances by themselves do not lead to instability. One billion people earn less than $2 a day. Are they frustrated? Perhaps. Do they all pick up weapons and foster violence? No. Why? Because either they don't have the means to turn their frustrations into violence or the existing local institutions (societal or state) can address the grievances. Therefore, key actors are also required for instability. These are people with the means (weapons, money, etc.) and motivation to mobilize the population and turn their grievances into violence. The final ingredient is an event. Events by themselves are neutral - they simply occur. How they are leveraged determines whether events create a window of vulnerability leading to instability or whether they create a window of opportunity that fosters stability. For example, an election can foster stability or instability. If an election is perceived as fair, it will foster legitimacy and stability. If it is perceived as fraudulent, it will foster instability.

Just as certain factors foster instability and conflict, there are also factors fostering stability. These factors, also called resiliencies, are the processes, relationships, and institutions that allow society to function and regulate itself peacefully. They enable people to meet their needs and defend their interests through non-violent means. Examples include ethnic or religious group cohesion, an open political process, NGOs providing services, a functioning and legitimate legal system, etc. Resiliencies foster economic growth, equitable access to social services, improve security, and facilitate government support. This in turn helps prevent grievances from fostering instability. And just as there are key actors who use grievances to foster instability, there are key actors who use resiliencies to foster stability. An example could be a religious leader encouraging the peaceful resolution of a land dispute between groups. As noted above, events are neutral actions which can mitigate or foster instability and conflict. As an illustration, the 2004 tsunami in the Pacific (in itself an obviously negative event), changed the relationship between insurgents and the government in Aceh, Indonesia. Insurgents from the Free Aceh Movement temporarily agreed to a truce and cooperated

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4   See U.S. Agency for International Development, Office of Conflict Management and Mitigation, *Conducting a Conflict Assessment: A Framework for Analysis and Program Development (2004)* and the World Bank's *Conflict Assessment Framework (2002)*.

with the government to help address the urgent humanitarian needs of the population. This cooperation led to dialogue and eventually to a peace agreement that ended a 30-year insurgency. This conflict dynamic is illustrated below:
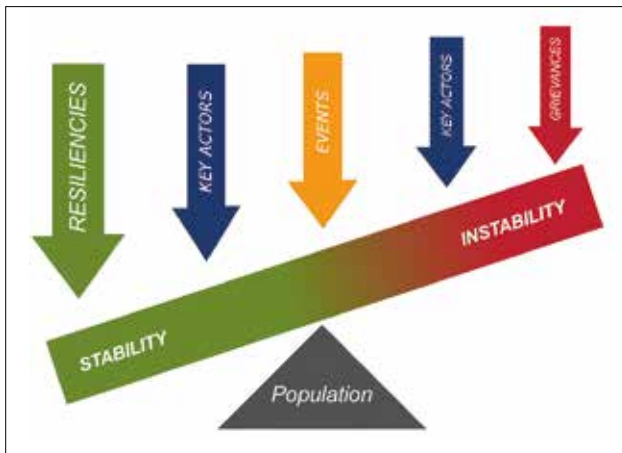

Figure 1: Conflict Dynamic.

While these factors are the focal point of internal conflict, regional and international forces have become increasingly important. By providing money, weapons, recruits and/or eroding the authority and legitimacy of societal and state institutions, these forces can foster and/or accelerate domestic instability.

It is important to note that instability and conflict are extremely complex phenomenon. They don't occur simply because there is poverty, ethnic divisions, or competition over the distribution of natural resources. Nor do they happen only where societal and state institutions are ineffective. Instability and conflict occur when factors at multiple levels come together and reinforce each other. They are ultimately the product of deep grievances, economic and political competition, irresponsible political leadership, weak and unaccountable institutions, and regional and global forces. In summary, instability occurs when the factors fostering instability overwhelm the ability of society or the government to mitigate them. Therefore, to understand an area in order to prevent conflict or

A British Armoured Bulldog moves through the German Winter to the next location during exercise SPECULAR 2017. Headquarters 20 Armoured Infantry Brigade, part of the 3rd (UK) Division, were tested as the Headquarters for the United Kingdom's High Readiness Vanguard Armoured Infantry Brigade (VAIB), the UK's primary reaction force that can conduct operations from stabilization to high intensity war fighting.
Photo: Stuart A Hill, Crown Copyright.

stabilize it, it is imperative to first identify the grievances, resiliencies, key actors, and upcoming events in order to reinforce positive factors and mitigate negative ones.

CHALLENGES TO FOSTERING STABILITY

Local conflicts, abandoned or unprofitable investments and increasing national and international instability demonstrate the difficulty in executing effective stability programming.[5] There are numerous reasons for this situation. They include: broad theoretical descriptions of 'stability' which lack practical relevance; the inability to differentiate between development and stability; the lack of stabilization education or training; programming based on assumptions rather than analysis; an incomplete understanding of the operating area and popular perceptions; the failure of MNC and government operations to benefit the local population; and irrelevant stability metrics that measure outputs, not impact.

The wars in Afghanistan and Iraq fostered interest in the development of stabilization doctrine. In 2008 the US Department of Defense (DoD) issued *Field Manual 3-07 (Stability Operations)*. It defined stability operations as the *various military missions, tasks, and activities conducted outside the United States in coordination with other instruments of national power to maintain or reestablish a safe, secure environment, provide essential government services, emergency infrastructure reconstruction, and humanitarian relief.*[6] In 2009 the U.S. Institute of Peace published a civilian perspective entitled *Guiding Principles for Stabilization and Reconstruction.*[7] However, neither of these documents provided a framework which explained 'how' to stabilize an area.

The conflation of humanitarian assistance and development with stability is another challenge. Since they haven't been trained in stabilization, most implementers believe if they improve the level of development in an area, e.g. provide potable water, educational opportunities, health care, infrastructure, the area will become more stable. For example, one of the first things military personnel in unstable areas conduct is a 'needs assessment.'[8] It should therefore come as no surprise that mistaken assumptions lead to ineffective

programming. When a US Agency for International Development Field Program Officer who served in Afghanistan was asked what stabilization meant to him, he said 'good development in an unstable environment.' This is patently wrong for three reasons: time, focus, and location. Humanitarian assistance usually has a short time frame (30 to 90 days) and is focused on basic survival needs (food, water, shelter, security) which have been significantly impacted by natural or man-made disasters. Development is a long-term endeavor that seeks to alleviate the problems which limit sustainable societal improvements. Examples include healthcare, education, infrastructure, etc. Development activities generally take place in stable environments. In contrast, stabilization is a medium-term process which is focused on identifying and mitigating sources of instability. It takes place in unstable environments in conditions (e.g. insecurity, endemic corruption, a war economy, limited governmental legitimacy), which are usually significantly different than those in disaster or stable environments. Research clearly shows that implementing development programing in an unstable environment without properly understanding that environment often fosters more instability.[9]

Another challenge is the lack of civilian or military stabilization education and training. Consequently, groups trying to stabilize an area rely on their previous experience which was likely focused on overcoming development challenges or providing humanitarian relief. Education and training in identifying sources of instability, developing activities to mitigate them, and creating indicators for measuring local stability are just a few of the critical tasks required to conduct effective stability operations. Without the requisite training, people fall back on what they know best, development, humanitarian assistance, or for the military, enemy centric operations.

The lack of stability education and training leads to stability 'assumptions.' These include beliefs such as poverty equals instability, jobs foster stability, projects win 'hearts and minds' and extending the reach of the government fosters stability. An examination of over 175,000 projects in Afghanistan found these assumptions to be false.[10] Why?: because of the uniqueness of an

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5   In 2007, an analyst noted 'the United States is still struggling to craft the strategies, mobilize the resources, and align the policy instruments it needs to help reform and reconstruct failing, failed, and war-torn states.' Ten years later, little has changed. Patrick Stewart, 'The U.S. Response to Precarious States: Tentative Progress and Remaining Obstacle to Coherence,' Center for Global Development (July 2007)

6   United States Army, The U.S. Army Stability Operations Field Manual (Ann Arbor: The University of Michigan Press, 2009), viii.

7   U.S. Institute of Peace, Guiding Principles for Stabilization and Reconstruction (Washington DC: The U.S. Institute of Peace Press, 2009).

8   This assessment is called SWEAT-MSO (sewer, water, electricity, academic, trash-medical, security, and other). Department of the Army, FM 2-24.2, Tactics in Counterinsurgency. (April 2009), 7-21.

9   Wilder, Andrew, and Fishstein, Paul, Winning Hearts and Minds? Examining the Relationship between Aid and Security in Afghanistan. Feinstein International Center, Tufts University).

10   Ibid.

A joint patrol of Afghan National Army (ANA) and Provincial Reconstruction Team (PRT) Operations Company passes through Lashkar Gar on route to their base, to take part in an 'Outreach Mission' to spread the word about their presence in Helmand Province. Members of the PRT Ops Company and soldiers from the ANA patrolled north of the provincial town of Lashkar Gar to the village of Mukhter. Once in the village they handed out leaflets, written in Pashtu, explaining their presence in the region. **Photo: Corporal Mike Fletcher, Crown Copyright**

unstable environment. For example, it is commonly believed that if there are more jobs, there will be fewer people fostering instability. However, this depends on whether the lack of jobs is fostering instability. In agrarian areas, there are often a large number of 'formal' unemployed who work the land. Thus high levels of unemployment are the norm, and do not foster instability. One study which examined unemployment in Bagdad and Mindanao found there was a POSITIVE correlation between employment and instability.[11] This is because people with jobs could more easily support their families, giving them more time to foster instability by attacking government forces. The point is we can't make assumptions about instability programming. We need to identify the sources of instability and then create programs to mitigate them.

Successful stability programming requires a deep understanding of the local population. This includes identifying the major social and cultural groups (wealthy, poor, educated, illiterate, tribes, etc.); their interests and values; the traditional mechanisms used to resolve societal conflicts; what actors/events may be undermining traditional leaders and mechanisms; the challenges they face and how they could be mitigated; and how spoilers leverage these factors to their advantage. A crucial component is identifying local attitudes and behavior, as they are powerful and motivating components of decision-making. What might seem to an outsider to be irrational behavior may be entirely rational to the indigenous population.[12]

11   Berman, Eli, et al. *Do Working Men Rebel? Insurgency and Unemployment in Afghanistan, Iraq, and the Philippines Journal of Conflict Resolution. 55 (4), 496-528.*

12   Mackay, Andrew and Tatham, Steve, *'Behavioural Conflict - From General to Strategic Corporal: Complexity, Adaptation and Influence', The Shrivenham Papers No. 9., December 2009, p. 12. https://www.files.ethz.ch/isn/110724/SP_9.pdf (accessed April 23, 2017). See also Dan Ariely, 'Predictably Irrational', New York: Harper-Collins, 2008.*

Closely associated with an understanding of the local population is ensuring that it benefits from activities in its area. If the population does not 'buy in' to a project or it is not clear how they will benefit, they are likely to be at best ambivalent to it and at worst, have an incentive to disrupt it. Some MNCs have implemented Corporate Social Responsibility (CSR) programs to mitigate risk and ensure they are in compliance with corporate and international standards. The aim of CSR, as first elaborated by R. Edward Freeman, is to ensure a company's actions encourage a 'shared value' for all stakeholders, i.e. the company, employees, consumers, and communities.[13] However, there is considerable evidence that the current practices of many MNCs fail to provide shared value. For example, the extractive industry sector is rife with examples of projects stalled, stopped, or abandoned because stakeholders were not significantly engaged and trust was weak.[14] Everyone knows that it is more difficult to rebuild trust than to create it. MNCs, governments, and militaries face similar challenges when trying to stabilize an area, i.e. understanding local communities and fostering partnerships with both the host country government and local communities. To foster stability, these partnerships must be based on terms and outcomes which provide mutual benefit, arrived at through a transparent process. Only in this way will long-term stability be fostered.

Another significant challenge is the lack of stability-focused metrics. In 2009, US Department of State led a process to create an 'Integrated Civilian-Military Support Plan for Afghanistan.' It included eleven 'Transformative Effects' which if attained, would mean Afghanistan is stable! To measure progress along the way, each Transformative Effect has a series of measurable *Main Efforts' (95 in total) at the community, province, and national level.*[15] If there are 95 main efforts, in reality there is no main effort. In addition to using a significant amount of staff time and field resources to simply gather the requisite data, the more important problem was that most of the Main Efforts were output indicators (Measures of Performance). In other words, they measure whether an activity has taken place not whether an area is stable. There were two main reasons for this situation. First, many people don't understand the difference between impact (Measure of Effect) and output indicators.

Second, sources of instability are local, whereas the performance measurements are macro level.[16]

None of the higher-level stability operations plan in Afghanistan attempted to identify local sources of instability before developing Lines of Operations or stability MOEs. Depending on their experience, mandate,

13   Freeman, R. Edward and Jeanne Liedtka, 'Corporate Social Responsibility: A Critical Approach.' Business Horizons Vol. 34, Issue 4, July–August 1991: 92–98

14   'Changing the Game: Communications and Sustainability in the Mining Sector,' International Finance Corporation, 23 October 2013: 7

15   Eikenberry, Karl W. & McChrystal, Stanley A., United States Government Integrated Civilian-Military Campaign Plan for Support to Afghanistan. (August 2010) http://www.comw.org/qdr/fulltext/0908eikenberryandmcchrystal.pdf (accessed January 17, 2011).

16   O'Neill, Tip, a former Speaker of the United States House of Representatives, would certainly agree. He used to note 'All politics are local.'

*Soldiers, Sailors, Airmen and women working alongside Sierra Leonean villagers to unload aid. A joint force of Royal Navy, Royal Marines, Army and Royal Air Force delivered 220 Tonnes of food to remote Sierra Leonean Islands. Sherbro and Turtle Islands have been restricted with re-supply since the outbreak of Ebola on the mainland. **Photo: Corporal Jamie Peters RLC, Crown Copyright***

and/or funding source, NGOs and government entities implemented a broad range of programs that had nothing to do with instability. Some of these programs even fostered instability as they created a valuable asset in an unstable environment. As an illustration, Combined Joint Task Force: Horn of Africa (JCTF-HOA) initiated a well-drilling program because they assumed more access to water would foster stability. In contrast, it fostered fighting between pastoralists, farmers, and clans for control of this precious resource.

Assumptions about instability rather than the collection and analysis of data to identify sources of instability, determined the programing. This is a recurring problem as plans and indicators are often created either by people who don't understand stability operations or by policy-makers who conflate their values and experiences with what locals consider important. There are numerous challenges to effective stabilization programs. In the next issue we will examine how to mitigate them.

Winning the Firefight on the 'Road to Warfighter'

Brigadier John Mead provides an analysis of 3rd (UK) Division's experiences during Exercise Warfighter 18-4 and some of the lessons learned from that exercise.

An AS-90 self-propelled gun moves to it's firing point during Exercise Steel Sabre. The aim of this huge Royal Artillery live firing exercise was to bring all the components of an effective Artillery group together to train in its core business: delivering firepower on the battlefield. Photo: Sergeant Si Longworth RLC, Crown Copyright

The better the infantry, the more it should be economized and supported by good batteries.

Napoleon I, Maxims of War, 1831…

'*If you find yourself in a fair fight, your tactics suck*'
John Steinbeck

3rd (UK) Division recently returned from a month in Fort Bragg, North Carolina, on Exercise WARFIGHTER 18-4 (WFX 18-4), our fourth Corps level exercise in a year. I commanded the division's Offensive Support Group (OSG) during a period referred to as the 'Road to Warfighter', an accelerant to the July 2016 US-UK Bilateral Vision Statement for 'a UK division to operate effectively in a US corps'. We had a good exercise – probably exceeding expectations - and if there was such a thing as a 'winner' on WFX, it was in the divisional deep where the battle was won.

It is therefore timely to reflect on some of the key lessons; naturally, my focus will be on firepower. The premise here is the necessity to be bold in continuing to exercise at the corps level while, at every turn, making 'international by design' a reality in our mindset and procedures. The division's journey in becoming more adept at 'fighting the deep' has made us markedly more competitive against war fighting scenarios, but equally more agile against potential conflicts below such a threshold. We also have a clearer view on capability risks and priorities, which I will touch upon in relation to fires. However, it is first worth introducing the significance of WFX.

There are five WFX exercises every year; a biennial test for all US Corps and Divisional Commanders, a rotation to which 3 Division has now been added. WFX uses advanced Warfare Simulation (WARSIM) and an unparalleled wrap in terms of component support. The full-time and largely free-play 'World Class OPFOR' plays to win, with a Commanding Officer in a command-earning appointment. Training audiences are regularly tested to destruction over a demanding nine-day 24-hour cycle. 3 Division first attended WFX 17-5 in June 2017, which proved to be a baptism by fire, while also confirming some inherent strengths such as the division staffs'

adaptability and, from my perspective, our fireplanning doctrine and ability to concentrate fires. WFX 17-5 also afforded the division some important time to experiment and stress-test new concepts such as the JAGIC.[1]

WFX 18-4 grew to feature Headquarters XVIII Airborne Corps, a Special Operations Joint Task Force Headquarters (SOJTF HQ), 4(US) Infantry Division (ID) and 3(UK) Division (Div) as the training audiences. We were pitted against a different, slightly less technologically capable enemy, but one with daunting mass in terms of fires in particular. We would encounter seven enemy divisions over the course of nine days.

SO WHAT IS THE DEEP BATTLE?
This should be easy, but isn't. Definitions differ across NATO, although we are converging fast through exercises like WFX, ARRCADE FUSION and DYNAMIC FRONT. Of all the definitions, *ADP Land Operations* is perhaps the most useful:

> *Deep operations are conducted at long range and often over a protracted timescale, against an adversary's forces or resources not currently engaged in the close battle. They may comprise intelligence gathering or fires, manoeuvre and information activities, targeting key vulnerabilities (the will, cohesion and capabilities of an adversary). Deep operations are usually conducted at the Corps or divisional level, often supported by other components. Deep operations conducted by land forces are distinguished by their sustainment and communications requirements, and also by their significant potential to dislocate an adversary, if conducted at speed and with sufficient force.*

WHY IS THE DEEP BATTLE IMPORTANT?
Fundamentally, we should always aim to launch our brigades across their line of departure into a fight already stacked in our favour - why fight fair? The deep battle is about the manoeuvrist approach; applying strength against weakness and seeking to isolate and degrade the enemy throughout their depth and so prevent a costly brigade fight in the close, which we must aim to be anti-climactic. However, the balance between 'fighting the deep', 'resourcing the close' and 'protecting the rear' was and is always a constant resourcing tension. The deep battle focuses on shaping and striking at

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1   *Joint Air Ground Integration Centre – Chief JAGIC is a post Battery Commander appointment in HQ 1 Artillery Brigade which COS and SO2 G5 fulfill. These empowered commanders lead agile teams of fires, ISR, air, air defence and information activities experts from JNCO to Major charged with the execute function of hunting in the deep, while also dynamically clearing airspace across the Area of Operations (AO).*

British soldiers from 176th Battery, 19th Regiment Royal Artillery, conduct live fire training using the Guided Multiple Launch Rocket System (GMLRS) during Dynamic Front 18 in Grafenwoehr in Germany. **Photo: Specialist Dustin Biven, Released**

uncommitted reserves and vulnerabilities within the enemy's system of systems by synchronising lethal and non-lethal actions across multiple domains. For example, on WFX 18-4 we focused on dislocating the enemy's link between his radars and rockets. Our success in hunting and destroying his artillery systems maintained our brigades' freedom of action and prevented the enemy from supporting and protecting his brigades in the close battle. The implications for real world readiness are manifest as WFX markedly accelerated 3 Division's networked use of joint and multi-national fires.

WHERE DOES THE DIVISIONAL DEEP BATTLE TAKE PLACE?

The 3-D divisional deep battle is bounded by the Fire Support Coordination Fire Line (FSCL)[2], Co-ordinated Fire Line (CFL)[3] and Coordinating Altitude (CA).[4] There is debate as to whether such a geographic framework draws a false, linear distinction in contemporary, more urbanised '3-block' warfare. Is the notion of deep battle even relevant? Well, try as we might to find alternatives, the geographic framework keeps bouncing back as a simple way to visualise battlespace and focus resources. On WFX, simple wins as tempo improves. That both ARRC and XVIII Airborne Corps also use the framework as a basis for operational design right

through to Air Tasking Order (ATO) planning is evidence enough for me. The deep area of operations was also rarely linear and included numerous pockets of divisional battlespace, usually referred to as towns! Inadequate force ratios, urban clutter, collateral risk and a pervasive media presence regularly required towns and cities to remain islands of divisional battlespace for prolonged periods, even after being physically isolated by brigades in the close battle.

RESPONSIBILITIES

The first crucial principle is the deep area must be considered as divisional battlespace and owned by the General Officer Commanding (GOC). For warfighting, as Commander OSG, I was then delegated command for fighting the division's deep battle - i.e. the deep strike effects required to enable the divisional design, a design fundamentally shaped by the Divisional Information Manouevre Group (DIMG). As Commander OSG, I retained coordinating authority over all strikes beyond the CFL to ensure unity of effort and concentration of force. It's a partnership with DIMG to ensure we're actually fighting the 'right deep battle' and that lethal and non-lethal actions are integrated (still not easy). There is a constant interplay of battlespace geometry and resource - particularly as corps and divisional

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2   FSCL - 'Within an assigned area of operations, a line established by a land or amphibious force commander to denote coordination requirements for fires by other force elements which may affect the commander's current and planned operations' - AAP-6. The US and NATO definition and employment of the FSCL differs. US practice is for the FSCL to delineate corps and divisional battlespace with both div and corps air interdiction employed. NATO doctrine is subtly different as the FSCL delineates LCC and ACC responsibilities - AI is usually considered only beyond the FSCL. When working with ARRC, both div and corps CFLs are used.

3   CFL - 'A line beyond which conventional or improved conventional indirect fire means, such as mortars, field artillery, and naval gunfire may fire without additional coordination' - AJP 3.3.5(b)

4   CA - 'An airspace coordinating measure that uses altitude to separate users and as the transition between different airspace control elements.' The CA separates airspace controlled by an ASOC from that controlled by the 'Tac C2' HQ from the Air component.
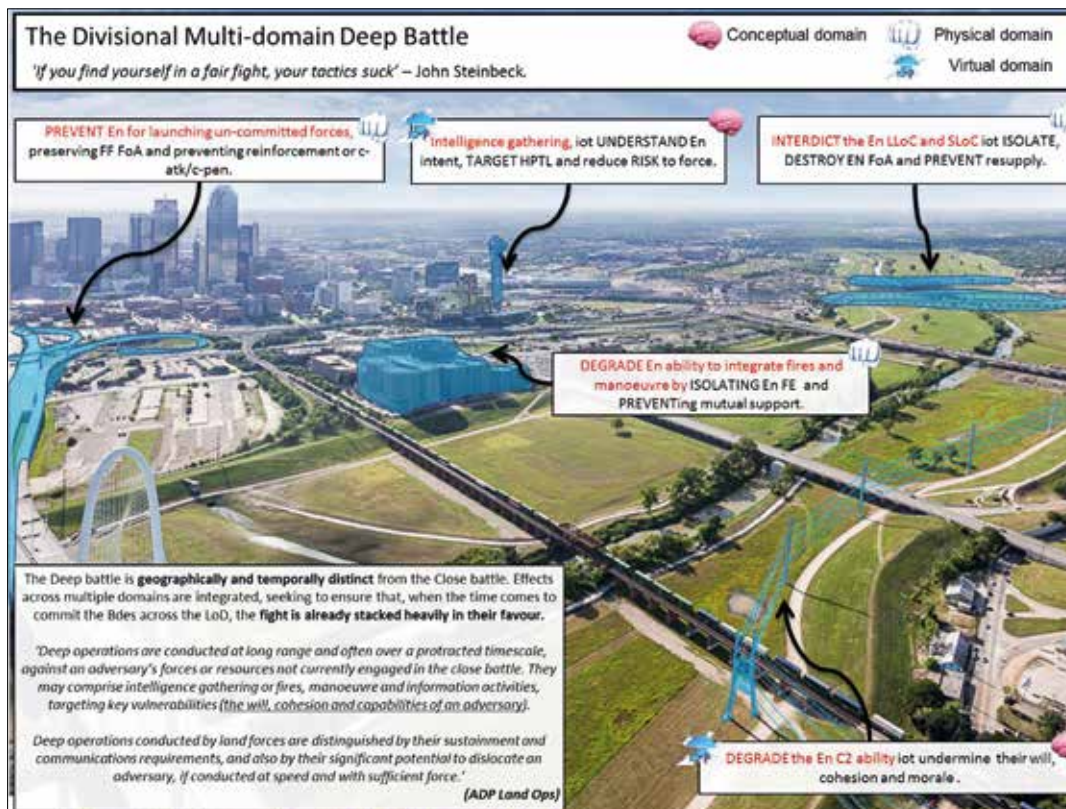
Figure 1: Divisional multi-domain deep battle (Chief JAGIC's summary after two Warfighter exercises)
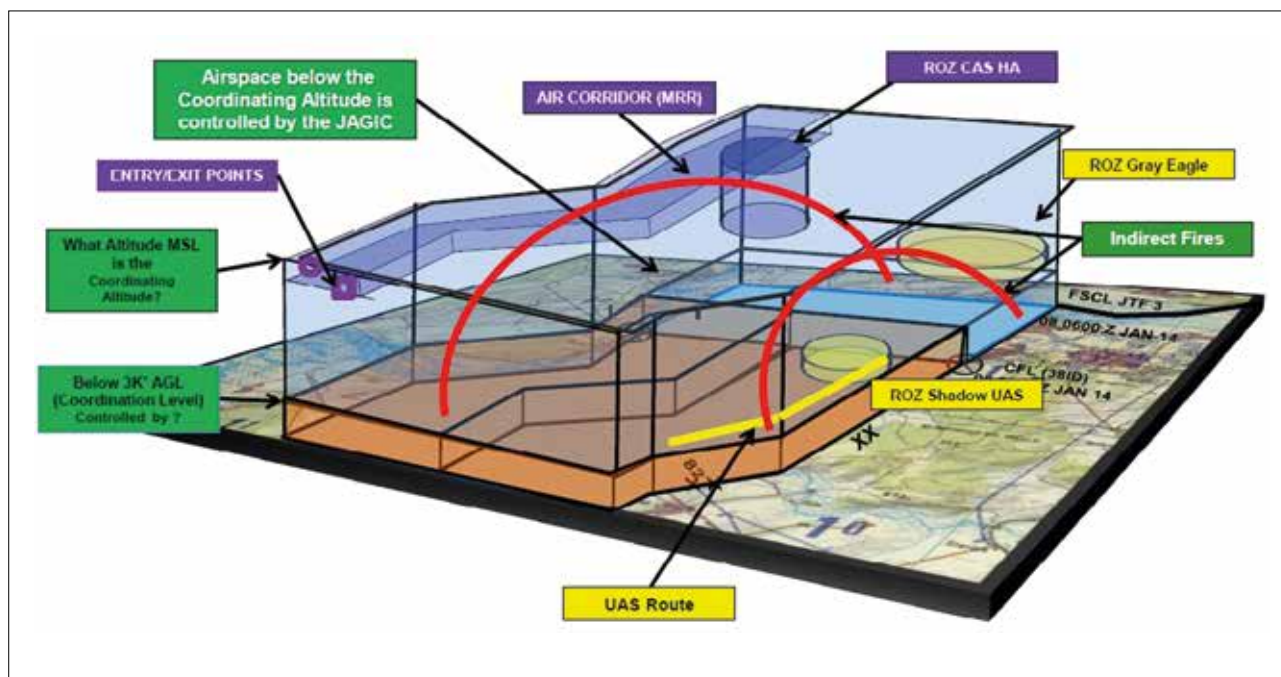

Figure 2: Simplified battlefield design - the UK needs to improve its ability to utilise such visualisation.

main efforts change, noting the priority for fires may not immediately follow main effort. The FSCL is under control of the Land Component HQ (usually corps) working in close coordination with the Air Component. Movement of the FSCL is a deliberate operation, requiring difficult risk-reward decisions to be struck between stakeholders. Subordinate divisions' conditions for assuming more battlespace rarely neatly align. The 3-D battlefield largely worked for land and air manoeuvre, but less so for information manoeuvre. The definition of the deep battle does, therefore, require nuance, as it's all, ultimately, about changing behaviours and the calculus of the adversary. The point is we do need to bound the 'where' for the deep battle to synchronise and sequence, but also recognise where the division has effects well beyond such boundaries and ensure the risk, responsibilities and permissions are clear.

TARGETING

A colleague, Colonel Rory Crooks, the 1 US Division Artillery Commander summarised the utility of the D3A[5] targeting cycle, writing:

> When reinforced by the Command Group and key staff participation, the targeting process contributes to shared understanding - providing decision space to methodically shape and assess combat power - whilst driving other staff processes.

Clearer ownership within the D3A cycle has been a feature of 3 Division's journey, and targeting is definitively not just a 'COIN game', it's just threats present themselves as formations rather than individuals and the timescales are very different. The OSG own 'deliver' on behalf of the GOC for deep strikes, the DIMG own 'detect' and

A battery of 105mm Light Artillery guns manned by 103 Regiment (V) Royal Artillery opens fire during a military pageant. The versatile 105mm light gun is used by the parachute and commando field artillery regiments of the British Army. **Photo: 103 Regiment, Crown Copyright**

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5   *Decide, Detect, Deliver, and Assess – part by design, part by trial and error, now the cycle of the HQ.*

underpin the GOC's 'decide' and the divisional COS's 'assess' functions. The division bolts into a Daily Corps Targeting Working Group (DCTWG), which develops priorities, battlespace and resourcing for subsequent command decision-making. Corps targeting anchors on a Joint Prioritised Target List (ARRC) and High Payoff Target List (HPTL); the division then develops its own HPTL (by phase) and Effects Guidance Matrix (EGM). UK Targeting Directives have been a work in progress, with a COIN mindset proving a stubborn hangover until relatively recently. Offensive Rules of Engagement (ROE) being held at brigade level and not lower, overly restrictive Collateral Damage Estimates (CDE) and a general tone of courageous restraint were all early problems, since ironed out through collaborative working. On both our WFXs, and after some resistance, offensive ROE were delegated to all soldiers in the division.

BATTLESPACE MANAGEMENT (BM)

The planning and design of battlespace geometry has become ever more important to keep pace with the variety and range of effectors. BM, like targeting, is a core divisional process, but the demands on Suitably Qualified Experienced People (SQEP) are increasing. Supported-supporting is a great way of framing BM authorities, but our mindset also needs to shift to be genuinely multi-dimensional in outlook. There is a need to do more in systematically building and logging BM competency, while further sharing and exploiting Joint best practice. Battlespace design also needs consideration from the very outset of planning. Indeed, US systems such as AFATDS[6] and TAIS[7] highlight what good might look like. Similarly with airspace management the appetite for taking risk in uncleared airspace still feels too counterinsurgency (COIN) centric. XVIII Airborne Corps recognised this and provided guidance and delegations for firing through uncleared airspace. This is a difficult, but important conversation as in a counter fires fight it is all about taking appropriate risk and gaining seconds. There is also a need for further Fire Support Coordination Measures (FSCM) convergence between the US and NATO and an education aspect to ensure FSCLs, CFLs, Killboxes, SCAR[8] et al are part of the vernacular.

RANGE STILL MATTERS

The deep battle is a mechanism to balance risk and opportunity between battlespace ownership, available resources and time - a balancing act which must consider all four quadrants of integrated action. The size and scale of the deep operations a division is responsible for depends upon its capability, the tactical situation, the stage of the operation and the corps plan. The weighting placed upon manoeuvring to fire or firing to manoeuvre is a key judgement during both planning and execution, although during WFX we increasingly manoeuvred to fire as part of operational design. The attraction of the deep battle is keeping the enemy at arms-length but it is, of course, a relative game. Being superb in theory counts for little if completely 'out-found, outgunned and outranged' - regularly our experience over two years. Range is central to a credible threat of force and, by extension, enhances deterrence to unlock sophisticated A2AD (Anti Access and Area Denial) threats. Tactically, range confers the crucial ability to concentrate and mass fires even when our limited artillery batterys disperse for their protection.

6   *The Advanced Field Artillery Tactical Data System (AFATDS) is the Fire Support Command and Control system employed by the U.S. Army and U.S. Marine Corps units to provide automated support for planning, coordinating, controlling and executing fires and effects.*
7   *Tactical Airspace Integration System (TAIS) provides situational awareness of friendly and enemy air activity and is interoperable with joint, coalition, and civil aviation forces.*
8   *Strike Coordination and Reconnaissance – freedom of action for air assets to find and strike within designated battlespace.*

King of the Battle: Apache attack helicopters operated by 3 Regiment Army Air Corps during Exercise Talon Gravis. Army aviators have demonstrated the range and power of the punch their Apache attack helicopters can deliver. Photo: Richie Willis, Crown Copyright

We are at a tipping point in the land environment with rockets soon able to range hundreds of kilometers. For guns, which provide cost-effective mass, 24.7km from 39 calibre pieces (39 x 155mm long barrels) is woefully inadequate; 40km available from 52 calibre guns gives almost four times the area coverage and will soon be the norm. We must also keep an eye on US developments, with consideration of 55 and 58 calibre guns ranging out to 70km+.

WHEN IS THE DEEP BATTLE SYNCHRONISED?
Battle rhythm is a necessary evil and the better we got in 3 Division, the quicker meetings tended to be, the less slides were used and the more G35 planning was aligned with targeting priorities and Air Tasking Order (ATO) resourcing. The WFX cycle is truly 24/7, with the GOC providing initial guidance on his priorities at the daily Deep Battle Principal Planning Group (PPG), which I ran. The twice daily Chief of Staff (COS)-led Integrated Action Working Group (IAWG) then developed these priorities for resourcing out to 96 hours across the whole Area of Operations (AO). Timely staffing was required as the allocation of corps resources was a carefully controlled machine - it had to be with the competing demands on components spread over vast distances. The Joint Effects Working Group (JEWG), synchronised IAWG direction in time and space to produce the daily Effects Guidance Matrix (EGM) for the JAGIC to fight from. The process

also fed corps targeting and divisional Operational Planning Teams (OPTs) as required. It was our ability to spin the divisional planning and execution cycle quicker than the OPFOR that allowed 3 Division to seize the initiative. We degraded his offensive support to the point we could 'bounce' a river crossing quicker than the enemy anticipated, seizing the initiative.

In COIN, 'if you have time, take time' - in warfighting overthinking a threat can lose a battalion. Risk-reward judgements have to be far quicker, delegated authorities to empowered subordinates must be far-reaching, but with clear wake-up criteria for senior officers. Sleep and shifts must be factored in as there is no distinction between the distinct day and night teams - indeed much of the counter fires battle tends to happen at night and it's also when we typically exploited with attack aviation.

MASS AND CAPABILITY MARKERS
3 Division fought with an Order of Battle (ORBAT) augmented by a US General Support Reinforcing (GSR) artillery battalion, GSR long range Weapon Locating Radar (WLR), an Avenger air defence battalion and an additional US attack aviation regiment, which continue to look uncannily like the critical shortfalls in our inventory. Our lack of Unmanned Aerial Sysems (UAS) mass and coverage was also a major limitation despite the generally excellent performance of Watchkeeper in the

simulation. Range matters, but so does area effect. US Corps fires using DPICM[9] saved the day time and again on WFX - they were, and are, a game changer. On a plus note, UK anti-tank scatterable mines (AT2 SCATMIN) was excellent at delivering explosive barriers out to 30 kilometres. A potent weapon in achieving a block against advancing armour, AT2's future needs urgent consideration. The US-launched Multiple Luanch Rocket System (MLRS) Alternative Warhead (M30A1) was also an important capability on WFX and 1 Artillery Brigade are soon to test fire this rocket; potent at extended ranges against lightly armoured vehicles.

Apache attack aviation (AH-64) was undoubtedly our *King of the Battle*, and devastating when massed against suitable target sets in the deep - if the A2AD threat was first countered. Embedding a Battery Commander (BC) into the Aviation Task Force allowed layered and massed cannon and MLRS fires to suppress or destroy enemy A2AD positions, giving freedom of action for the AH-64s to go after our High-Payoff Target List (HPTL) with a fair degree of impunity. This BC, formerly in 16 Air Assault brigade, is no longer established, but the role proved to be such a force multiplier that the redesign of Divisional

Fires Regiment will consider resourcing options. In 3 Division HQ, artilery, air, aviation and Ground Based Air Defence (GBAD) sit side by side in a number of cells, including the Principal Planning Group (PPG), to ensure genuine 'Air-Land Integration (ALI) by design'. Operating within a corps context with a properly resourced Air Component paid huge dividends in developing our ALI competency. A proper Air Tasking Order (ATO) process really tests resourcing tensions and the division's RAF officers were, without question, fundamental to success - especially in fighting the deep battle.

SUMMARY

While we remain cognisant that ultimately WFX was just an exercise that went well, it is no accident the tone of this article has been positive. The building blocks are solid as our people are well-trained and highly adaptable. Their character, sense of adventure and professionalism made integrating within ARRC and XVIII Airborne Corps relatively easy. Their success in fighting the deep battle paved the way for much of the division's overall momentum, so it's important we recognize and give credit to those in our individual and collective training regimes for what we have got right. It is also important we
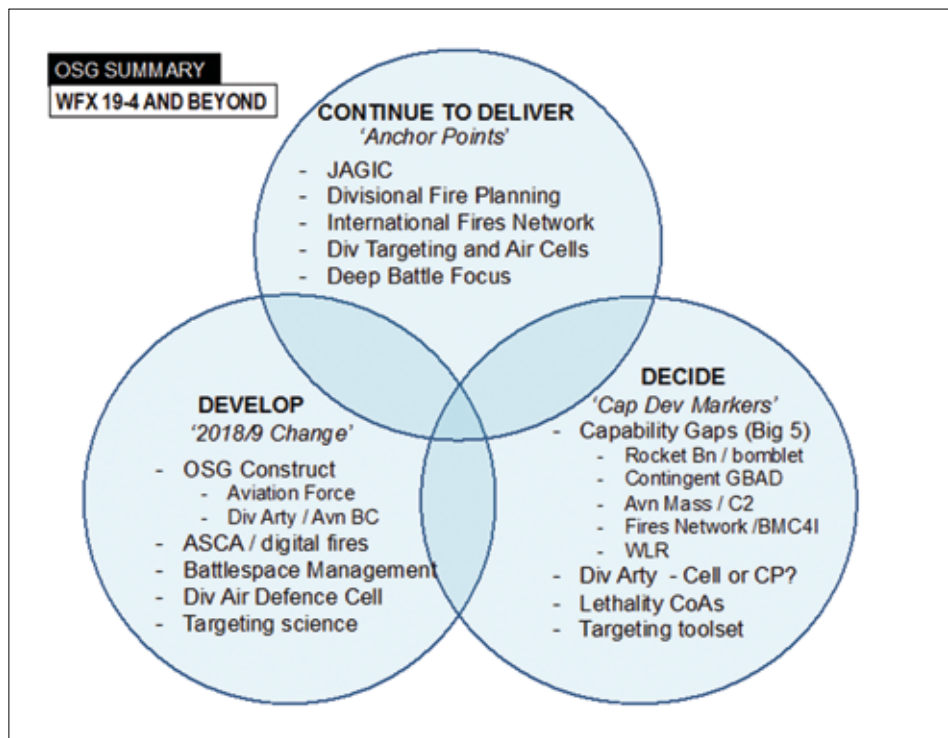
Figure 3: OSG Focus on our Road to the next Warfighter (19-4).

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9   *Dual Purpose Improved Cluster Munitions*

continue to train collaboratively and regularly with our UK Framework 3* HQ and its US counterparts, including United States Army Europe (USAREUR). Only by habitual vertical integration, against a range of potential adversaries, will we keep our warfighting skills sharp. 'International by design' must be just that - vital ground for a fires function commanded at the highest level and controlled at the lowest. Combined with Ex Dynamic Front and Artillery Systems Co-operation Activities (ASCA) leadership; the UK fires community has an opportunity to really crack on. Yes, there are significant and stark capability risks but, as the saying goes, 'it's how you deal with it that counts'.

AS90s training in the Direct Fire role during Ex DYNAMIC FRONT - Grafenwohr February 2018. **Photo: Mike Perring RSA, Crown Copyright**

Adaptation Under Fire - An Evolutionary approach to Organisational Learning

Major Sam Bagshaw, RLC, examines ways of adapting to conflict in the context of evolution.

Image of the Land Combat Power Visit (LCPV) rehearsals at Copehill Down Village, Salisbury Plain, where the King's Royal Hussars (KRH) Battlegroup and the Royal Welsh demonstrated the combat power of their units. **Photo: Sergeant Steve Blake RLC, Crown Copyright**

Never engage the same enemy for too long, or he will adapt to your tactics.

Clausewitz

In the long history of humankind (and animal kind, too) those who learned to collaborate and improvise most effectively have prevailed.

Darwin

The fixed nature and changing character of conflict paradigm is widely established. The fact that *conflict follows a natural cycle of adaptation and response, but its evolution is neither linear, nor constant*[1] is also an enduring theme. There is therefore a requirement to successfully adapt to conflict.[2]

A fundamental factor of evolution within competing populations is the process of *adaptation by natural selection*. This powerful law offers a mechanism by which individuals and groups can beat each other in iterative combat, and the reason that 8.7 million species inhabit the planet. Evolution is also becoming an increasingly common framework to understand modern human phenomena. The concept has yielded insights into a variety of complex systems: economics, politics,[3] leadership, and even ship design.[4] Dominic Johnson[5] suggests that natural selection is the root cause of success or failure in asymmetric warfare, as the process of evolution is such a powerful mechanism for adaptation. This theme provides a synthesis and some practical suggestions for using Johnson's[6] model as an organisational learning strategy; suggesting that adaptation by natural selection is the pre-eminent method to maximise performance and minimise risk for armed forces in modern conflict.

ADAPTATION BY NATURAL SELECTION

The pressure of natural selection applies as long as three conditions are met: (1) variation, (2) selection, and (3) replication. There needs to be variation of a characteristic within the population, a process of selection that causes some characteristics to survive and some to die out, and a means of replication that allows the successful characteristics to be passed on. Note that replication implies communication and adoption of a characteristic. Charles Darwin[7] proposed a process where variation in a trait such as beak size, is subject to selection pressure like starvation, and is then replicated through reproduction. Further variation is provided by trait mutation and recombination during sexual reproduction. This process has been proven to be extremely powerful.[8]

In a similar vein, human society has developed language - as a form of communication - through adaptive natural selection. This has led to a 'novel' form of adaptation: cultural evolution or the adaptation through ideas.[9] This cultural adaptation is even more powerful and faster than its natural equivalent: the rapid spread of the mobile phone and the Internet across the globe is a good example. Where the element of transmission in natural selection is the gene, in cultural evolution it is the idea. Thus, language enhances the power of adaptation by speeding up the dissemination and adoption of new ideas.[10]

IN WAR

We know that natural selection requires competition or conflict. In human endeavour, war is the definitive exemplar of such competition.[11] The characteristics of war therefore provide a perfect environment for natural selection. There is variation in characteristics in armed forces such as the differences in the components of Fighting Power between an insurgent and a conventional

1   pg 1, FCOC
2   Barry, Ben, (2017), Harsh Lessons: Iraq, Afghanistan and the Changing Character of War & JDP-0.4
3   Acemoglu D & Robinson J., (2012), Why Nations Fail, Crown Publishing Group
4   Johnson, D., (2013) Darwin's invisible hand: Market competition, evolution and the firm, Journal of Economic Behavior & Organisation, 90, 128-140.
5   Johnson, D., (2009), Darwinian Selection in Asymmetric Warfare: the natural advantage of insurgents and terrorists, Washington Academy of Sciences
6   Ibid
7   Weiner, Jonathan, (1994), The Beak of the Finch: A story of Evolution in our time. Vintage
8   Natural selection can cause a change in a characteristic by up to two thirds of the total variation in only 16 generations
9   Dawkins, R., (1976), The Selfish Gene. Oxford: Oxford University Press
10 Richerson, P. J., & Boyd, R., (2004), Not By Genes Alone: How Culture Transformed Human Evolution. Chicago: University Of Chicago Press.
11 Von Clausewitz, C., On War, (Trubner, London, 1873)

Pictured are soldiers from the Light Dragoons with elements of The Queen's Own Yeomanry and the Moroccan Army during Exercise Jebel Sahara. The Light Dragoons are a Light Cavalry Regiment in the Adaptive Force. The light nature of the Regiment means they are able to deploy anywhere in the world at very short notice. **Crown Copyright**

force. There is strong selection pressure: defeat or capture. Finally, there is rapid means for replication of successful characteristics by communicating ideas through leadership and adoption through training.

Exploring these in turn, variations in moral, physical and conceptual components lead to differences in Fighting Power within and between forces. These might be differences in the tactics used, equipment available, or ideology followed. The commanders' inspiration, a technological innovation such as the Tank, or novel tactics, perhaps developed during war-gaming, provides further variation. The sharing of ideas between disparate groups provides additional sources of variation in the form of the recombination of ideas. In terms of selection, poorly performing forces are more likely to be defeated and therefore over the course of a conflict an armed force should experience a selective pressure that increases the proportion of effective soldiers (and units) versus ineffective soldiers. Finally, the survivors of combat will replicate best practice and capability, via leadership, training and capability development. Lessons are learnt

from those that have experienced combat and passed on to those elements that have yet to deploy.

THE ARMS RACE

Unfortunately, in war as well as in nature, there is a continuous arms race of adaptation and counter-adaptation between forces in conflict. This is known as the Red Queen Hypothesis after Alice's struggle to escape the Red Queen in Alice in Wonderland.[12] Importantly, the hypothesis suggests that however impressive one side becomes, it may never come any closer to defeating its opponent while that opponent is constantly adapting to defeat *it*. This is a concept that echoes our experience of long drawn-out counter-insurgency operations from Northern Ireland to Afghanistan.

Since both forces experience the *Red Queen* effect, the force with the most variation, greatest selection pressure and fastest replication will adapt more quickly and effectively than its opponent. This selection pressure, by definition, is more pronounced in asymmetric warfare and benefits the 'lesser' force. In symmetric warfare the

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12   *p. 69 in Sagarin, R. D., (2003). Adapt or die: what Charles Darwin can teach Tom Ridge about homeland security. Foreign Policy, September/October*

variation between forces is comparatively slight as the enemy is near-peer, therefore adaptation is less powerful. The result of the symmetric battle is more dependent on the comparative size and power of opposing forces, leading to a war won by attrition or the commander's genius, which somehow subverts the enemy. In contrast, an asymmetric war has an inherent imbalance between forces, which means that not only does the system as a whole have more variation, but also the 'lesser' force faces greater selection pressure and if given variation and replication, adapts faster.

ADAPTING UNDER FIRE

Understanding the application of natural selection to adaptation in warfare allows us to develop an organisational learning strategy. The process of learning by evolution should: increase variation in characteristics, for instance the components of Fighting Power; increase the selection pressure against poorly performing variation; and improve the replication of best practice. There are obviously many ways of achieving these aims and not all methods will be appropriate or acceptable.

VARIATION

Firstly, the generation of a variety of ideas is fundamental, as this is what cultural selection acts against. In the first instance, the acceptance of failure is paramount, as the successful variation – the idea – cannot be identified until they have been tested, using competition, against another idea. For every success there must be a corresponding failure - the backend of the bell curve. Failure must therefore be accepted, even promoted, as a means of encouraging variation. Secondly, the organisation itself and its people must promote variation. Hierarchical communication structures that encourage operating within silos not only reduce replication by limiting the spread of ideas, they also reduce the opportunity for recombining ideas from desperate groups or units. The recruitment of people outside of their immediate field of expertise, and the broadening and deepening of education to include potentially atypical areas of study should be encouraged. The Regimental system should be reinvigorated not as a historical artefact but as an essential element of variation. Similarly, battle grouping a variety of arms,

Pictured is a soldier from the Light Dragoons firing a General Purpose Machine Gun during training Exercise Jebel Sahara with elements of The Queen's Own Yeomanry and the Moroccan Army, a fellow soldier is behind armed with an SA-80. The Light Dragoons are a Light Cavalry Regiment in the Adaptive Force. **Army Photo: Crown Copyright**

joint components, and coalition partners is crucial and this needs to occur at the lowest level. The acceptance of greater risk across all functions is required - survivability versus mobility versus lethality for instance[13] - as one variation might have greater success than another.

Variations in capability should be stimulated, old and new innovations used interchangeably - the horse, tank or helicopter are just potential means of achieving Shock Action; the horse might be the most appropriate method in public order and a the helicopter within the jungle. The age of the innovation is immaterial; the question is what is best adapted to the current environment. Resources for *ad-hoc* solutions, such a commercial products, should be provided at the tactical level, as this is the largest entity and therefore the scale that allows greatest experimentation and variation. All possible doctrine and concepts should be adopted, large armies and small insurgencies should be trained and fought both for and against.

SELECTION

Increased variation inevitably leads to more failures, and whilst this failure must be accepted, there must be a strong selective pressure for best practise; otherwise we are simply accepting mediocrity. This is best achieved by displaying the costs and benefits of an action in blood and treasure, or a comparative metric. In asymmetric warfare, where the number of insurgents killed often outweighs the number of counter-insurgents by several orders of magnitude and the pressure is continual making the arms race closely fought.

The commander must therefore accept oversight and scrutiny from subordinates, peers, the chain of command, government, and potentially the public. They must actively collect and distribute information on measures of performance and measures of effectiveness, be open about failure within and between units, be objective rather than subjective, and ultimately accept that experimentation is different from incompetence. We must design training systems that provide the comparative costs & benefits of conflict, and by accepting that in training you can be defeated. This will require intellectual, moral, political and physical courage, and resources.

REPLICATION

Improved selection pressure does not lead to adaptation without replication across the whole force. Speed of replication has its foundations in decision-making and judgement, as understanding is required to integrate and interpret new information. This is hard-won by both broad and deep experience of an operation or area of interest. Replication is further enhanced by information flow. Collaborative sharing of information, rather than hierarchical control and distribution, allows good ideas to spread quickly. This requires embracing new technology such as 'wiki' pages, and new cultural norms such as the collaborative creation of doctrine. Finally, imitation is the sincerest form of flattery, and the most powerful method of communication, but time and resource must be dedicated to its application. Peer-to-peer training, mentorship and coaching should all be formally adopted as normal working practice and not only restricted to career courses.

ADAPTABILITY

By definition adaptation is historic in that we are adapting to previous incidents. Therefore, what we are actually seeking is adaptability, the ability to adapt immediately to the unknown. Evolution unfortunately does not provide foresight, however a number of tricks are possible. Plasticity[14] is the ability to express different characteristics depending on the environment. This is highly adaptive as forces can adjust to a wide variety of situations. The 'fight' that occurs during a 3-block war is as perfect metaphor of the plasticity demonstrated by modern soldiers. Another example is the spread mutation or a novel idea when an entity is stressed, thereby generating variation when it is potentially needed most. Most Urgent Operational Requirements were created under this condition and they all represented novel ideas. As Dominic Johnson suggests 'Armies that accumulate diverse and flexible technologies or strategies over time are more likely to fall back on a broad range of alternatives in unusual circumstances'.

FUTURE DIRECTIONS

The extent of possible variation is vast and therefore some direction to organisational learning is required. Geerat Vermeij[15] suggests seven adaptation strategies

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13 Fuller, J.F.C., The Foundations of the Science of War, Chapter X, London, 1926, reprinted by U.S. Army Command and General Staff College Press.

14 Plasticity in biology is, according to the definition in Wikipedia, the adaptability of an organism to 'change its phenotype in response to changes in the environment.'

15 Vermeij, G. J., (2008), Security, unpredictability, and evolution: policy and the history of life. In R. D. Sagarin & T. Taylor (Eds.), Natural Security: A Darwinian Approach to a Dangerous World: University of California Press.

This image shows Royal Marines during a Wader package at Browndown Beach Gosport where the Marines in conjunction with French Marines conduct beach landings of troops and vehicles from landing craft on to the beach, as well as a Chinook helicopter landing artillery guns. The evolution was part of a wider exercise; Exercise Griffin Strike. **Photo: L(Phot) Joel Rouse, Crown Copyright**

that have historically proven successful when in conflict: (1) tolerance; (2) active engagement; (3) increase in power or lifespan; (4) unpredictable behaviour; (5) quarantine and starvation of the threatening agent; (6) redundancy; and (7) adaptability. All of these strategies can be seen in modern warfare: as examples Nelson's actions at Trafalgar were unpredictable, population control during the Malayan Emergency effectively quarantined the threatening agent, active engagement ended the Troubles in Northern Ireland, and an increase in 'lifespan' has enabled the Taliban to persist in Afghanistan.

Many of the elements that make up adaptation by natural selection are not new. The British Army prides itself on the ability to innovate and adapt to changing circumstances. However, the process of adaptation by natural selection provides logical reason and a unified approach, which compliments existing experience, principle and intuition. For instance, the Regimental

System is not a vestigial artefact that is justified out of some misplaced nostalgia, but rather an essential element in enabling variation and adaptation to new and changing environments. To ensure we continue to adapt whilst under fire, commanders must encourage variation, select for best practise, and ensure replication of this practise.

Too Fat to Fight?

Lieutenant Colonel Ben Watts, Royal Dragoon Guards, looks at the disease of obesity in the Army and ways in which the Army can take steps to reduce it and help to solve the manning crisis.

Inside the Catterick Garrison Cookhouse is a convenience store exclusively stocked with sweets, crisps, tobacco and alcohol.
Photo: Lieutenant Colonel Ben Watts, Crown Copyright

Senior officers have begun to address publicly a problem that has been insidiously stalking the Army for a generation. It threatens not only our ability to recruit sufficiently capable soldiers, but also presents a significant risk to the physical health and psychological wellbeing of those currently serving. Our apparent inability to tackle it is damaging our reputation. It is a disease that effects both men and women, does not discriminate on grounds of age or ethnicity and is spreading at an alarming rate through industrialised societies; data would suggest that Britain is particularly susceptible. The manning crisis has forced us to take it seriously, but solutions to the obesity problem are elusive.

Commander Home Command's recent letter on manning[1] and CFA's Health Symposium indicate growing acknowledgement of the issue. The latter initiative advocates a holistic approach to a complex matter, but must not over-simplify the solution as 'fundamentally an issue of leadership'.[2] Leaders at all levels have an absolute responsibility to encourage soldiers to live a healthy lifestyle and in so doing ensure they are fit to fight, but Commanding Officers do not possess some of the essential tools necessary to address the problem. This is especially the case in modern super-garrisons, where much of the lived experience is shaped by service delivery partners who are commercially firewalled from unit-level leadership. In the short-term, Commanding Officers must be empowered to shape our lived environment. Longer-term, our senior leadership must engage with politicians and the public to put obesity firmly on the radar as an issue of national security.

THE OBESITY CRISIS

Human society is in the midst of an obesity crisis. Rates have more than doubled worldwide since 1980, with 39% of adults classified as overweight in 2014, and a further 13% being obese. Globally 41 million children under the age of five are also overweight or obese.[3] No specific nation or group is immune, but obesity is acute in western societies. The World Health Organisation framed the European problem in the following terms:

Obesity is one of the greatest public health challenges of the 21st century. Its prevalence has tripled in many countries of the WHO European Region since the 1980s, and the numbers of those affected continue to rise at an alarming rate, particularly among children. In addition to causing various physical disabilities and psychological problems, excess weight drastically increases a person's risk of developing a number of non-communicable diseases (NCDs), including cardiovascular disease, cancer and diabetes. The risk of developing more than one of these diseases (co-morbidity) also increases with increasing body weight. Obesity is already responsible for 2-8% of health costs and 10-13% of deaths in different parts of the Region.[4]

The United Kingdom has been singled out, with a 2013 UN Food and Agriculture Organisation report estimating obesity amongst British adults to be at 24.9%, the highest rate in Europe.[5] Statistics like this have led the Academy of Medical Royal Colleges, who represent the UK and Ireland's 24 medical Royal colleges and faculties, to warn:

The UK is the 'fat man' of Europe. Latest figures from the Health Survey for England 2009-11 shows that one quarter of men and women are obese (BMI over 30) and two thirds of adults are obese or overweight (BMI over 25). The National Child Measurement Programme 2011-12 shows that for children aged 10-11, one in five are obese and one in three are overweight or obese. In the last 20 years, the number of morbidly obese adults (BMI over 40) has more than doubled to over one million UK citizens.[6]

The costs of obesity are not only human, but also financial. A recent independent study estimated the annual global cost of obesity to be $2 trillion, or 2.8%

1   A letter from Lieutenant General Urch to Commanding Officers on 17th Sept 2018 identified obesity as one of several factors negatively impacting the Army's ability to draw recruits from society.
2   Views expressed by a senior panel during Q&A at CFA's Health Symposium, RMAS, 10 May 2018.
3   'Obesity and Overweight,' June 2016, accessed Jan 23, 2017, http://www.who.int/mediacentre/factsheets/fs311/en/
4   World Health Organisation. Europe Approaches to Obesity,' January 23, 2017, accessed January 23, 2017, http://www.euro.who.int/en/health-topics/noncommunicable-diseases/obesity/obesity.
5   Food and Agriculture Organization of The United Nations, The State of Food and Agriculture, 2013, accessed January 18, 2017, http://www.fao.org/docrep/018/i3300e/i3300e.pdf.
6   Academy of Medical Royal Colleges, Measuring Up. The Medical Profession's Prescription for The Nation's Obesity Crisis, (London: Academy of Medical Royal Colleges, 2013), http://www.aomrc.org.uk/wp-content/uploads/2016/05/Measuring_Up_0213.pdf.

of global GDP, placing obesity on a par with smoking, armed violence, war and terrorism.[7] Consequently, the report ranked obesity as one of the top three global social burdens, outstripping alcoholism, illiteracy and climate change.

Closer to home NHS England estimated the cost of treating obesity and its related conditions as £16 billion per year; more than is spent annually on the Police and Fire Service combined.[8]

OBESITY AND THE BRITISH ARMY

Military service often exposes personnel to arduous conditions requiring strength and endurance, so it is unsurprising that these qualities have long been valued by the military as important indicators of professionalism, discipline and overall effectiveness.[9] The implications of obesity for a military's fighting power are two-fold. Most obviously it degrades the physical component by reducing aerobic fitness, increasing 'clumsiness'[10] and increasing the risk of injury in training.[11] At the collective level this aggregates to an erosion of overall deployability. Less obvious is the impact on the moral component; obesity strikes at the social identity and *esprit de corps* of a professional military.[12] It is not by accident that the *Army Leadership Code* is printed against a collage of soldiers in demanding conditions on operations, playing sports or taking part in physical training,[13] or that the British Army website focuses heavily on the virtues of fitness and the rewards of rising to the physical challenge of being a soldier. Obesity is the antithesis of this social identity.

With this impact on both the physical and moral component it is troubling when studies shine a light on the size of the Army's problem (pun intended). For example, a meta-analysis of the British Army's various databases published in *The Annuls of Human Biology* in 2014, highlighted that, according to BMI measurements,

The proprietor of The Cottage Loaf Bakery supported Armed Forces day by baking a trio of service personnel in the guise of gingerbread men. Photo: LA(Phot) Alex Knott, Crown Copyright

56.7% of the 50,635 soldiers studied were overweight, with 12% of that figure being obese and 24.6% of soldiers at increased risk of obesity-related ill health. The study also showed that obesity was more prevalent amongst older non-commissioned males in non-combat or support roles.[14] This reinforces the findings of an earlier study, commissioned by the Ministry of Defence and conducted by QinetiQ performed by taking direct

7   Spatharou, Angela, et al., 'Overcoming Obesity: An Initial Economic Analysis,' McKinsey & Company, November 2014, 1, accessed April 10, 2017, http://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/how-the-world-could-better-fight-obesity.

8   Hughes, Laura, 'More Spent on Treating Obesity-Related Conditions Than on the Police or Fire Service...,' The Telegraph, June 07, 2016, accessed March 20, 2017, http://www.telegraph.co.uk/news/2016/06/07/more-spent-on-treating-obesity-related-conditions-than-on-the-po/.

9   Cawley, John and Maclean, Johanna Catherine, 'Unfit for Service: The Implications of Rising Obesity for US Military Recruitment,' Health Economics 21, no. 11 (2011): 3, accessed April 11, 2017, doi:10.1002/hec.1794.

10 Mclaughlin, R., and Wittert, G., 'The Obesity Epidemic: Implications for Recruitment and Retention of Defence Force Personnel,' Obesity Reviews 10, no. 6 (2009): 696, doi:10.1111/j.1467-789x.2009.00601.x.

11 Hertling, Lieutenant General Mark, 'Obesity Is a National Security Issue' (lecture, TEDxMidAtlantic, October 2012, 2012), accessed January 12, 2017.

12 Mclaughlin and Wittert, The Obesity Epidemic: Implications for Recruitment and Retention, 693.

13 United Kingdom, Ministry of Defence, The Army Leadership Code. An Introductory Guide (2016).

14 Sanderson, Paul W., Clemes, Stacy A.,, and Biddle, Stuart J.Hl., 'Prevalence and Socio-Demographic Correlates of Obesity in the British Army,' Annals of Human Biology 41, no. 3 (2014): 195, doi:10.3109/03014460.2014.881918.

fundamental things. Firstly, it must recruit and retain soldiers to meet current and future manning requirements, and secondly, be able to generate from its existing trained strength sufficient deployable manpower. In both cases the physical fitness of individual soldiers is fundamental. Civilians wishing to serve must meet the basic health and fitness requirements to begin training and serving soldiers must be fit for deployment. With rising obesity rates in society and the Army showing no signs of abating our core capability is at increasing risk.

The Army's efforts to recruit have been falling short for some time, with inflow rates sitting below outflow since at least 2010.[17] This trend is continuing, with current inflow overmatched by the outflow of soldiers, purportedly leaving due to a combination of high employment rates in the civilian sector and increasing dissatisfaction with the conditions of service life.[18] This has led to a Regular Army trade-trained strength[19] of 76,880 as of July 2018,[20] against a liability established in SDSR15 of 82,000. With young people succumbing to the ill effects of cheap, calorie-dense refined food, combined with a sedentary lifestyle, the Army's recruiting pool is becoming ever shallower. Part of this decline attributable to obesity is undoubtedly due to increasing numbers of potential recruits failing to meet basic entry requirements, but also perhaps to growing self-deselection by a target audience perceiving the rigours of military fitness as beyond them.

Current tri-service policy is clear on the height-weight standards expected of new recruits. It recognises our responsibility both to the individual and to the military by highlighting the risks of accepting overweight applicants. *The Joint Service Manual of Medical Fitness* notes that *of particular importance are the relationships between BMI and (a) the risk of injury during military training and (b) cardiovascular risk.*[21] The policy does offer some flexibility, but not without controversy. In 2006, the recruitment restrictions on BMI were relaxed, leading to allegations in the media that this was driven

measurements as well as using self-reported figures. This indicated that 13.5% of soldiers studied were obese.[15] The study also noted that the prevalence of obesity in non-commissioned ranks was particularly troubling due to their status as role models, and the fact that obesity in this cohort probably occurred during service and persisted despite regimes designed to keep soldiers fit. Overweight and obesity are in part a leadership issue, and some of our role model leaders are obese.

It has long been held that *manpower is the lifeblood of the Army. People are its core capability.*[16] In order to maintain this capability an army must do two

15   Fear, Nicola T., Sundin, Josefin, and Rona, Roberto J., 'Obesity in the United Kingdom Armed Forces: Prevalence Based on Measured and Self-Reported Data,' Military Medicine 176, no. 1 (2011): 510-511, accessed January 16, 2017, doi:10.7205/milmed-d-10-00261.

16   United Kingdom, Ministry of Defence, Army Doctrine Publication - Operations (2010), 2-32.

17   United Kingdom, Ministry of Defence, National Statistics, UK Armed Forces Monthly Service Personnel Statistics 1 February 2017, March 9, 2017, 7, accessed April 12, 2017,

18   Farmer, Ben, 'Army Shrinks Below 80,000 as Recruitment Struggles,' The Telegraph, September 02, 2016, accessed March 20, 2017, http://www.telegraph.co.uk/news/2016/09/02/army-shrinks-below-80000-as-recruitment-struggles/.

19   On 1 October 2016 the MoD changed its definition of 'trained soldier' to include those who had completed Phase One training. Previously the definition only included those who had completed Phase Two (trade) training.

20   UK Armed Forces Quarterly Service Personnel Statistics 1 July 2018, 5. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/735105/20180701-_SPS.pdf.

21   United Kingdom, JSP 950 Medical Policy. Joint Service Manual of Medical Fitness, vol. Part 1, Leaflet 6-7-7 (2016), 3-C-1.

mild cases of overweight and obesity.[25] Whatever the reasons for lowering the standard, it is now the case that overweight recruits presenting themselves for PSMA are accepted for recruits training as a matter of routine with a BMI up to 28 if over 18 years old. Recruits with a higher BMI, including clinically obese recruits (BMI 30 or above) may also be accepted with a BMI as high as 32 for a male (30 for a female), providing they satisfy additional protocols based on waist circumference and aerobic fitness.[26]

Despite efforts to ensure that clinically obese applicants are otherwise healthy, recruits who receive medical waivers for BMI still represent a risk group, susceptible to a higher probability of injury and less likely to complete basic training without complications. They may also require more careful management during training, which would account for the appearance of physical pre-conditioning initiatives that aim to improve fitness for selected recruits to a level at which they may begin the training syllabus. The risk remains that previously overweight or obese solders, who lose weight and successfully complete basic training, may relapse once they enter the Field Army, are away from the rigours of basic training and again exposed to an obesogenic environment. Data to test this hypothesis is not forthcoming; recruits accepted with a higher than normal BMI are not tracked once they have completed basic training. To further compound the issue units are routinely seeing new soldiers arrive without ever having passed MATT 2, and once they arrive our current policy bars these new soldiers from being placed on a three-month warning for the first six months, tacitly acknowledging that risk is transferred to the Field Army. Additionally, persistent MATT 2 failures will not be discharged, no matter how unfit.[27] It seems then, that quantity is more important than quality; a mixed message when the chain of command rightly focuses attention on deployability.

WHAT IS THE ARMY DOING ABOUT IT?
In recognition of the potential for obesity to impact on the health of the individual, and therefore operational effectiveness, the British Army modified its Personal Fitness Assessment (PFA). Starting in 2008 the recording of Body Composition Measurement (BCM) became

An Army Chef is pictured cutting meat during the butchery section of the Annual Combined Services Culinary Challenge at Sandown Park, Esher, Surrey. **Photo: Graeme Maine, Crown Copyright**

by pressure to address poor recruiting figures during operations in both Iraq and Afghanistan.[22] [23] [24] This argument highlights a definite correlation between recruiting targets and a less stringent Pre-Service Medical Assessment (PSMA), but there is no evidence to support an assertion of a causal relationship.

The raising of the BMI limit does in part take into consideration its imprecision when dealing with athletic builds and presumably the decision to relax standards also recognised that basic military training involves a progressive physical fitness regime that can address

22 'Army to Welcome 'Heavy' Soldiers,' BBC News, January 08, 2006, http://news.bbc.co.uk/1/hi/uk/4592230.stm.
23 Hickley, Matthew, 'Army Forced to Admit Clinically Obese Because of Recruiting Crisis,' Daily Mail Online, November 02, 2006, accessed May 03, 2017, http://www.dailymail.co.uk/news/article-414154/Army-forced-admit-clinically-obese-recruiting-crisis.html.
24 Townsend, Mark, 'War Effort Is Being Hampered by Troops Too Unfit to Deploy,' The Observer, August 01, 2009, accessed May 02, 2017, https://www.theguardian.com/uk/2009/aug/02/british-army-obesity-fitness.
25 Mclaughlin and Wittert, The Obesity Epidemic: Implications for Recruitment and Retention, 696.
26 JSP 950 Medical Policy. Joint Service Manual of Medical Fitness, vol. Part 1, Leaflet 6-7-7 (2016), Table C3.
27 3 Division legal advises that as a matter of policy 130A discharge applications, where fitness is the only failing, are being rejected by DM(A).

Civilian and military personnel attend the Donnington Support Unit Health Fair at the Parsons Barracks Gymnasium. The fair was designed to showcase local military and local companies and promote healthy living and eating. Photo: Corporal Paul Shaw ABIPP, Crown Copyright

an additional requirement of the PFA, and the results are stored on the Army's Fitness Information Software System database, alongside the soldier's pass marks. This direction was contained within an *AGAI Vol 1 Chapter 7*, which explained that BCM was gathered *…in order to identify an individual's level of health risk and to encourage the maintenance of a healthy body weight.* However, this policy did not attract any additional resource, contained no advice on how to manage soldiers identified as high risk or explain how knowing their BCM would encourage soldiers to maintain a healthy weight.

The Armed Forces Weight Management Policy, issued in 2009, sets out a three-pronged strategy for tackling the disease in the military. Its focus is on compulsory weight measurement, of which the Army's PFA policy is a part, alongside management and prevention. Of the 28 paragraphs in the document, 22 are given over to an explanation of overweight and obesity, their implications, the mechanisms for reporting, and the requirements of the Data Protection Act. Only three paragraphs are allocated to the management of overweight soldiers, and the guidance given is generic, concentrating on the provision of advice. Once a soldier is identified as belonging to a risk category

they should be 'strongly encouraged to increase physical activity levels and to monitor diet' and they should be subject to additional weight measurement. Only when the risk to health is judged to be 'very high' or 'extreme' is there a mandated medical intervention. The policy devotes a further three paragraphs to prevention, and offers commanders advice on frequency of fitness training and testing, composition of Unit Health Committees, monitoring of catering contracts and provision of education and advice in the workplace. The suggestions for workplace provision are again generic, and assume the Commanding Officer has more influence over the built environment and service delivery than is perhaps the case. But it does at least indicate a recognition of the need to address obesogenic environments, with suggestions such as the provision of secure cycle parking and adequate changing facilities for commuters.

WHAT ELSE CAN WE DO?

In seeking solutions, it is instructive to look at the American experience, where obesity has generated a great deal of interest amongst society and the military community. The US Army reports that 75% of civilians aged 17 to 24 years old who apply to enlist were not

qualified for military service, and the single largest contributing factor for that disqualification was obesity.[28] Statistics like these were the motivation behind 'Mission: Readiness', a bi-partisan organisation of over 700 retired senior American military leaders who aimed to highlight the relationship between a fit and healthy society and a productive and secure nation. They were concerned with the association between declining standards of physical fitness and increasing obesity in young people upon the US Army's ability to recruit an effective fighting force.

In 2010, Mission: Readiness published *Too Fat to Fight*, a document which subsequently gained considerable media and political attention. Its primary objective was to pressurise Congress into removing junk food, fizzy drinks and vending machines from schools by establishing a clear link between childhood obesity and national security. The report states that 'since 1995, the proportion of recruits who failed their physical exams because they were overweight has risen by nearly 70 percent', highlighting the fact that weight is now the leading cause for rejection. It went on to point out that in 2010 'over 27 percent of all Americans 17 to 24 years of

age - over nine million young men and women - are too heavy to join the military if they want to do so.'[29] This document and subsequent efforts to keep it in the news contributed to Michelle Obama's 'Let's Move!' campaign to address childhood obesity and to President Obama's *Healthy, Hunger-free Kids Act*.[30]

The British Army can also learn lessons from the way in which the US Army has taken a holistic approach to improving the lived experience of serving soldiers by studying their *Soldier Athlete Initiative*.[31] This programme, recognising the fundamental link between three interrelated factors of diet, weight and injury, seeks a joined-up view of weight management and physical fitness. It also displays a degree of marketing savvy. By framing the soldier as an elite sportsperson the approach includes the complete re-evaluation of physical training methods, the addition of professional trainers at unit level and a root-and-branch review of centralised catering, including the control of stock sold in vending machines and in military convenience shops. The Soldier Athlete Initiative catering review also came with a catchy marketing slogan called *Fuelling*

*President Barack Obama signs the Healthy, Hunger-Free Kids Act of 2010 at Harriet Tubman Elementary School in Washington, D.C. December 13, 2010. **Official White House Photo: Lawrence Jackson***

28   Hertling, Lieutenant General Mark, 'Obesity Is a National Security Issue' (lecture, TEDxMidAtlantic, October 2012, 2012).

29   'Too Fat to Fight: Retired Military Leaders Want Junk Food Out of America's Schools,' Mission Readiness, September 08, 2010, 2, accessed January 16, 2017, http://cdn.missionreadiness.org/MR_Too_Fat_to_Fight-1.pdf.

30   Burridge, Joseph and McSorley, Kevin, 'Too Fat to Fight? Obesity, Bio-politics and the Militarisation of Children's Bodies,' in War and the Body: Militarisation, Practice and Experience, ed. Kevin McSorley (London and New York: Routledge, 2015), 62.

31   'New Training Initiative Prepares Soldiers as Athletes,' www.army.mil, July 30, 2010, https://www.army.mil/article/43074/new-training-initiative-prepares-soldiers-as-athletes.

the Soldier. The evidence suggests this had an effect, with the Training and Doctrine Command reporting a reduction in injuries that saved $30 million in the first year, with an attendant reduction in overweight and obese soldiers.[32] The US Army is now working with partners across government to introduce the programme to schools as *Fuelling the Future*.[33] Much of this American influence can already be seen in the Field Army's health and wellbeing initiatives, the introduction of Project THOR and the implementation of Physical Employment Standards.

Closer to home, the Cabinet Office Behavioural Insights Team also offers some interesting approaches. Their document *Applying Behavioural Insights to Health* seeks to leverage choice architecture, or the way in which choices are presented to individuals, to 'nudge' people towards healthier lifestyles. A chapter of their paper is devoted to the work they are doing with the National Health Service and private sector to tackle obesity. They identify key cognitive biases that can be leveraged to encourage people to make healthy choices. They find that priming, anchoring and salience are particularly important when people are choosing what food to buy, and prompting them to think about healthy food whilst in the act of shopping can increase the uptake of fruit and vegetables. The '5-a-day' campaign is an example of priming and anchoring at work, as is an experiment from New Mexico which used a segregated and colour-coded shopping trolley to encourage people to buy more fruit.[34]

CONCLUSION

The Army has taken the first steps to tackling obesity. Good work is underway with initiatives aimed at education and the redesign of physical training programmes. However, some essential pieces of the puzzle are missing. It is essential that obesity is tackled holistically, including by giving Commanding Officers the tools necessary to directly address the obesogenic environment and adjust the lived experience of our soldiers. The way in which our cookhouses, gyms and communal living areas are managed matters, a lot. Work by the Cabinet Office Cultural Insights Team highlights the absurdity of an Army which, during working hours educates and trains its people with a keen eye on physical fitness and healthy living, yet enters into catering contracts that provide dining facilities with a pizza takeaway concession and which serve an evening meal at 16:30, precisely the time when soldiers who want

to train after work should be hitting the gym. And for those soldiers who miss meals we provide a convenience shop stocked exclusively with cakes, sweets, fizzy drinks, tobacco and high-strength alcohol. Meals and meal timings are of particular importance given that *diet is an area where short-term emotional responses tend to overpower longer-term, more 'rational' thinking.*[35]

Finally, obesity is not just an Army problem, it is a societal problem, and we have both a moral responsibility and a vested interest in helping tackle it. Our senior leaders must engage with politicians and the media to help frame obesity as the national security threat that it is, much like Mission: Readiness. In addition, our 'brand' is running at an all-time high; to boost the pool of eligible recruits and help address our manning shortfall we must leverage that brand and do our bit to tackle the British obesity epidemic. We already provide activities such as Army Insight Courses and Practical Leadership and Teambuilding Activities. And although not directly administered by the MoD, we sponsor the Army Cadet Force which actively encourages outdoor pursuits and fosters an interest in the Army. We can do more; we should do more; we can't afford not to.

*Healthy eating: the Donnington Support Unit Health Fair showcased local military and industry working together to promote healthy living and eating for military and civilian personnel. **Photo: Cpl Paul Shaw ABIPP; Crown Copyright***

32   Hertling, *Obesity Is a National Security Issue.*

33   Ibid.

34   *United Kingdom, Cabinet Office, Behavioural Insights Team, Applying Behavioural Insights to Health (2010), 14.*

35   *ibid, 16.*

'There are no Five-Year Plans in the Ant Kingdom'[1]

Major Christopher Hitchens, JSCSC, Defence Academy suggests that by studying biology the Army could learn to adapt significantly faster than our enemies, and asks if the study of biology can give the Army the edge that physics cannot.

An ant carries a bug. *Photo: Photochem PA, State College, PA, USA, Creative Commons Attribution 2.0 Generic License, Wikimedia*

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1   *Johnson, Steven, Emergence: the Connected Lives of Ants, Brains, Cities, and Software. (New York: Scribner, 2006), 31.*

'War is an art, a free and creative activity founded on scientific principles.'[2] So says the opening line of *Truppenfuhrung*, the culmination of Prussian and German thinking on command, and the German Army's manual for commanders during the Second World War. It is a description that stands the test of time. But, in the application of those scientific principles, physics has traditionally been accorded a privileged position over the other sciences. In the Physical Dimension, like the battlefields of the Industrial Age, where the concentration of mass at a decisive point, or the undermining of a Centre of Gravity was the aim, this might be justified, along with the linear processes, cause and effect mentality,[3] and hierarchical command structures that facilitate it. However, in the Virtual Dimension of the Information Age, an era of 'effect without cause',[4] where our adversaries are going 'viral', and 'we increasingly lack the initiative',[5] we need a new way of thinking. *Global Strategic Trends* tells us we need, 'a new approach that places strategic adaptability at its core',[6] and biology, the mother of adaptation, might just provide some timely inspiration that could dramatically increase the speed, capacity and creativity of our information operations.

In the Information Age, with its increasing interconnectedness, expanding networks, higher tempo and its resultant complexity, the instinctive response of established institutions might well be to use ever more powerful computational devices, analytical systems and command and control hierarchies to OODA[7] our way through, as we are genetically and culturally predisposed to do. However, no computing system, or even network of systems, exists with the power to comprehend anywhere near the levels of complexity present in the contemporary Informational Environment, let alone make predictions about the future. The human brain at the top of the hierarchy is fundamentally ill-equipped to understand anything like the required level of complexity to inform effective decisions, even when it has been made more digestible by tools like big data and artificial intelligence. As Nobel Prize winning economic physiologist Daniel Kahneman observed: *People who spend their time, and earn their living, studying a particular topic produce poorer predictions than dart-throwing monkeys*.[8] When overmatched by complexity, the human brain will attempt to simplify it into terms it can comprehend by defaulting to heuristics, shortcuts and biases which lead to errors; *when faced with a difficult question, we often answer an easier one instead, usually without noticing the substitution*.[9]

To make matters exponentially more difficult still, the Informational Environment is a Level 2 Chaotic System,[10] that is, unlike the weather - a Level 1 Chaotic System - which does not react to predictions made about it, the Cyber Domain, like the economy or politics, does. Why was the Arab Spring not predicted? Yuval Noah Harari argues it is because predictable revolutions never erupt, because the government would react (by lowering taxes etc), and when the revolution failed to appear, they would castigate the predictors for being wrong.[11]

The contrast between a biological approach to solving complex problems and the way hierarchical institutions do it could not be more marked. We command top down, whereas the immense complexity of nature is developed from the bottom up; it is the difference between intelligent design and what has become known as 'emergent behaviour';[12] of creationism versus evolution. The military mind-set relies on a lead agent, a single node comprehending and controlling the complexity beneath, whereas nature does precisely the opposite.

2   Condell, Bruce, Ed, Truppenfuhrung: German Army Manual for Unit Command in World War II (Stackpole Books, 2009), 17.

3   The British Army term this 'Action and Effect' which lead to the 'Objective and Outcome'. OOEA sits at the very centre of planning doctrine. See the Planning and Execution Handbook, 3-45.

4   Patrikarakos, David, War in 140 characters: How Social Media is Reshaping Conflict in the Twenty-First Century. (New York: Basic Books, 2017), 73.

5   Joint Concept Note 2/18: Information Advantage, 2.

6   Global Strategic Trends, Sixth Edition, 2018, p11.

7   Observe, Orient, Decide and Act. For more information see John Boyd's work.

8   Kahneman, Daniel, Thinking, Fast and Slow (London: Penguin, 2013), p219

9   Ibid, 12

10   A chaotic system is defined as a complex system 'that shows sensitivity to initial conditions such as an economy, stock market or the weather.' No matter how small any uncertainty is at the beginning the system will produce rapidly compounding errors in the ability to predict how the system will behave in the future. It is impossible to predict the future behaviour of any complex chaotic system as a result. http://www.businessdictionary.com/definition/chaotic-system.html

11   Harari, Noah, Sapiens: A Brief History of Humankind (London: Vintage, 2015), Ch 13.

12   Johnson, Emergence,12.

In his book *Team of Teams*, Stanley McChrystal detailed the limitations of conventional hierarchies. He cited Steven Johnson's essay *The Myth of the Ant Queen*. Ant colonies, Johnson observed, are remarkably complex achievements, with divisions of labour, collective responses to threats, tunnel networks, food storage areas, burial sites, larvae stores, rubbish tips and the list goes on. In days gone by, it was widely assumed that this complexity required a leader, what Johnson refers to as a 'pacemaker', and the queen seemed the most likely candidate. But that assumption was based on our anthropomorphic preconceptions. In reality she is merely a larvae factory with no more than 250 thousand brain cells (compared to 100 billion in humans). There is no central authority in an ant colony; each individual is motivated by the simple drive to secure the reproductive success of the colony. This kind of emergent behaviour is a case, McChrystal argues, not of 'command and control' but of 'collaborate and adapt'.[13] And it is a very powerful tool, a phenomenon independently discovered by intellectual Goliaths like Adam Smith, Friedrich Engels, Charles Darwin and Alan Turing, but *because the science didn't yet exist as a recognised field, their work ended up being filed on more familiar shelves.*[14] As Johnson observed:

Pictured are members of Charlie Company, 40 Commando Royal Marines conducting a company attack at Pembrey, Wales during Exercise Joint Warrior 2018. **Photo: PO(Phot) Si Ethell, Crown Copyright**

13   McChrystal, Stanley, Team of Teams: New Rules of Engagement for a Complex World. (New York: Portfolio/Penguin, 2015), 131.
14   Johnson, Emergence,18.

Turing's work … had sketched out a mathematical model wherein simple agents following simple rules could generate amazingly complex structures.[15]

Perhaps more instructive for understanding how, 'simple components can build higher level intelligence',[16] is an even less sophisticated natural phenomenon cited by Johnson: that of slime-mould. This brown mould is a simple amoeba-like organism, closely related to fungus, which lives as individual cells but which, under favourable conditions, coalesces into a single organism. When the environment becomes less hospitable, it disperses back into single cells. One day you can see it on the forest floor, the next you can't. In 2002, Japanese scientist Toshiyuki Nakagaki trained slime-mould to solve a problem. He put some into a small maze with four possible exits. He then put food sources at two of the exits. With no brain, this fungus-like organism managed to plot the most efficient route between the two food sources.[17]

Once again, human preconceptions led to the old assumption that there must be some central intellect behind this behaviour. Scientists knew that the coalescence of the mould cells was triggered by the release of a chemical called acrasin, but could not identify the pacemaker responsible for the initial signal; all the cells were broadly identical. As with the ants, it became clear that all agents in this network operated autonomously, using a very simple set of rules, in this case, how much acrasin to release under certain conditions. While humans respond to problems through prediction and design in an attempt to avoid the cost of failure, nature functions with a binary operating system which speaks only the language of success or failure; each of which outcomes is as crucial as the other in the success of the system. Nature fails fast and iterates quickly.

Understanding the importance of failure in the development of solutions to complex problems was the key theme of Matthew Syed's book *Black Box Thinking*. One of his vignettes explains very clearly how the power of biological problem solving can be harnessed. 'Unilever had a problem', he began. A high pressure valve used in the manufacture of washing powder kept clogging, at great expense to the company. To solve the problem, they did what any multinational manufacturing corporation would do; they called in their top engineers.

Surely physics and mathematics held the answer. After much deliberation, weeks of complex maths, numerous meetings and several gallons of coffee, they designed and produced a replacement nozzle, which was duly installed. Not long after, it clogged, leaving the company back where it had started. In near desperation, Unilever decided upon a more novel approach; they called in the biologists, people with little understanding of fluid dynamics, or other concepts like phase transition, which were the essence of the problem. What they did possess though was, 'something more valuable: a profound understanding of the relationship between failure and success'. They took ten copies of the nozzle, then made small changes to it. They tested all ten to failure, then selected the one which worked best (or least badly), even if it was only one or two percent better than the original. They then took the 'winner', made ten near copies, and repeated the process. They continued until, 45 generations and 449 failed nozzles later, they had a nozzle that worked perfectly.

Of course failure doesn't really matter to Unilever if it is only at the cost of some throwaway prototype nozzles, just as the extinction of short-necked giraffes came at no great cost to nature in the grand scheme of things. But military operations are different; failure can be very costly in blood, treasure and indeed political capital. For failure to be viewed as an asset, it needs to be perceived as low cost. In the Land Domain or Physical Effects Dimension, a philosophy that embraces an evolutionary reliance on failure is simply not feasible; the stakes are too high. Even if, as William Philpott argues, the Battle of the Somme triggered the rapid innovation that eventually led the Allies to victory in the First World War, history does not remember it as an asset, it cost too much.[18]

But the Cyber Domain, Cognitive Effects Dimension and Informational Environment are fertile ground for a different approach, and it is time we started treating them as such. The more mistakes we make in the Informational Environment, the better the eventual product will be. As Sunnie Giles explained in *Forbes*:

> *This process of rapid iterative experimentation builds an autocatalytic momentum that can catapult into a huge social phenomenon, or radical innovation.*[19]

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15   *Ibid.,15.*

16   *Ibid.,12.*

17   *Ibid.,11.*

18   *Philpott, William, Bloody Victory: The Sacrifice on the Somme and the Making of the Twentieth Century (London: Little, Brown, 2018).*

19   *Giles, Sunnie, How To Fail Faster – And Why You Should. https://www.forbes.com/sites/sunniegiles/2018/04/30/how-to-fail-faster-and-why-you-should/#f450a99c1779 (accessed 30 October 2018).*

Two of the three GR4's that took part in the final farewell tour of the Tornado over the UK. **Photo: Corporal Lee Mathews, RAF, Crown Copyright**

With regards to military (Physical Dimension) operations in the Information Age, Stanley McChrystal, took the idea of a less hierarchical approach to its high-water mark. He identified that the operating environment is shifting rapidly from the complicated (think the internal combustion engine which is largely predictable) to the complex (think the unpredictability of the stock market) and that traditional command and control structures are insufficiently agile to compete with modern adversaries. He scrambled the vertical relationships of yesteryear, producing complicated networks instead of isolated silos, an agile methodology that produced impressive results against Al Qaeda terrorists in Iraq. But for all their originality, his revolutionary ideas were constructed within the framework in which he was operating, and he took them as far as he could in that context. His innovations were subject to the inevitable real-world constraints associated with the application of physical capability, ingrained and risk-averse cultures of accountability, bureaucratic inertia, and the frustrations of operating within and alongside established hierarchies. McChrystal was reliant on the instruments of government, on formed institutions, interpersonal

relationships and, crucially, employees. In the complex digital revolution era, any organisational chart, no matter how ingenious at the time of its conception, is obsolete before the ink has dried. McChrystal's ideas were revolutionary, but he was still connecting nodes. For all his insight, it was still largely an exercise in physics and one in which he used complicated structures to operate in a complex environment.

When contests arise in new environments, the response of established hierarchies is largely predictable; it usually involves the creation of a new department; the addition of a new silo to the institutional org chart. The advent of air power led to the formation of the Royal Air Force in 1918, just as the recognition of space as a contested domain led the US Government, in August 2018, to announce the formation of the US Space Force. Of course, the military has come a long way in recent years towards integrating these silos, providing liaison staff, cells in other silos, and regular pan-departmental meetings. It is well understood that the value of a system lies not only in its network clusters, but in the links between them - just like McChrystal's *Team of Teams.* But this way of thinking

relies heavily on behavioural factors, on individuals 'serving two masters',[20] and such systems are always vulnerable to the gravitational pull of the hierarchies that underpin them.

Hierarchies across the world are taking their first tentative steps in the contested Informational Environment and some are moving faster than others. Russia and China, for instance, are both well known to have added new information operations departments to their org charts. Their autocratic systems of government are proving advantageous in the early exchanges; they do not have to take the time to ensure the same standards of truth and accountability that liberal democracies are based upon. Russian troll farms are pumping out state information and disinformation at an impressive rate, because they are told to and because they can. But the very freedom that is providing this first-mover advantage might well cause Russia to culminate before her Western competitors in the long run, because Russia is a hierarchy, and creativity hates hierarchy; it cannot be commanded. As mentioned, the Informational Environment is a Level 2 chaotic system. Like the economy, it will adapt to counter these tactics and Russia, unless it evolves rapidly and imaginatively, will soon be found to be a one trick pony. As Laurence Freedman said:

> One of the strengths of the West in all this is that there isn't a presiding genius, just a lot of free individuals, and they are actually more effective than the hand of the state.[21]

This adaptation, like Adam Smith's 'invisible hand', or the coalescence of slime-mould, happens through emergent behaviour. Where the genepool is limited, in either size or cognitive diversity, as in a hierarchy of government employees, this adaptation will be constrained and slow. It will also be encumbered and further protracted by deference to a decision maker. As James Surowiecki explained in his book *The Wisdom of Crowds*, the best decisions are those that aggregate individual ideas to form composite ones, rather than

groups simply advising a decision maker, as in the military. That diverse teams are better than homogenous ones is nothing new. Surowiecki recounts the ingrained group-think that led to the entirely predictable disintegration of the Columbia space shuttle in 2003,[22] then compares the sclerotic NASA of the 21st Century with the agile NASA that put man on the Moon in the 1960s:

> [They] all had the same crew cut and wore the same short-sleeved white shirt, but most of those men had worked outside of NASA in many different industries before coming to the agency. NASA employees of today are far more likely to have come to the agency directly out of graduate school, which means they are also far less likely to have divergent opinions.[23]

Government hierarchies of today are not well structured to navigate the complexities of the Informational Environment, but nor need they be. As Melanie Smith, fellow of the Institute of Strategic Dialogue said in an interview with David Patrikarakos about countering Russian disinformation: 'I believe that this type of counter-messaging cannot come from Government'.[24] As soon as a message has a government stamp on it, a large part of its global credibility is lost. As Kahneman noted, we lend greater credibility to the word of people we like or find attractive.[25] In this, a government will invariably be at a disadvantage in the influence arena. This is why Russian troll farms rely on false profiles and personalities but it is not as easy in the West, as Alberto Fernandez, former head of the US Centre for Strategic Counter-terrorism Communications (CSCC) observed: *It's not like Russian disinformation - we could not pretend to be something we were not.*[26] Fernandez, who led the CSCC from 2012-15, at the height of Daesh influence, was continually frustrated with trying to operate in the Informational Environment as part of a hierarchy, as he explained to Patrikarakos: *Part of the problem was that my vision was too edgy for government and not edgy enough for the space we were in.*[27] Not only that, but the US establishment turned on the CSCC, undermining and often ridiculing their approach:

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20 'No one can serve two masters, for either he will hate the one and love the other; or else he will be devoted to one and despise the other'. World English Bible. Matthew 6:24.
21 Patrikarakos, War in 140 Characters, 197.
22 It was known that a piece of foam had broken off the shuttle and struck its wing with the potential to cause significant damage to thermal-protection tiles which, in turn, could lead to 'burn-through' to the fuselage. The warnings were dismissed and the shuttle disintegrated on re-entry, killing all the crew. This vignette is cited as a case-study for institutional flaws within NASA and the dangers of group-think.
23 Surowiecki, James, The Wisdom of Crowds: Why the Many are Smarter than the Few. (London: Abacus, 2014), 183.
24 Patrikarakos, War in 140 Characters, 243.
25 Kahneman, Thinking, Fast and Slow, 82.
26 Patrikarakos, War in 140 characters, 242.
27 Ibid., 242.

[We were] trying to target young Islamic State fanboys in London and Paris, but suddenly everyone from the White House to the New York Times was interrupting the conversation. The issue then became about the White House and media consensus, not what an alienated eighteen-year-old Muslim cared about. [28]

The key currency online is people's attention, the seizure of which requires either accuracy or volume. The acme of accuracy, when it comes to gauging the public mood, is to design a viral message. But even if it were possible to design a successful virus, it would take countless failed attempts before succeeding; there is no formula, especially in a 'post-truth' world, in which you alone are not allowed to lie, and where, *objective facts are less influential in shaping public opinion than appeals to emotion and personal belief.*[29] What Fernandez and his team quickly learned, was that the hierarchy in which they were operating could not tolerate failure. Although each perceived failed attempt was of little intrinsic value, it cost their government in credibility, which takes us back to the point that, for failure to be accepted as an asset, it needs to be perceived as low cost.

The problem for Western governments lies in attribution, and this is why accuracy is favoured over volume. Every message attributed to a rules-based government, or department thereof, will need to reach a minimum moral standard, below which threshold foreign agencies and domestic disruptors are thriving. They have realised that logic and reason - the products of intelligent design - are not the best tools of persuasion. 'Anger and fear is what gets people to the polls,' said Steve Bannon, Donald Trump's former chief strategist, who favoured volume over accuracy. *The Democrats don't matter. The real opposition is the media. And the way to deal with them is to flood the zone.*[30] This approach was also famously adopted by the Russians in the aftermath of the downing of Flight MH17 over Ukraine in July 2014. They did not need to convince the world they were innocent, they just needed to 'discombobulate and confuse';[31] just the tiniest sliver of plausible deniability is all that was required.

But, in the case of MH17, Vladimir Putin's claims were firmly discredited, and it was not another hierarchy that did it. It was a node already in existence, lying dormant until activated, just like the slime-mould cells in Nakagaki's maze. When online-gaming-addict-turned-citizen-journalist Eliot Higgins, founder of the open-source citizen journalism website Bellingcat, released the acrasin (a very simple signal: truth) of his MH17 investigation, networks coalesced around him. Of course, he was already part of established networks, as was McChrystal in Iraq, but they were not the key to solving this case. Where McChrystal was linking networks from different government departments, Higgins had access to the full tapestry of the world's cognitive diversity and leveraged the power of what Edwin Hutchins called 'distributed cognition'.[32] At this global macroscopic level, McChrystal's *Team of Teams*, starts to look more like a single team, and not a particularly big or diverse one at that. Where Higgins trumped both Putin and McChrystal, was in exploiting what Stanford Sociologist Mark Granovetter called, paradoxically, 'the strength of weak ties',[33] the same phenomenon that results in more job-seekers finding employment through acquaintances than by their close friends. Government hierarchies, of whatever ilk, are by their nature tightly bound and, in a network without weak ties, *new ideas will spread slowly, scientific endeavours will be handicapped, and subgroups separated by race, ethnicity, geography or other characteristics will have difficulty reaching a modus vivendi.*[34]

What Higgins demonstrated is that hierarchies are at a significant competitive disadvantage in cyber space. As Patrikarakos observed, '…freelancing individuals, brought together by social media, are able to form networks that can react faster and more effectively to events in wartime than bloated state bureaucracies with endless chains of command and multiple competing agendas'.[35] All they need is a stimulus to coalesce and instructions so simple they could be conveyed by a pheromone. In military hierarchies, an increase in the complexity of the task or operating environment tends to be met with a corresponding increase in the length of the commander's intent statement and of coordinating

28   *Ibid., 244.*

29   *'post-truth'. OED Online. Oxford University Press. http://www.oed.com/view/Entry/58609044 (accessed October 19, 2018).*

30   *Thornhill, John. 'How to Fix Facebook.' Financial Times, 5 August 2018. Accessed 19 October 2018. https://www.ft.com/content/011bdb82-9650-11e8-b67b-b8205561c3fe.*

31   *Patrikarakos, War in 140 characters, 165.*

32   *Ferguson, Naill, The Square and the Tower: History's Hidden Networks. (London: Allen Lane, 2017), 17.*

33   *Ibid., 30.*

34   *Ibid., 30.*

35   *Patrikarakos, War in 140 characters, 196.*

instructions to direct the force towards the desired outcome. But, as we have seen from nature, this is not necessary; 'there are no Five-Year Plans in an ant colony'.[36] Islamist terrorists do not need them. Their myriad networks coalesce around a signal so simple it might be condensed into two words: harm others. Bottom-up organisations do not work on orders, they work on themes. Modern terrorism is not coordinated as much as it is inspired.

Such emergent approaches, reliant on networks, are not without risks though. As Niall Fergusson noted in *The Square and the Tower*, *Networks are creative but not strategic … In cases of social contagion or 'cascades' of ideas, networks can spread panics as readily as they can communicate the wisdom of crowds - crazes for burning witches as easily as harmless manias for photographs of cats.*[37] The understandable reticence to relinquish control to the vagaries of the crowd lies partly in the fear of creating a monster. But the monster exists already and is being saddled by other people, or parties who realise that there is no secret weapon in cyberspace, the space itself is the weapon. What the hierarchies of the West must do is find a way to harness it, and the best food source for this particular organism, and one in which the West arguably has the advantage, is monetisation. We cannot pin our hopes on the good-will of liberal crusaders like Eliot Higgins, no matter how compelling the narrative; nor can we promise eternal paradise by way of reward, like some of our adversaries. This interface, where the conceptual rubber hits the hard road of practicality, will take some thought. Monetising a network, without transforming it into a hierarchy, will require not only creative thinking, but a change in mind-set and a leap of faith. The Economic System has already harnessed the required mechanisms, like the gig-economy, micro-payments, pay-per-click, etc. Therefore, we need to tackle political and bureaucratic inertia if we are not to remain behind the curve.

The self-destructive power of panic cascades is not the only threat to a network. Any open system that relies on the emergent behaviour of numerous and dispersed individual agents will be vulnerable to infiltration, subversion and attack, but the same can be said of hierarchies. Whereas hierarchies react to such threats through intelligent design, stretching the OODA loop from the top to the bottom of the pyramid, emergent systems evolve to the threat through rapid failure and iteration. Like the immune system that identifies pathogens, reacts without conscious thought, and strengthens itself through the production of antibodies, an emergent system for orchestrating information operations could protect itself, especially from the limited and comparatively predictable threats posed by opposing hierarchies.

We face new challenges in the Information Age, but the nature of the problem has not changed. Prussian (and subsequent German) command and control innovations in the aftermath of the Napoleonic Wars, when they codified what we now call Mission Command, were a response to uncertainty in an age of poor communications. To cope with that uncertainty, they too relied on broadly autonomous agents, the Prussian General Staff, what von Moltke the Elder called the 'nervous system' of the Prussian Army. Today we also face uncertainty, but we do so in an age of good communications. The challenge now is that the development of modern communications and information systems has been accompanied by, and contributed to, an exponential increase in the complexity of the operating environment, which almost takes us back to square one. We are both the victims and the villains when it comes to the truism of Parkinson's Law that, *the volume of signals traffic expands to meet capacity,*[38] and this only serves to promote centralisation. Paradoxically, because the level of complexity and unpredictability we are trying to communicate is so unfathomable, we actually need to communicate less in the Information Age; we need to be more like the Prussians… or the ants. But, in reverting to old lessons, we need to acknowledge that times have changed and we face far greater complexity than they did. The 'nervous system' is being overwhelmed, what we need today is an immune system.

36   Johnson, Emergence: the Connected Lives of Ants, Brains, Cities, and Software, 31.
37   Ferguson, The Square and the Tower: History's Hidden Networks, 43.
38   Commander Field Army. Brief to Intermediate Command and Staff Course (Land). 9 Aug 2018.

*As darkness began to cover their tracks Alpha and Bravo Companies from 40 Commando were landed ashore by Landing Craft Utility (LCU) and Landing Craft Vehicle Personnel (LCVP) in preparation for the attack on the Porto Palermo Submarine Base, Albania as part of Exercise Albanian Lion. The objective was to recapture the base from opposing forces. **Photo: POA(Phot) Sean Clee, Crown Copyright***

Medical Operations during Warfighting

Major Tim Williamson, 12th Armoured Infantry Brigade, looks at the practical and ethical considerations of medical operations during warfighting.

A casualty is evacuated from theatre onto a Royal Air Force C17 Globemaster aircraft at Camp Bastion, Afghanistan. The Joint Movements Unit at Camp Bastion are responsible for the loading and unloading of flights into and out of Camp Bastion working around the clock.
Photo: Corporal Ian Houlding RLC, Crown Copyright

The British Army's recent experience of medical evacuation in Afghanistan is somewhat akin to that of catching a taxi. A comprehensive communication network streamlined links between ground units and a Patient Evacuation Control Cell (PECC) that was almost instantaneously able to allocate the most appropriate platform to a patient depending on their needs, whilst control of the skies allowed rapid medical evacuation (MEDEVAC) from almost anywhere in the battlespace to a world-class trauma centre. If you needed a cab, you could be pretty sure that it would get to you quickly, no matter where you were on the battlefield and then speed you to your destination. It was a hallmark of a medical support system able to place the needs of the individual at its heart and react with unprecedented efficiency, moving heaven and earth to ensure the injured received the best care in the shortest possible time. It would be criminal not to assimilate lessons from such a system into our *modus operandi*. However, we must also recognise that catching a taxi is not always an option. If confronted with warfighting operations our medical support will have to change. Those changes will not just be in the nuts and bolts of organisation and practice. More importantly, they will be in the mentality with which we approach medical support in an arena wholly unfamiliar to the majority of today's Army.

The Defence Medical Services are a victim of their own success when it comes to proposing changes to the way in which medical support is delivered to British troops. Inevitably, the unparalleled standards achieved in Afghanistan have fostered an impression that these levels of care are the new norm. Medical doctrine has done little to dispel this notion: *The standard of healthcare delivered by the Defence Medical Services in Afghanistan (and resultant patient outcomes) provide the baseline that the UK aspires to deliver on future operations.*[1] This is laudable but problematic. Baselining healthcare standards against what was achieved during a counterinsurgency presents intractable problems for medical planning for warfighting operations. Just as no two conflicts are the same, neither are medical support networks. They must be adapted to suit the character of the conflict at hand. After all, how do you maintain

Afghanistan-level standards of care in environments that will likely preclude the use of the very systems that allowed those standards to be realised? No longer can we guarantee ubiquitous, trustworthy communications and unfettered access to the air with our ground forces operating at relatively short distances from largely secure bases. Historically, the solution has been to throw vast resources at the problem. But at a time when Regular medical units are being disbanded, calls for more hospitals and ambulances are unlikely to carry far on the prevailing wind. With insufficient resources to meet possible demands and reputational damage potentially resulting from any suggestion that falls back on doctrinal aspirations, temporary paralysis is the likely outcome.

But burying our heads in the sand and hoping this problem goes away hardly aligns with the definition of contingency. It is also a dangerous presumption given that no other country has conducted warfighting operations more frequently than Britain since 1945, the UK having taken a direct role in nearly a third of all large-scale conventional, interstate warfare in this period.[2] Yet too often has the British Army, including its medical services, had to rely on ingenuity and pragmatism in the face of conflict.[3] Our adaptability on operations may well increase our chances of success, but lack of foresight and preparation makes it an unnecessarily uphill struggle.[4] Demands for more resources to cope with a warfighting scenario are no doubt justified, but until they can be realised, conduct in the planning and executing of operations must be guided by what is possible, our consciences freed from the straightjacket of achievements in Afghanistan by the common sense approach that, *operational circumstances may necessitate the implementation of changes [to medical support] in order to deliver the most appropriate care for a deployed force.*[5]

Acceptance being the first step to recovery, we must reconcile ourselves to the fact that warfighting will impose change on us, one of the most painful being the likely reduction in our ability to exert control in the battlespace. Compared to Afghanistan, we are unlikely to enjoy mature communication networks, whilst the increased requirement for electromagnetic

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1   Allied Joint Publication - 4.10(B): Allied Joint Doctrine for Medical Support, Edition B Version 1, 1-13.

2   van Creveld, M., The Changing Face of War: Lessons of Combat from the Marne to Iraq (Ballantine Books, New York: 2006), 187.

3   Sheffield, G., Doctrine and Command in the British Army: An Historical Overview, Army Doctrine Publication: Operations, E1-27.

4   Bricknell, M., The Evolution of Casualty Evacuation In The British Army In The 20th Century (Part 3) - 1945 To Present, J R Army Med Corps 2003 149: 95.

5   AJP 4.10(B), 1-9.

force protection measures and dispersion of forces over greater distances present the very real possibility that we will only be able to sporadically talk to our own units, regardless of the opponent's communication-disrupting capabilities. Spontaneous control is the abstract casualty, but for actual casualties this has life-threatening ramifications. No longer can it be guaranteed that evacuation assets will respond to a MEDEVAC mission, or that ground units will receive instructions on which medical facility casualties must be sent to. A taxi service which cannot direct its cabs to link up with fares, guarantee that customers have been picked up or dropped off and which has only limited awareness of where its vehicles are, is doomed to fail. The same is true of a medical support network during warfighting operations that depends on the system's ability to react flexibly and spontaneously to demands communicated by the Patient Evacuation Coordination Cell (PECC).

Taxis are undeniably convenient if you can get hold of one. But if life conspires against you on the taxi front, at least you know that if you can get yourself to a bus stop, a ride will be along sooner or later. The journey might not be as comfy and it may take longer to arrive at your destination but on the flip side, buses are reassuringly and predictably regular. Such predictability and regularity are doubly important during warfighting. The first benefit is that they mitigate against confusion and delay. Just as passengers take themselves off to their local bus stop, a simple, widely disseminated and clearly understood medical evacuation plan, with pre-identified Ambulance Exchange Points and pre-designated evacuation routes allows ground units to conduct proactive MEDEVAC, extracting their casualties to a location where they know they will either find a medical treatment facility or an ambulance to hand over their casualties to. Although this involves taking casualties to the treatment rather than bringing the treatment to them (as helicopters did with Medical Emergency Response Teams in Afghanistan), this situation is far less likely to produce confusion than waiting for instructions on where and when to deliver casualties from a PECC whose ability to provide a bespoke response is only as reliable as the communications at their disposal.

The second benefit is that predictability and regularity help simplify complexity. A warfighting scenario will likely produce a concentrated weight of casualties above what was routinely handled in Afghanistan. To expect a brigade PECC to provide a bespoke response to what may well end up being dozens of simultaneous casualty

incidents every hour is unrealistic. Just as an enemy can be overwhelmed by presenting them with multiple, simultaneous dilemmas that paralyse their decision-making and ability to react effectively, a brigade PECC swamped by casualty reports and MEDEVAC requests, trying to keep track of dozens of ground assets whilst potentially helping to coordinate aviation evacuation, will find their ability to make effective decisions hampered by information overload. Patients will be the ones who suffer. What is needed is a system where the PECC's direct involvement is minimised; where routine direction is no longer required because the system can function without them. A bus network has very little requirement for a controlling station because their need to deviate from a preset routine is minimal. The same needs to be true, especially for a brigade PECC, during warfighting operations. A corollary benefit is that such a system frees the PECC to concentrate on recognizing opportunities when the tactical situation allows them to interject with a piece of information or release an asset that will improve patient outcome.

Reassuringly, none of this is particularly new. The concept of the 'bus route' medical evacuation network has existed for hundreds of years. But we will have to adjust our expectations. We must get used to the relative lack of spontaneous control such a system needs in order to be successful. Instead of constant intervention, what is required is a light touch on the tiller; a gardener who selectively prunes. The real skill will be in tempering instincts to meddle whilst seizing fleeting opportunity, producing a system where the default setting for casualty evacuation is the bus route, but where appropriate chances are seized, so that when a taxi can be made available, it is rapidly and effectively linked up with its fare.

Eventually, every analogy breaks down. A major reason for the utility of bus routes is that their vehicles are able to transport lots of passengers. Buses are, after all, mass transit. The same is not true of our ground medical evacuation assets, especially the armoured variety. This would not be too much of a problem if warfighting was unlikely to produce high numbers of casualties in a short timeframe. Unfortunately, contemporary casualty estimates and historical experience demonstrate that such a hope may be wishful thinking. For instance, during the Second World War's Northwest European campaign, British casualties ran at over 18,000 every month.[6] Meanwhile, Cold War estimates indicated the British would suffer in the region of 32,000 casualties over an 8 day period if the Soviets invaded Europe,[7]

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6   Hart, S., *Montgomery and 'Colossal Cracks': The 21st Army Group in Northwest Europe, 1944-45* (Praeger Publishers, Westport: 2000), 54.
7   Bricknell, *Casualty Evacuation*, 88.

Reserve Army Medical Services (AMS) members from 335 Medical Evacuation Regiment come together in Germany to test and update their skills as well as training members of 1 Armoured Medical Regiment (1AMR). The training covered clinical training, medical planning and military skills. Photo: Mr Dominic King, Crown Copyright

whilst during the three week Arab-Israeli War in 1973, the Israelis suffered 8,135 wounded, the majority of which were incurred in the first week.[8] Warfighting, in other words, may not always look like the two invasions of Iraq, with their casualty estimates that appear extraordinarily pessimistic to those with the benefit of hindsight.[9] As such, we must face up to the fact that our supply of MEDEVAC platforms may very well not meet the demand, unless our front line ambulances are jammed to the rafters with casualties.

This may seem like the only choice when faced with overwhelming numbers of wounded, but this solution is at odds with the fundamental principles of medical support,[10] and on a more practical level, simply transfers the problem down the patient evacuation pathway. As with the PECC whose decision-making suffers from information overload, so too with medical personnel at a facility that has just received an influx of seriously wounded casualties. Confronted by too many dilemmas at once, they run the risk that in trying to treat all T1 casualties with life-threatening injuries, they end up saving none. Seemingly paradoxically, evacuating fewer casualties has the potential to save more lives. Once again, this is nothing new, *For optimum results, the decision to evacuate casualties should be based primarily on clinical outcome.*[11] That decision means prioritising evacuation based on a casualty's ability to benefit from intervention rather than according to their clinical need, thus ensuring the best outcome for the most people.

8   Owen-Smith, M., Armoured Fighting Vehicle Casualties, J R Army Med Corps 1977; 123: 66.
9   Biddle, S., Military Power: Explaining Victory and Defeat in Modern Battle (Princeton University Press, New Jersey: 2004), 1.
10   AJP 4.10(B), 1-11.
11   AJP 4.10(B), 3-5.

An Army medical team surrounds a 'patient' during Exercise SERPENT'S ANVIL to test the techniques and high-tech, lightweight equipment they would use to provide medical care to the Airborne Task Forces (ABTF) the Army's rapid reaction force. **Photo: Sergeant Rupert Frere, Crown Copyright**

This is very much in the spirit of our response to a Mass Casualty (MASCAL) incident.[12] But doctrinally a MASCAL can only be triggered in response to a major medical incident (where the number, severity or type of live casualties, or by its location, requires extraordinary resources)[13] by the theatre commander medical.[14] This has the potential to be a confused and ponderous process. Waiting for authority from the theatre medical commander to adjust triage prioritisation (which may never reach them due to communication difficulties), some medical personnel will inevitably take the decision upon themselves to begin prioritising, whilst others will carry on treating to their last order. With casualties filling the medical support network who have been triaged according to different criteria at various stages of their evacuation, the likely outcome is that once again the system will be overwhelmed.

What is needed is an analysis of whether the casualties that are likely to arise from the impending warfighting activity will be able to be managed with the available medical resources or whether the inevitable outcome as soon as battle is joined will be a mass casualty scenario. If it is the latter then a bold approach is required to redress the imbalance between supply and demand. For want of additional resources, demand must be reduced by denying some casualties access to evacuation and treatment through a pre-emptive declaration of a mass casualty incident. This means that those casualties with a low chance of survival will only be offered comfort and supportive treatment, aiming to guarantee the functionality of the medical network by preventing those who would make heavy demands on medical manpower and supplies from entering the medical chain in the first place.

This is an approach altogether at odds with our experience in Afghanistan, one that incontrovertibly leaves some patients worse off and nakedly services the requirements of the whole rather than the individual. Such a proposal appears heartless. After all, we are talking here about inverting our principles of treatment,

12   *AJP 4.10(B), 2-15*
13   *AJP 4.10(B), 2-15*
14   *AJP 4.10(B), 2-15*

Territorial Army (TA) medics from 212 Field Hospital, receive a casualty from a Medical Evacuation Response Team (MERT) delivered by Chinook helicopter to Camp Bastion, Afghanistan. **Photo: Corporal John Bevan RLC, Crown Copyright**

not as a reaction to an actual incident, but as the default setting in anticipation of a potential event. The egalitarian principle of treatment set out in the Geneva Conventions, *Only urgent medical reasons will authorize priority in the order of treatment to be administered*[15], giving way to a utilitarian approach where clinical outcome takes precedence over medical need. This is not altogether at odds with the American approach that *the first rule of triage [is] to return the greatest possible number of soldiers to combat.*[16] The priority here is not to save the greatest number of lives, but to salvage the most wounded who can continue contributing to the military effort. The fundamental purpose of UK medical support is no different, *to support the troops in performing their tasks by preserving and restoring their health and fighting strength.*[17] But whilst it might be expedient for salvage to trump medical necessity as the primary purpose of military medical support, this leaves us no closer to understanding whether it is morally acceptable to deny treatment to certain casualties in

anticipation that not doing so will result in the system ceasing to function effectively.

However, if commanders and medical planners assess such a situation to be likely, they must act pre-emptively. Indeed, there is a moral obligation to do so. The danger of not implementing preventative measures is that patient outcome will suffer because we have allowed the system to cease functioning effectively. Debates over whether military medical support should focus on clinical need or salvage are moot if the network is incapable of fulfilling either purpose. To be able to be utilitarian or egalitarian the system must be able to evacuate and treat people. A dysfunctional system will never succeed in effectively servicing the needs of either the many or the individual; patients fail to be evacuated promptly, will not be treated appropriately or transferred between levels of care effectively. Prioritisation ceases to have meaning, with patient outcome a product of chance rather than design. A medical support network's overriding ethical

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15   *Gross, M., Bioethics and Armed Conflict: Moral Dilemmas of Medicine and War (Massachusetts, MIT Press: 2006), 137.*

16   *Gross, Bioethics, 138.*

17   *AJP 4.10(B), 1-8.*

imperative is therefore to remain functional, because its moral validity is predicated on its ability to achieve an effect in pursuit of an ethical purpose.

This is not about throwing the baby out with the bathwater. Just because our experiences between conflicts differ does not mean that we must reinvent medical support from scratch. Things that worked in Afghanistan may well be equally effective in the next conflict, just as the medical support network will also adapt to ensure the provision of appropriate care for the deployed force. We must ensure that whatever scenario the medical support network is asked to cope with, it remains functional. If a medical support network can remain functional whilst mobilising vast resources to cater to the needs of a single casualty, as in Afghanistan, then this is the network we should aspire to operate. If not then there is no other option but to design and operate a different network that may well need to abandon ideas of egalitarian treatment to ensure that as many as possible benefit from the resources available - a utilitarian principle. Warfighting, above all other types of conflict has the potential to confront us with just such a situation. If that is what the Army is next called upon to do, commanders will have to make difficult, potentially counterintuitive choices on how best to deliver medical support to British troops. We should prepare for this now.

Medical staff from 16 Medical Regiment (16 Med Regt) based in Colchester, rush a mock casualty into a resuscitation suite during a training exercise. Airborne medics hammered out the skills they might need for operations around the world on Exercise Serpent's Anvil. Photo: Sergeant Rupert Frere, Crown Copyright

Contemporary Military Use of Subterranea

Lieutenant Colonel Marko Bulmer, (Infrastructure Support) Engineer Group, examines the use of the subterranean environment in modern military operations.

Smoke billows following the detonation of explosives placed by Syrian government forces inside a tunnel that was reportedly used by rebels in the northern Syrian city of Aleppo on May 19, 2015. AFP PHOTO / GEORGE OURFALIAN/AFP/Getty Images

Contemporary military conflicts show that the British Army needs once again to understand the significance of subterranea as an operational environment. Much previous subterranean knowledge, training and infrastructure was taken as a Cold War peace dividend and 'at risk' in subsequent defence and security reviews. Today, both state and non-state actors are utilising this space. British Army subterranean experiences in Afghanistan have largely been with caves and tunnels in mountains.[1] In contrast, conflicts in Syria and Iraq have centred on the need to hold or capture cities. These conflicts have again shown how critical subterranean parts of cities are for the survival of both combatants and civilians. In rural settings, these same conflicts have seen combatants use natural subterranean features but also undertake significant military tunnelling and underground construction projects. The scale of these was formerly to be expected by state actors but conflicts in Syria, Iraq and Gaza have revealed the significant capabilities and capacities of non state actors.[2]

Non-state actors have demonstrated an understanding of how modern militaries fight, how to reduce or overcome their technological advantages, and particularly how to exploit their limitations. Contemporary conflicts have revealed increasing levels of sophistication and capability in subterranean warfare in urban and rural settings. This requires changes in how modern militaries fight underground.[3] Subterranea encompasses both under land and seabed and is often not monitored by those who lay claim to the surface. It is a domain in which modern militaries cannot easily find an adversary, penetrate sufficient depths, fight in at-scale, for long duration, or manage captured underground tunnels and facilities. This should engender debate as to the desire and ability of the British Army to be competitive in subterranean warfare either by going underground, minimising direct engagement by destroying tunnels from above, or identifying and avoiding. To operate in this space

the British Army will need joint action with the Royal Air Force and at times the Royal Navy. Subterranea is a domain being exploited by organised crime and the same underground structures may be used for trade, smuggling (weapons, people, and drugs), and the movement of civilians and combatants. Depending on the circumstances, underground warfare may fall within the scope of several domestic and international legal frameworks.[4] Subterranea represents a complex[5] operating environment for defence and security agencies at home and overseas.

CONTEXT
Use of subterranea in Iraq and Syria had several motives. First, since 2011, rebel forces opposing the Assad regime[6] needed protection from surveillance and from conventional, as well as chemical, air and artillery strikes.[7] The same was required by Da'esh in Iraq, once the U.S.-led coalition was formed to oppose them, starting in August 2014. These rebels fought, and continue to fight against regular forces with superior technology and air superiority.[8] Second, they have been able to exploit subterranea because the regional geology is favourable to tunnelling, there was local knowledge and they accepted very high risks. This latter point meant that they learned and adapted rapidly. Thirdly, the oil, gas, quarrying and construction sectors in the region had a large amount of plant, machinery, expertise and experience that could be redeployed. This was seized by Da'esh and affiliates and they worked fast to set up and run a large tunnelling programme across the so called 'caliphate'.

MILITARY SUBTERRANEA IN SYRIA AND IRAQ
Rebel forces have used subterranea in Syria and Iraq as a core part of their control over urban and rural territories and their military capability. Since the start of the Syrian Civil War in 2011, subterranea has provided protection against Syrian Government barrel bombs and artillery and Russian and Iranian munitions.

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1   Such as Tora Bora, Shahi-Kot valley and Paktika.
2   Richemond-Barak, D., 2018. Underground Warfare. Oxford University Press.
3   Cohen, R. S., Johnson, D. E., Thaler, D. E., Allen, B., Bartels, E. M., Cahill, J. & Efron, S. 2017. From Cast Lead to Protective Edge. RAND Corporation, Santa Monica, California.
4   Richemond-Barak, 2018. Underground Warfare. op. cit.
5   With inter and intra dependencies through, across and within sectors, networks and domains.
6   The Free Syrian Army (FSA), Sunni Arab rebels, Salafi jihadists and Da-esh.
7   Iran, Russia and Hezbollah support the Syrian government.
8   Turkey supports the Syrian opposition but has also opposed the US led coalition.

Offensively, tunnelling has been undertaken to get under critical buildings to blow them up.[9] Tunnels were often short, shallow and rudimentary. This prompted counter tunnelling by Assad Forces using knowledge gained by Hezbollah from the Lebanon-Israel war where they received North Korean assistance.[10] Once frontlines became established, subterranean activity transitioned to creating defensive positions. Over time facilities went deeper enabling long-term survival underground. Complex tunnel networks were created using hand tools, power tools and machine excavators. To avoid detection, tunnels started in buildings and spoil was hidden in rooms. Tunnels range from large enough for one person to crouch in to those large enough for three fighters to stand in shoulder to shoulder.

In September 2017 a tunnel complex in Raqqa captured from Da'esh was found to be constructed with prefabricated reinforced concrete forms similar to those in tunnels in Gaza. The most sophisticated tunnel complexes had dormitories, hospitals, armouries, kitchens, latrines, and command centres complete with CCTV, solar panels, computers, phones, electricity, respirators and ventilation facilitating underground occupation for long periods. Syrian State Forces have attempted to siege and starve rebel-held urban areas. In response, tunnel trade became critical for rebel forces and civilians such as in the Damascus suburbs of the eastern Ghouta enclave.[11] Rebel forces tunnelled in almost all urban areas they controlled. Across Syria and Iraq they also exploited existing natural sinkholes, caves and tunnels.

When Da'esh crossed over the Syria/Iraq border in August 2014 and captured the town of Sinjar, Kurdish Ezidi hostages were forced to dig tunnels 10 metres down in the local limestone geology. Over 70 tunnels have been identified in the complex below the town. One tunnel, 0.9 metres wide and 1.8 metres high, extended for three kilometres. In towns and villages formerly controlled by Da'esh in parts of Nineveh,

Erbil and Kirkuk governorates, more than 60 tunnel complexes have been identified.[12] Documents found in October 2016, in a tunnel complex in Sheikh Amir east of Mosul, revealed written Da'esh operational practices for provisioning tunnels.[13] In November 2016, another large tunnel complex was captured from Da'esh in Karemlash where one tunnel dug 10 metres under St Barbara church was nine kilometres long. The tunnel has evidence of tool marks by drills. In Bashiqa, 20 kilometres east of Mosul, 10 tunnels were discovered in a complex 10 metres underground. Some have rooms connected to CCTV on the surface, makeshift hospitals, rest areas, kitchens and weapons storage. Small generators in houses above the tunnel entrances powered lights and fans affixed to the walls. The tunnel at Bazwaia shows wooden shoring and steel arches.

The advance on 20 January, 2018 of Turkish Armed Forces (TAF)[14] into northwest Syria has revealed extensive use of subterranea and a new level of sophistication. In the Afrin region, to defend against TAF, the Kurdistan Workers' Party (PKK)'s /Democratic Union Party (PYD), constructed trenches, observation posts, tunnels and underground facilities reminiscent of the Maginot Line.[15] These have been constructed in mountains and river terraces where the geology is favourable for digging using hand tools and machine excavators. Construction may have been undertaken by the PKK, the Kurdistan Communities Union (KCK), PYD-YPG, FSA, and Da'esh all of whom have experience fighting from underground either against TAF, Syrian Government, Russian and Iranian forces or the US-led anti-Da'esh coalition. Within trenches 5 to 7 metres deep and 3.5 wide, reinforced concrete was used to create cut and cover tunnels 1.5 metres wide, 2 metres high with all sides 0.9 m thick. These were then covered with spoil to provide additional overhead protection.[16] In several locations 'double-deck' tunnels were constructed. Observation towers constructed of reinforced concrete were connected to cut and cover tunnels and had ventilation, electrical

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9   In May 2014 the Islamic Front tunnelled under and destroyed the Carlton Hotel in Aleppo that government forces were using as a base . In March 2015, the Air Force Intelligence building in Aleppo was destroyed in the same way5.

10   Lappin, Y., 2016. Security and Defence: The North Korean Connection. http://www.jpost.com/Arab-Israeli-Conflict/SECURITY-AND-DEFENSE-The-North-Korean-connection-447557.

11   At times the same forces fighting each other on the surface were trading with each other through tunnels.

12   Bulmer, M.H., "Geological Considerations of Contemporary Military Tunnelling near Mosul, Northern Iraq". In Rose, EPF, Ehlen, J & Lawrence, UL. Military Aspects of Geology: Fortification, Excavation and Terrain Evaluation. Geological Society of London Special Publication. 473, 2018. https://doi.org/10.1144/SP473.11

13   Solar panels would be placed near an entrance to charge smartphones and other devices and a month's worth of food was to be kept in a storeroom. Men should not gather at the entrance or in the open, and entrances were to be concealed in houses.

14   Operation Olive Branch.

15   Kaufmann, J.E., Kaufmann, H.W., Jankovic-Potocnik, A. & Lang, P. 2011. The Maginot Line. History and Guide. Pen & Sword Books, Barnsley, UK.

16   Bulmer, M.H., 2018a. Geological Considerations of Military Works in the Afrin Battlespace. Report to 66 Works Group, 170 (Infrastructure Support) Engineer Group. 20 May 2018. Available on Military Geology Cell MOSS site.

Pictured is the cover for a Hezbollah tunnel used to camouflage the entrance found by IDF special units who searched southern Lebanon during an operation north of Avivim in an effort to prevent Hezbollah groups from carrying out terror operations. Multiple hidden underground bunkers were found behind trees and bushes in the area. In the bunkers, Israeli troops found a non-recoiling cannon that was fired at Israel and tunnels that were used by the organization. **Photo: Israel Defense Forces Spokesperson's Unit, Creative Commons Attribution 2.0 Generic license, Wikimedia**

wiring and living areas. These linked to command centers at strategic points.

THE ADVANTAGE OF SUBTERRANEA

Subterranea has enabled rebel/terrorist forces to avoid detection from air and space surveillance of modern militaries fighting them. Tunnelling at depths of 10 m and deeper shows knowledge of how to protect from indirect-fire and air strikes. To reach a tunnel or facility munitions needed to penetrate the roof and floor of buildings and then through 10 m plus of overhead (burster and cushion layer). This enabled survivability from 150 mm rounds (standard artillery), 240 mm rounds (howitzer), 300 mm rounds (multi launch rocket systems) and possibly 400 mm (16-inch) rounds from howitzers. The size and design of the tunnel networks enabled fighters to move away from an area under air or artillery bombardment. Penetrator air munitions presented the

greatest threat to tunnels but needed guiding to target to be effective and minimise collateral damage. To deter airstrikes, close air support, and ground forces advancing on Mosul, Da'esh set fire to oil wells in the nearby Qayyara and Najma oil fields that burned from May 2016 until March 2017.[17] Fires were also started at wells between Bayji and Kirkuk in late September and October 2017. On 20th October 2017, fires were ignited at the Al-Mishraq sulphur plant creating plumes of sulphur dioxide and hydrogen sulphide to impede Peshmerga and Iraqi forces advancing to the tunnel complexes on the southern outskirts of Mosul. Fortunately, winds blew the plumes southward towards Qayyara but respirators found in tunnels show that Da'esh was prepared to operate in the conditions they had created.

The distribution of tunnel complexes constructed by rebels/terrorists in Syria and Iraq shows understanding

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17   *Bulmer, M.H., 2018b. Military use of Environmental Degradation by Islamic State, Southern Nineveh, Iraq. Scientia Militaria: South African Journal of Military Studies, 46, in press.*

of the battlespace and tactical awareness. The most sophisticated complexes with commander's private room, quarters, kitchens, water storage, armoury, hospital, mosque, computers and recreation room were serviced by transformers, converters and diesel engines. These are very similar to Viet Cong tunnel complexes[18] and enabled fighters to come up onto the surface behind, in flanking positions, or amongst advancing forces, achieving great military effect. Combining the evidence for open and covered trenches, shallow and deep tunnels and sophisticated complexes shows that these non state actors designed, and built, co-ordinated tunnel networks at a range of depths. These have greatly enhanced their ability to survive.[19] Using small arms and IEDs fighters emerging from subterranea were able to delay, and at times destroy, superior armoured and mechanised forces advancing on their positions and were very effective in urban areas.

FIGHTING AGAINST SUBTERRANEA

While it is possible to identify locations of on-going tunnelling due to noise, dust, vibration, spoil and subsidence there are no media reports from Syria or Iraq that government forces found any this way. Radar systems and synchronised electromagnetic wave gradiometers have been used for searches of cross-border tunnels in the Korean De-Militarized Zone, Gaza Strip, and US Southern Border[20] but in Syria and Iraq they were largely found by advancing soldiers. After artillery bombardment and air strikes, advancing Government forces attempted to deal with threats from tunnel fighters by throwing grenades and burning tyres through subterranean entrances. However, given their military designs, with changes in tunnel angles, slopes and dimensions[21], this was insufficient and also took no account of civilians in these spaces. Tunnels, for route denial, filled with IEDs often collapsed under the weight of a main battle tank or armoured troop carrier. At all times

Syrian Defence Force SDF fighters examine Qal'at Ja'bar. ISIL had built tunnels and weapons depots into the medieval castle. **Photo: Voice of America, Released, Wikimedia**

18   Mangold, T., and Penycate, J. 2005. The Tunnels of CuChi. Berkley Books, New York.

19   However, their ideology (especially fundamentalists) meant that many fighters, once above ground, fought to the death.

20   Stolarczyk, L., Trounblefield, R. & Battis, J. 2005. Detection of underground tunnels with a synchronized electromagnetic wave gradiometer. In: Carapezza, E.M. (ed.) Sensors and C3I Technologies for Homeland Security and Homeland Defence IV. Proceedings of SPIE, 5778, 994–1001.

21   Bulmer. Military Aspects of Geology: Fortification, Excavation and Terrain Evaluation. op. cit.

against Da'esh there was a constant threat to advancing forces from VBIEDs.[22] Peshmerga engineers often cleared and then defused IEDs in tunnels they captured but there were not enough of them to meet the scale of the need and to maintain the rate of advance. Bulldozers were used to close off tunnels but not to make them safe.

Similar to Iraq and to other rebel/terrorist-held cities in Syria, the use of subterranea in Afrin has made it a hard fight for TAF and FSA against the PKK/ PYD. Their response has been to overmatch rebel/terrorist defensive works with weapons systems and to make extensive use of concrete sections to erect walls to protect ground they take.[23] Tunnels and underground facilities were the primary targets for Turkish fighter jets. To counter, the PKK/PYD modified designs to go deeper with thicker reinforced concrete. However, it appears that the modification did not occur fast enough to effectively defend against TAF air supremacy, artillery, armour, engineering and logistics. Even so, the use of subterranean by the PKK/PYD caused the TAF and FSA to expend significant military resources.

INNOVATION IN SUBTERRANEA

By late 2016, captured tunnel complexes demonstrated that Da'esh knew how to tunnel in the local soft-rock geology. The capture of two types of Improvised Tunnel Boring Machines (ITBMs), one by Kurdish Peshmerga and the other by Iraqi forces revealed a significant and unexpected change in Da'esh's capacity and capability.[24] These machines could increase the length and area of tunnelling. They could also tunnel faster than hostages or paid labour.[25] Using fewer tunnel workers enabled them to be used for other work such as moving spoil. Fabrication of Tunnel Boring Machines (TBM's) should not have been unexpected given the engineering and mechanical skills Da'esh have demonstrated in Syria and Iraq making weapons, up-armouring vehicles[26] and the large number of vehicles, parts and workshops they had captured. The Improvised Small Tunnel Boring Machine

(ISTBM) captured by Kurdish Peshmerga[27] had a circular cutting head 0.3 m in diameter.[28] A tunnel shoulder wide and tall enough to crouch through or to stand in could be made using two or three horizontal bores.

An Improvised Tracked Tunnel Boring Machine (ITTBM) was captured underground in November 2016 by Iraqi forces.[29] The cutting head diameter is 2.1 m and a single bore would produce a tunnel tall enough for a person to stand in and wide enough for a car or pick-up truck to move in.[30] Both the ISTBM and ITTBM are robust, and well suited to the local geology. In Mosul, deeper tunnels bored by ITTBMs were large enough to move VBIEDs around the battlespace undetected until they appeared on the surface. This along with hidden garages may explain their often sudden appearance.

On 20 March 2018 a series of larger tunnels created by PKK/PYD around Afrin were captured by TAF and FSA. One 100 m tunnel linked to additional tunnels containing dormitories, offices, kitchen, and armoury was found. These underground facilities are constructed with concrete reinforced arches big enough for vehicles and artillery and one has the appearance of an alternate site of civilian government.[31] What distinguished these was the time needed to create them using hand tools or hand drills. A Bobcat front loader, Boom mounted cutting head machine and ITTBM were found at one site. These three machines worked together; the Bobcat to remove spoil, the header machine with extendable boom arm and rotating cutting head to move around a tunnel face, and the ITTBM to bore circular tunnels.[32] The ITTBM design is similar to one captured outside Mosul suggesting a link. This ITTBM is improved in its cutting head and design quality. It is demonstrably effective in the soft-rock geology around Afrin.

On 24 May 2018 an improvised wheeled TBM with a ripping-type cutting head using four rotating discs was captured from Da'esh in southern Damascus.[33]

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22   To counter this, advancing Iraqi and Peshmerga forces acquired earth moving equipment to build berms any time they stopped.

23   Bulmer Geological Considerations of Military Works in the Afrin Battlespace. op. cit.

24   Bulmer Military Aspects of Geology: Fortification, Excavation and Terrain Evaluation. op. cit.

25   There are reports that Da'esh paid some locals 4000 Iraqi dinar (about $4.65) per day to tunnel.

26   Ibid.

27   In the village of Tiskhrab on 24 October 2016.

28   Idid.

29   In a tunnel outside Judaydah al Mufti, Mosul. There was a hidden ramp down to the tunnel 10 m deep.

30   Idid.

31   Bulmer, M.H., 2018c. Tunnel Boring Machines Captured in the Afrin Battlespace, Syria. Report to 66 Works Group, 170 (Infrastructure Support) Engineer Group. 20 April 2018. Available on Military Geology Cell MOSS site.

32   Ibid.

33   Bulmer, M.H., 2018d. Improvised Wheeled Boring Machines Captured in Southern Damascus, Syria. 170 (Infrastructure Support) Engineer Group, Royal Engineers, Chilwell, Nottingham. Available on Military Geology Cell MOSS site.

TUNNELLING PROGRAMMES

The tunnel complexes that Da'esh constructed between 2014 to 2018 would have necessitated connecting tunnelling logistics to the wider economic and military activity in the 'caliphate' by its 'Ministries'. The same is true for complexes constructed by the PKK/PYD. These non-state actors have demonstrated geological, mining, tunnelling and engineering expertise. Design and tunnelling methods progressed from hand tools to power tools and then to TBMs. Running these tunnel teams at the same time required knowledgeable, skilled and competent project managers. This suggests a tunnel training cadre learning lessons to make larger and more sophisticated subterranean structures. Designs of TBMs used by non state actors are maturing reflecting the scale of the tunnelling need. Using their substantial revenues, Da'esh and the PKK/ PYD could purchase parts and expertise globally either on the open or black market.

CONCLUSIONS

Contemporary conflicts in Syria and Iraq have necessitated Syrian, Iranian, Russian and Turkish militaries, the IDF and US-led coalition to counter use of subterranean by SFA, PKK, PYD, Da'esh, Al-Qaeda and Taliban. It seems likely that subterranean experience, practices, and possibly operators, came into rebel areas in Syria and into Da'esh-controlled Iraq from conflicts in Syria, Gaza, Lebanon, Jordan, Turkey, Afghanistan and the DPRK.[34] They have attracted foreign geological and tunnel engineer expertise to their cause either through salaries or ideology, similar to attracting skilled oil sector specialists.[35] Lessons and improvements have now been disseminated back into conflicts in those regions. As the Syrian conflict continues, it should be expected that Iranian, Russian and Hezbollah advisors will learn the most recent lessons in subterranean warfare and use of western munitions and tactics.

The British Army needs to analyse contemporary uses of subterranea (both civil and military) as an operation domain being exploited by state and non-state actors. This requires a clear lead to derive understanding that must be integrated into UK, plus NATO, doctrine for existing operating environments in air (and space), sea, land and cyber. For *Army 2020 Refine*, the impact on the Strike concept of an opposing force heavily utilising subterranea should be stress-tested. This requires intelligence and engineer-centric thinking. Concepts as to how the Army will operate in subterranea must adapt to continuing urbanisation.[36] This is driving

AFRIN, SYRIA - MARCH 20: Tunnel boring machine is seen inside a tunnel used YPG/PKK-Daesh terrorists uncovered in town center after Turkish Armed Forces and Free Syrian Army (FSA) took complete control of northwestern Syria's Afrin within the Operation Olive Branch on March 20, 2018. The Turkish troops and Free Syrian Army fighters took control of the Afrin town center early on Sunday as part of Operation Olive Branch, which was launched on Jan. 20 to clear the area of YPG/PKK-Daesh terrorists. Photo: Hisam el Homsi/Anadolu Agency/Getty Images

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34   Cohen, Johnson, Thaler, Allen, Bartels, Cahill, & Efron, *From Cast Lead to Protective Edge. op. cit.*

35   Bulmer, *Military use of Environmental Degradation by Islamic State, Southern Nineveh, Iraq. op. cit.*

36   Presently, more than half of the world resides in cities, and this will rise to 70% by 2045. *Global Strategic Trends - Out to 2045. Fifth Edition (2014). Strategic Trends Programme, Ministry of Defence, Development, Concepts and Doctrine Centre, Shrivenham, Swindon.* pp 202.

subterranean development below cities and rural areas due to competition, shortages of land[37], extreme weather and climate change.[38] Greater use of subterranea is being enabled by advances in tunnel boring and underground engineering with increasing reliability, cost reductions, and shorter project timelines. These factors and the need to replace aging underground infrastructure, along with their command and control systems, are driving a rapid rate of subterranean innovation. The US Army estimates there are 10,000 large-scale underground military facilities around the world.[39] Further development of tunnelling machines (large and small), skills and expertise should be expected enabling high precision boring in congested spaces. TBMs are increasingly available commercially with a growing market in used machines. Across Defence, embracing and investing in subterranea will further enable innovations in survivability against conventional warfare, the re-emerged threat of chemical, biological, radiological and nuclear attack as well as toxic industrial hazard. It will enable advantage to be gained in planning and executing military actions incorporating subterranea both in offense and defence rather than reacting at a tactical level once action is committed.

37   As an example, in London between 2008 and 2017 approvals have been granted for 4,650 basements going down 18 m deep. http://www.dailymail.co.uk/news/article-5703283/Map-reveals-4-650-mega-basements-dug-beneath-London-homes.html.

38   Global Strategic Trends – Out to 2045. op. cit.

39   Cox, M., 2018. Army is Spending Half a Billion to Train Soldiers to Fight Underground. Military.com (24 Jun). https://www.military.com/daily-news/2018/06/24/army-spending-half-billion-train-troops-fight-underground.html

The Dieppe Raid:
Part 3 - Aftermath

Following on from Part two, **Graham Thomas** looks at the lessons the Germans learned from the Allied raid on Dieppe 19th August 1942, and what they did or tried to do to implement those lessons.

A Churchill tank, 'Talisman' of 3rd Troop, 'A' Squadron, 48th Battalion Royal Tank Regiment, leaves a tank landing craft (TLC 316) during a combined operations exercise at Thorness Bay on the Isle of Wight, 27 May 1942 in preparation for Dieppe. © *IWM (H 20194)*

What follows here is a brief breakdown of some of the lessons the Germans learnt from their engagements with British and Canadian troops during the landings at Dieppe. In the first part of this series we stated that the Germans believed that the raid on Dieppe was a failure for the Allies.

TROOP DISPOSITIONS:

If the British attack us again on the same scale, or on a broader front, it is to be expected that they will attempt to penetrate weak spots and try to encircle the harbours. They are not likely to repeat a massed frontal attack against a strongly fortified area, as in the Dieppe attack of August 19th 1942. It is therefore most important that we have mobile reserves ready for a counter-attack. These mobile reserves must be equipped with the many motorised anti-tank weapons, some of which are still lacking.[1]

SECTOR RESERVES:

After the Dieppe raid the Germans realised that their regimental and sector reserves needed to be held in close support and be supplied with heavy weapons and artillery as much as possible. It was thought that the reserves battalions then held in separate billets needed to be assembled by the very latest after the Second Stage Alarm had been sounded. *These reserves must start counter-attacking promptly and automatically and not wait for orders in unclear situations. The quickest way to clarify the situation is to initiate a forceful attack to prevent the enemy from consolidating his position.*[2]

Experience from Dieppe showed to the Germans that quick counter-attacks by their reserves would leave the reserves from higher formations free to support units that had been unable to cope with the battle. This point is illustrated in the experience of the 571st Infantry Regiment. The Battalions had been informed at 0710hrs that the attack at Quiberville by the British and Canadians had been stopped but the Allies had managed to successfully land at Pourville. The regiment

An Allied naval vessel putting down a smoke screen off the French coast. Behind the smoke screen some of the landing craft are visible. In the foreground are infantry and naval personnel. **© IWM (H 22608**

was ordered to then launch its attack from Hautot but the situation was unclear, the country close-in and everywhere the patrols went they ran into British and Canadian fire. It was the German view, after Dieppe, that had a determined attack towards Pourville been launched *it would have probably cleared up the situation more quickly and would have helped wipe out even larger numbers of the enemy near Pourville.*[3]

CORPS RESERVES:

The Germans realised that although their corps reserves had been alerted without difficulties their assembly had taken too much time. Transport columns were not concentrated in the reserves area and they realised that they should be distributed much closer to the troops.

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1   *Report No 116, Operation Jubilee, The Raid on Dieppe, 19 August 1942, Additional Information from German Sources, Directorate of History, National Defence Headquarters, Ottawa, Canada*

2   *Ibid*

3   *Ibid*

They also realised from their experience defending Dieppe that artillery had to be assigned to the corps reserves at all times. 'Part of their artillery must always be limbered up to permit rapid commitment with the corps reserves.'[4] The artillery battalion of the corps reserves situated on the coast came into action too late because of the time it took to limber up and embark on the transport. *It would be desirable to have corps reserves closer to the coast and to attach certain reserve units to Divisions as in the past. This would be possible if the corps, in case of an enemy attack, could count on the support of one motorised or armoured division.*[5]

LANDING OF TANKS:

Dieppe showed the Germans that the Allies were capable of landing tanks on the beaches from landing craft very quickly, which meant that they needed greater anti-tank defences 'even in the small ravines through which paths run down to the coast, e.g. near Criel-Quiberville-St Aubin-Veulettes, etc.'[6] At the time of the Dieppe landings the beaches were heavily gravelled and while the Germans realised that the gravel made landing of tanks difficult it did not stop them from landing. *Several tanks were moved over the gravel without difficulty after they had been repaired. Witnesses reports that many more tanks (probably 16) had reached the promenade along the beach, but that they turned around and re-crossed the gravel to find more protection against the heavy defensive fire behind the gravel bank.*[7]

ANTI-TANK DEFENCES:

The Germans also realised that passive anti-tank defence such as the anti-tanks walls were successful. It was important for the walls to be situated in such a way so that their flanks could be covered by machine gun fire that would prevent Allied engineers from using the walls

A smoking Churchill tank with a destroyed track sits useless on the Dieppe beach. Photo: Tomkinsr, Creative Commons Attribution-Share Alike 4.0 International License, Wikimedia.

4   Ibid
5   Ibid
6   Ibid
7   Ibid

as cover in order to plant charges and destroy them or punch holes in the walls. The Germans realised that they should stagger the walls in depth in case the first one or two were breached.

As far as active anti-tank defences was concerned the Germans quickly discovered, through examining the Churchill and other captured Allied tanks that, the armour was not penetrated by the German 37mm shells in most cases. While they'd found evidence of several hits they'd found few places where the shells had managed to penetrate the armour, one in the rear and one in the side of a Churchill they examined. However, they did find that the tracks of the Allied tanks were vulnerable to anti-tank fire.

ARTILLERY:
The Germans were pleased with the artillery beach defences although Dieppe indicated that many more would be needed should the Allies invade again. *If these weapons were to be provided, war establishments would have to be changed because the infantry does not possess sufficient personnel to man them.*[8]

ARMY COASTAL ARTILLERY:
The experience of Dieppe showed the Germans that their coastal guns should be employed into defence sectors as close to the infantry strongpoints as necessary. When it came to pounding the landing craft with artillery fire, the Germans found that independent fire was much more superior to controlled fire. Crucial to the success of artillery was the co-ordination between artillery and other branches of the Armed Forces.

ATTACKS FROM THE AIR:
Contrary to what the British thought of the effect of their air attacks, which they believed had made a difference, the Germans found that *they did not produce the expected effect on our batteries and AA positions. The reason probably was that the British themselves, in order to blind the defences, had laid such a heavy smoke screen that the accuracy of their own weapons and target recognition was considerably reduced.*[9]

CO-ORDINATION:
For the Germans the Dieppe experience illustrated how effective their coordination with all branches of the Armed Forces and with the Todt Construction Organisation had been. They described it as 'excellent

Wounded soldiers being brought on board a destroyer after the Combined Operations daylight raid on Dieppe. © *IWM (A 11236*

and frictionless' with everyone carrying out their duties seamlessly. Coordination with the fighters was undertaken by German Corps Headquarters between Jafs 2, Jafs 3, IX Fliegerkorps and Luftflotte 3 Army Liaison officer at Army Group. In the future the Germans felt that a single command post that coordinated all air force and army operations would be highly useful. *This command post, with sufficient communications facilities, would be the only one to make enquiries at corps and would help to avoid in overcrowding of signal channels.*[10]

MINE FIELDS:
The Germans discovered that not all of their mine fields, particularly those in the ravines, were particularly effective as the British and Canadians were able to

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8   Ibid
9   See Report No 116 Additional Information from German Sources
10   Ibid

bypass them. They realised that for another amphibious assault by the Allies, minefields would need to extend beyond the ravines and that no wires should be visible on the seaward side. *The first wave of the British attacking Puys was caught in a mine field. This made it possible to kill 50 to 60 men by machine gun fire.*[11]

SIGNAL COMMUNICATIONS:

During the battle the Germans found that their communications functioned well. Division and Corps headquarters were continuously informed of developments and how the battle was progressing. However, they realised that while the British did not try to destroy German communications posts they needed to have message centres established in a line parallel to the coast for about 10 km. *These message centres must be at junctions of main roads leading to the shore and should be on a single telephone network with Divisional and Corps Headquarters. This would make it possible to reach reserve units committed in the combat zone by telephone at all times.*[12]

Such a network would also make it easier for reserve units approaching from either the rear or the flanks to stay in touch. The Germans also believed that the batteries should have a third radio set since those forward observers using the telephone network made for slow fire control. On the other hand, radio communications between 770th Army Coast Artillery Battalion and the 813th Battery functioned continuously and satisfactorily.

CIVILIAN TRAFFIC:

The Germans also realised that in the case of a second stage alarm they needed to stop all civilian traffic in the combat zone right away. *French motor vehicles were actually going into and out of Dieppe during the battle.*[13]

Whether or not the British army finds itself fighting an amphibious landing from a peer enemy, or undertaking an amphibious landing against a peer enemy is only part of the aim of this series of articles. It has been researched and written to provide BAR readers with a different take on the Dieppe raid, from the German point of view, to try to show soldiers and commanders of the British Army of the 21st Century the importance of knowing what your enemy thinks of you. It could be the difference between success and failure.

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11   Ibid
12   Ibid
13   Ibid

Pictured is a German Officer with German soldiers and captured injured Allied soldiers beside a destroyed British tank after the Dieppe landings.
Photo: Tomkinsr, Creative Commons Attribution-Share Alike 4.0 International license, Wikimedia

The Battle of Lingèvres 14 June 1944

Graham Thomas looks at the Battle of Lingèvres as part of Operation Perch, a British and Commonwealth operation mounted just after D-Day. In part 1 of the analysis of Operation Perch, this battle is studied with a view to what lessons can be drawn from it.

Pictured are knocked-out German Panther tanks on the outskirts of Lingevres, 20 June 1944. **Copyright: © IWM (B 5784)**

The Battle of Lingèvres was one of the many battles that took place under the banner of Operation Perch, the operation to encircle the heavily defended city of Caen. This took place between the 7th and 14th of June 1944. Caen was an objective of the British 3rd Infantry Division and Perch was designed as an encirclement of the city by that division. However, it was soon expanded to include a pincer attack on the city by 1 Corps. Allied planners set the start of Perch to begin immediately after the British landings, beginning with a thrust by 30 Corps to the southeast of Caen.

On 10th June 1944, 30 Corps pushed southwest towards Tilly-sur-Seulles then held by the crack Panzer-Lehr Division. This village was taken and re-taken several times. By the 12th June 1 Corps had advanced eastwards from the Orne bridgehead that had been taken on D-Day. However, 21st Panzer Division mounted continuous counter-attacks on 1 Corps resulting in increasing casualties. On the 13th June, with no sign of German retreat or collapse in this sector, this part of the offensive on Caen, east of the city, was suspended.

THE BATTLE BEGINS

The Allied attention then switched to the western approaches to the city and the Battle of Lingèvres began on the 14th June 1944 with H-hour set for 1015hrs. While the 9th Battalion Durham Light Infantry (DLI) and 4/7th Royal Dragoon Guards (RDG) would attack at this time, 6th Battalion Durham Light Infantry alongside the Canadians would be attacking Verrières, a nearby village north west of Lingèvres.[1]

The reason we are looking at Lingèvres instead of other battles of Operation Perch is because of the actions that went on during the fighting and the lessons that the British Army can learn from it. Indeed, the lessons to be learned from this battle could hold many commanders, involved in urban fighting, in good stead.

The plan for the Lingèvres assault was for the 9th Battalion to attack, with tank support from A Squadron 4/7th RDG, Divisional Artillery and rocket-firing Typhoons. Behind the creeping artillery barrage the infantry would be advancing supported by the tanks. Their first objective was to clear out the heavily defended woods and then capture Lingèvres itself. However, the commander, Colonel Humphrey Reginald Woods, had not been given enough time to prepare and nor did he have the full intelligence picture and didn't realise just how much depth the enemy had in their defences.
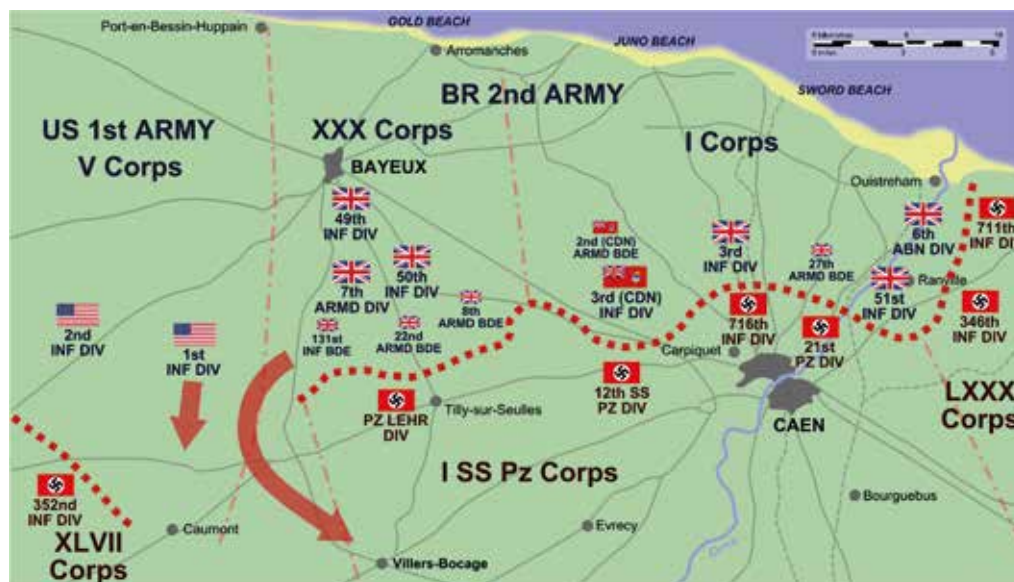
MAP 1: Allied and Axis dispositions on 12 June 1944 before Caen, Normandy. Image by EyeSerene which is an adaptation of a map presented on page 9 of Dan Taylor's book Villers-Bocage, Through The Lens, Creative Commons Attribution-Share Alike 3.0 Unported license, Wikipedia

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1   Lingèvres, 14 June 1944 – What Really Happened, Madgamers.co.uk: www.madgamers.co.uk/newforum/archive/index.php?thread-2343.html

A knocked-out Sherman tank in the centre of Lingevres, 20 June 1944. Copyright: © IWM (B 5783)

The attack began with the artillery barrage and Typhoons firing rockets and dropping bombs on the German positions in the woods.

> *We crossed the Start Line (SL) at 10:15 on the morning of the 14th behind an immense fire plan from the Corps Artillery and the Air. The wood literally appeared to be devastated immediately to our front some three hundred yards away. Typhoons with rockets and bombs straddled and plastered the wood. We crossed the SL with infantry leading two platoons up and one in reserve trying to keep up with the timings of the Artillery and Air support. In the Bocage the normal form was for infantry to lead but supported very closely by tanks from the flanks and in certain cases with individual tanks travelling with the infantry. This helped communication and was greatly different to the battles in the desert and in the open country of the Goodwood operation and the NW German plain later on.[2]*

Initially, after the barrage and air attacks ended, Sherman tanks from the 4/7th Royal Dragoon Guards (RDG) entered a large cornfield that lay in front of the woods and faced little resistance until the Germans suddenly realised what was happening and opened fire. On the left, A Company attacked while C Company attacked on the right supported by tanks.

> *Two panzers opened up from the wood and withering fire from Spandaus caught the leading companies in enfilade fire. There were many casualties but the leading companies reached the wood where bitter fighting ensued. The enemy was well dug in and had sited their Spandaus to give excellent crossfire. We discovered afterwards that many of the Spandaus which had continued to fire during the barrage had string attachments enabling the enemy to fire on fixed lines from the bottom of the trench.[3]*

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2   Mogg, Major John, 9th Durham Light Infantry, narrative of action, written for the Staff College, www.madgamers.co.uk/newforum/archive/index.php?thread-2343.html, Lingevres, 14 June 1944 – What Really Happened
3   Ibid

One Sherman was knocked out just as a second Panzer fired. The German gunners also opened up with heavy machine gun fire, sweeping the Durhams' forward rifle companies.

At this stage the Commanding Officer ordered the two reserve companies to pass through and try to gain the objective. 'B' Coy passed through 'A' but immediately suffered heavy casualties, losing all their Officers but one.[4]

Realising the situation they were in Lieutenant John Williams moved quickly back to Colonel Woods commanding 9th Battalion DLI to explain the situation but was wounded by German gunfire and had to be evacuated by Sergeant Charles Eagles who later re-joined the fight. Shortly after this, Colonel Woods ordered Major John Mogg to advance on Lingèvres. Woods advised Mogg that he would then try to extract his men from their precarious position facing the Germans in their dug-in trenches in order to join up with Mogg's company in the village.

The Commanding Officer was with his Tac HQ following 'A' Coy on the left. I was with 'C' Coy on the right and we had a conversation on the wireless. It was clear that the companies on the left would make no further progress and he ordered me to push on with the two right hand companies to Lingèvres. He would withdraw the remnants of 'A' and 'B' and reinforce us on the right. Three minutes later he was killed by a mortar bomb and his IO was wounded.[5]

This left Major Mogg in command of 9 DLI. On the right flank were C & D companies and Mogg now ordered them to continue with their attack on the village. In the meantime, 2 Troop of 4/7th RDG commanded by Lieutenant Michael Trasenster moved into the village and took up positions near the cross roads with the Squadron Leader close in the rear. *The situation in the village was a little obscure. There was quite a lot of shooting and there were enemy tanks but they were difficult to spot.*[6]

At 1130hrs Captain John Stirling placed the remaining tanks, Troops 1 and 3, into observation positions some 1000 yards north of the village on the western flank. At the same time, 4th Troop of A Squadron 4/7th RDG, commanded by Lieutenant Alastair Morrison, was

ordered to support the Durham's assault on the village. The Sherman tanks moved towards Lingèvres with Morrison leading the way followed by Corporal Johnson and then Sergeant Wilfred Harris in his Sherman Firefly.

By noon I found myself in command of what was left of 9 DLI in the village of Lingèvres, with 'D' Coy fairly strong, 'C' Coy at about one platoon strength and the remnants of 'A' and 'B' on their way to reinforce us.[7]

PHASE 1

The Battle of Lingèvres can be looked at in two phases. The first was the capture of the village itself while the second was to hold it against a likely strong German counter attack.[8]

A Sherman Firefly tank alongside a hedge, 16 June 1944.
Copyright: © IWM (B 5546)

4   *Ibid*
5   *Ibid*
6   *Ibid*
7   *Ibid*
8   *30 Corps War Diary, Immediate Report No 4, 17 June 1944, A Squadron Action, 4th/7th Dragoon Guards at Lingevres, 14 June 1944*

The first phase began with A Squadron 4/7 RDG, 2 and 4 Troops, watching the roads while Allied artillery began pounding the village. Sergeant Harris, commanding a Sherman Firefly tank, stood in a concealed vantage point on the Tilly-Sur-Seulles road watching through a pair of binoculars. Roughly 1000 yards away he saw a Sherman tank come down the road and stop. Suddenly, from behind the Sherman, a Panther pulled out and advanced quickly towards the village. Waiting until it reached 800 yards, Harris ordered his gunner to fire and one HE round hit the Panther. However, the enemy tank did not immediately catch fire so an infantry patrol moved forward and shot up the crew as they baled out of the tank. Using a man-portable anti-tank weapon, PIAT (Projector, Infantry, Anti-Tank) Mk1 the infantry set the Panther on fire.[9]

Another enemy tank was spotted around 1230 hours moving down the Tilly-Sur-Seulles road towards the village. Sergeant Harris waited until the tank reached 600 yards and then fired a round directly at it. The tank burst into flame not far from the first tank he'd knocked out. At this point he decided to move his position and then ordered the driver to back the Firefly out onto the road. They quickly crossed the road and took up a new position opposite the church. Another enemy tank moved up behind the first two dead ones but Harris was unable to fire at it.

The newly arrived German tank then began firing at the buildings near the British Shermans positioned in the village. All of the tank crews had their turret flaps down and so were unaffected by the debris. German shells began falling nearby so one British Sherman moved back about 15 yards from his original position to wait out the firing from the German tank. After a few minutes he cautiously moved forward and spotted the front quarter of another German tank. The British tank opened fire on the enemy tank who immediately returned fire. However, this Sherman tank was not a Firefly and did not have the necessary firepower to knock out the Panthers and Tigers as the Firefly did. The result of the German fire was that all of the Sherman crew were wounded except the gunner Lance Corporal Daniel Draper.[10] Draper then, *traversed the turret in order to get the co-driver out, dismounted, collected a fire extinguisher, opened the co-driver's hatch, put out the fire which was starting in the gear box, and*

then returned to the turret and removed the unconscious driver. He evacuated the casualties to the church before the German tank returned very cautiously and put our Sherman completely out.[11]

Despite determined German resistance, the DLI and 4/7th RDG by 1300hrs held Lingèvres. Expecting a German counter attack Lieutenant Morrison, in his Sherman tank, advanced towards the church just as the German artillery barrage opened up. He ordered Sergeant Wilfred Harris to move his Firefly to cover the approach road from Tilly while Corporal Johnson's tank was to cover the road leading to Verrières. Morrison positioned his tank to defend the roads to Longraye and Balleroy.

Lieutenant Morrison was then ordered to meet up with Major Mogg in the western end of the church where a first aid/dressing station had been set up. Once they met, Morrison outlined the positions of his tanks and between the two men they planned a quick defence of the village.

D Company of 9 DLI was now down to two platoons due to heavy casualties and Mogg ordered them to establish a line of defence facing the Tilly road while C Company were ordered to cover the Lonraye road against a German counter attack. He kept what little he had left of A & B Companies in reserve. The plan was for the infantry to defend the village against encroaching German infantry, act as spotters for the tanks and prevent the tanks from becoming too exposed to the attacking enemy. The tanks were to use their firepower to support the infantry positions and stop the enemy tanks from entering Lingèvres.

Ordering the support weapons to move forward Mogg placed them in positions to guard the Western approach to the village. Just north of the village by the bridge Mogg set up his battalion HQ. At this point he made a grave mistake by placing his five remaining anti-tank guns down the roads approaching the village. In the first German counter attack, four of the five guns were knocked out by advancing German panzers. *It taught me never to site anti-tank guns to fire frontally, but always to engage tanks from a flank.*[12]

The Germans began counter-attacking the village with tanks from noon onwards but fortunately for the British troops holding it the Germans did not have infantry

9   Lingevres, 14 June 1944 – What Really Happened, Madgamers.co.uk: www.madgamers.co.uk/newforum/archive/index.php?thread-2343.html,
10   30 Corps War Diary, Immediate Report No 4, 17 June 1944, A Squadron Action, 4th/7th Dragoon Guards at Lingevres, 14 June 1944. While in the War Diary Draper is referred to as Lance Corporal on his citation for a Military Medal passed 12 July 1944 he is referred to as Trooper
11   Ibid
12   Mogg, Major John, 9th Durham Light Infantry, narrative of action, written for the Staff College, www.madgamers.co.uk/newforum/archive/index.php?thread-2343.html, Lingevres, 14 June 1944 – What Really Happened

A 6-pdr anti-tank gun of 50th Division covers a lane in the Lingèvres area, 16 June 1944. **Copyright: © IWM (B 5642)**

support but they did have artillery support. Mogg decided to send out three tank-hunting patrols and even went with one himself, 'A very inexperienced and foolish thing to do when I was commanding a Battalion.'[13]

The situation after this eased and the German tanks pulled out. Infantry anti-tank guns were positioned and the troops were withdrawn from the cross roads area. The 2nd Troop Firefly was left facing the Western approach.[14]

The result of the action during Phase 1 was that the village of Lingèvres was now held by 9th Battalion Durham Light Infantry. Two German tanks had also been destroyed for the loss of one Sherman.[15]

PHASE 2

Orders came through to the RDG at 1530 for tank crews to be rested as the advance was going to be resumed later at 1700hrs. Elements of 2 and 4 Troops withdrew while the rest of the tanks remained in the rear. However, the shooting started again around 1615hrs when enemy infantry laid down a 'considerable volume of Machine Gun fire.' Enemy tanks then fired a few rounds into the village and the Shermans were then deployed to deal with what appeared to be a tank counter-attack.

At 1630hrs the expected German counter-attack materialised. The attack came from the left flank mostly by panzers supported by a company of infantry. Mogg called in artillery and air support to help fight the enemy

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13   *Ibid*

14   *30 Corps War Diary, Immediate Report No 4, 17 June 1944, A Squadron Action, 4th/7th Dragoon Guards at Lingèvres, 14 June 1944*

15   *Ibid, although there is some discrepancy between the various sources as to numbers of German tanks knocked out.*

off. At the same time, the Sherman tanks of 2 and 4 Troops, less their Fireflies, were deployed to positions where they could cover the village. An artillery barrage was laid down on enemy positions along a line east and west, just south of Lingèvres.

The 2nd Troop Firefly then reported a Tiger tank coming down the road into the village from the West. He fired at a fairly long range but observation was poor and the flash from the gun which was firing with turret traversed at 6 o'clock, set fire to the camouflage net on the back. He pulled out under cover to put the fire out and was then ordered to take up position in an orchard North of the Westward approach to the village while the 4th Troop Firefly was moved to the position occupied by S.Ls tank in Phase I.[16]

With this information in hand, 5 Troop were ordered to move into a position north of the road to enable them to hit the Tiger from the rear. Captain Stirling spotted a stationary enemy Panther tank facing East and fired at it from about 400 yards away. His gunner fired three rounds into the enemy turret which caught fire and exploded.

The destruction of that tank acted just like a ferret in a rabbit hole. Within the space of two minutes three Panther tanks moved down the road West to East and as they passed, Sergeant Harris shot them. He set the first one on fire. The second one bypassed the blazing tank and was hit and moved out of vision. The third one was hit and exploded. When the smoke abated the second tank was seen near the church with the near sprocket blown off. The crew baled out.[17]

A knocked-out German Panther tank in the centre of Lingèvres, 20 June 1944. *Copyright: © IWM (B 5780)*

16   Ibid
17   30 Corps War Diary, Immediate Report No 4, 17 June 1944, A Squadron Action, 4th/7th Dragoon Guards at Lingèvres, 14 June 1944

A key result of this action was that the tanks had helped the infantry to reach their objectives, repel a counter attack and consolidate their hold on the village of Lingèvres.

> *A Squadron had a wonderful day knocking out five Panthers, one anti-tank gun and one half-track and captured intact one 'Peoples Car' and one half-track which were brought back for the use of the Regiment. Sergeant Harris was responsible for five Panthers and Captain Stirling for one. It was a great sight to see those enemy Panthers burning in a row.*[18]

By the time darkness fell not only were the British infantry and tanks still holding the village they had also established communications with 6th DLI in Verrières. Finally, at 2100hrs Mogg, and what was left of his battalion, were relieved by the 2nd Glosters. Between1015hrs and 2100hrs the British had lost 22 Officers and 226 Other Ranks killed, wounded or missing in this battle.

LESSONS LEARNED:

- *In this type of close quarter fighting one of the key lessons learned was not to move about but to take up a defensive position and stay there, thus forcing the enemy to come to you.*

- *The German tanks were road bound due to the close nature of the country. This made them vulnerable to attack from the infantry anti-tank guns and Man-portable anti-tank weapons and from well-concealed static tanks.*

- *To conceal their tanks the Germans used sheds, buildings and other structures which meant that infantry recon of their positions was vital.*

- *Once the village had been taken British armour took up concealed positions facing the approaches to the village and stayed there. Most of their firing took place from between 800 yards (Fireflies) to 400 yards and under (Shermans).*

- *In this situation innovation and adaptability are crucial for all subordinate commanders. When his commanding officer was lost Major Mogg took over command of 9 DLI and through good communications he was able to coordinate a defence of the village with armour as well as call in artillery and air support when needed. It is an example of the Manoeuvrist Approach in action as well as an example of combined arms working effectively towards a single goal.*


A Sherman Firefly tank of 24th Lancers, 8th Armoured Brigade, near St Leger, 11 June 1944. Copyright: © IWM (B 5416)

18   *War Diary 4/7 Royal Dragoon Guards June 1944, Lt Col R Byron. There are discrepancies in the number of tanks knocked out by Harris. Most say that he knocked out five while this account states it is four.*

ACROSS AN ANGRY SEA - THE SAS IN THE FALKLANDS WAR

Lieutenant General Sir Cedric Delves

Review by **Major Paul Horne RA**
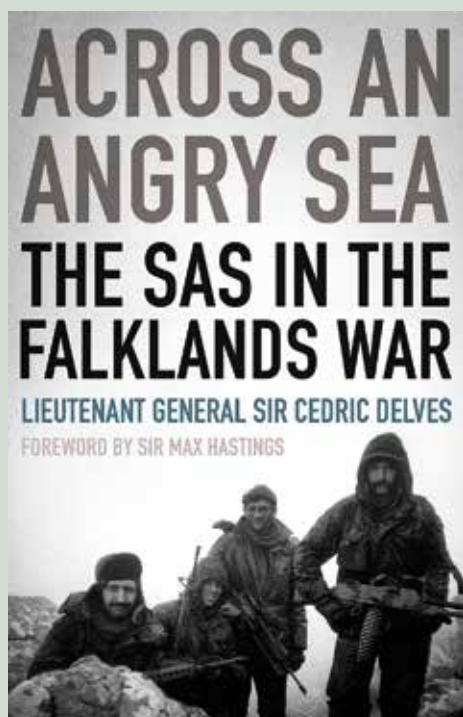
Hurst, 2018, Hdbk,
pp 341, £20,
ISBN 978-1-78738-112-4

Samuel Johnson once remarked that 'every man thinks meanly of himself for not having been a soldier, or not having been at sea.' On reading Cedric Delves' *Across An Angry Sea* I imagine there are some soldiers and sailors (perhaps even Commandos, who are of course both) who think meanly of themselves for never having served, or attempted to serve, within the Special Forces.

General Delves' career has been a remarkable one, and one in which the golden thread of service in the Special Forces is writ large. From his numerous tours on Op BANNER, where he earned two mentions in dispatches, and his command of D Squadron in the Falklands to his role as a General, nearly twenty years later, directing SF operations in Afghanistan there is a marked bias towards action and a no-nonsense approach to operations.

Across An Angry Sea is highly readable and gripping account of D Squadron's role in the Falklands War, as told from the point of view of its OC. The unfolding of the challenging, dangerous and tragic events is told in a matter of fact, even humble manner - far removed from the bombastic, heroic writings of many contemporary military authors. Delves is unafraid to expose the frictions within the task force, nor the failings, as he saw them, of individuals or units; even though his criticism is limited to damning with faint praise rather withering scorn. Indeed, throughout the book he is most critical of his own perceived failings rather than those of others.

It is refreshing to note that his book is not solely about D Squadron; Delves not only mentions the contributions of other units within the Task Force but highlights their expertise, professionalism and their ability to do for them what D Squadron could not do for themselves. This holistic, team-of-teams approach is evident throughout the book and principally highlighted by the fact that Delves doesn't portray his SAS troopers as superhuman; they are simply tough, hard men, doing a difficult job and willing to go always a little further.

The book charts the Squadron's progress from the moment they learn of the invasion of the Falklands, their transit south, the struggle to find out exactly where they should sit as a strategic asset within the task force and their operations throughout the campaign to liberate the Islands. The operations are described in detail and without the rose-tinted hindsight that can undermine a memoir of this nature; the challenges, frictions, frustrations and even tragedies of each action are laid bare, from the successful Mayne-esque raid on Pebble Island to the abortive attempts to reach Stromness Bay by air and sea.

One thing that all these actions had in common though was the weather; at least as hostile and dangerous as the enemy, indeed Delves' citation for the DSO states that 'his soldiers had to operate in extremes of climate which bordered on the limits of survivability.' This constant battle against the harsh South Atlantic weather serves to underscore the prodigious achievements of D Squadron and the entire taskforce.

Finally, it is important to note that there is much the modern soldier - or sailor, or airman - can take from this book and apply to his or her own military career; the importance of planning - having a plan is vital. Equally vital is knowing when to drop it and re-plan or start from scratch. The importance of clear command and control is another key area; knowing who you work for and what they are trying to achieve is critical for success - this may sound obvious but in a joint or multi-national setting this will not always be clear. One must always be physically bold and mentally robust in the face of the enemy and the elements and be prepared to go always, always, a little further.

BOLTS FROM THE BLUE: FROM COLD WAR WARRIOR TO CHIEF OF THE AIR STAFF
Sir Richard Johns GCB KCVO CBE FRAeS

Review by **Lieutenant General (Retired) Sir John Kiszely KCB, MC, DL**
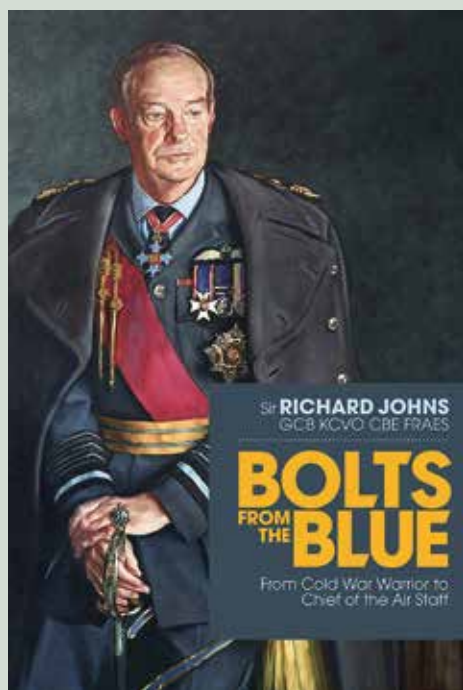
The autobiography of a former Chief of the Air Staff may not be an obvious subject of interest for readers of the *British Army Review*, but this book rewards closer inspection. For a start, Air Chief Marshal Sir Richard Johns spent much of his career in close proximity to the Army and has some interesting things to say about soldiers and soldiering as well as about 'jointery', of which he was and is a committed advocate. One of his early postings in the 1960s was as pilot of a Hunter ground-attack aircraft supporting the Army in Aden where, in his spare time, 'armed with a self-loading rifle and sporting a Glengarry`, he went on patrol with the Cameronians. In the early 1970s he was ADC to the CinC Cyprus, made numerous friends in the Army, but saw the relationship between his boss, an air marshal, and the GOC 'sink into a permafrost from which there was no recovery'.

As a squadron leader he commanded a Harrier squadron in Germany supporting the Army and pays generous tribute to the Army units - Royal Engineers and Royal Signals - that supported the force, as well as to his attached ground liaison officers. Returning to Germany some years later as commander of the whole Harrier force and Commander Air, 1st British Corps he was an integral member of the corps headquarters on exercise and was much impressed by, amongst other things, the staff briefings: *All in all, it was a class act'. Less admired is the Army`s insistence that the Army Air Corps' 'anti-tank assets are delegated to divisions, rather than held at corps level like other air assets, and the corps headquarters* reluctance ever to exercise in full NBC kit despite their insistence that subordinate headquarters should do so.

Later, at the Royal College of Defences Studies and in the Ministry of Defence 'friendships were made in both the RN and the Army that have stood the test of time'.

Before taking over as CAS, Johns was CinC of NATO`s Allied Forces North West Europe (AFNW). One of the key issues was the continued existence of HQ AFNW which, Johns felt (with good reason), was not supported by UK: *the MOD`s primary interest, and certainly the Army`s, was not to prejudice the acquisition in 1992 of command of the Allied Rapid Reaction Corps.*

Johns arrives as CAS believing that, after an absence of three years in NATO and sixteen years from the MOD, 'some in my own service doubted the wisdom of my appointment as CAS'. Among the changes he makes in the job are a number which result, at least in part, from his observations of the Army or in the interests of jointery, not all of which are universally supported within the RAF: formalising a promotion board for senior officers; establishing a joint helicopter command; and commissioning warrant officers without them having to attend the full initial officer training syllabus at Cranwell.

But in turn for Johns`s observations about the Army are insights, often seemingly unintentional, into his own service. Perhaps most remarkable for an Army reader is the sheer danger of flying combat aircraft and the jaw-dropping statistics which appear in the narrative: 'in 1968 the RAF wrote off 51 aircraft with 43 aircrew killed'; 'between [the Harrier`s] introduction in service in 1969 and December 1976 the service lost 19 Harriers'; 'during my three-year tour, the command lost 14 aircraft and 13 aircrew killed.' Even as CAS, his personal staff officer leaves to take command of an RAF station but is killed in an air crash. Perhaps linked to the dangers of flying is the assumption, which Johns sees no need to explain, that RAF commanders, however senior, personally pilot the types of aircraft that their subordinates are required to fly. There is no comparison here with the Army.

But perhaps the insights that emerge most strongly from the book are those into the character of the author himself. Notable amongst these are his obvious integrity, the ability to laugh at himself, and a self-confidence tempered by a remarkable degree of humility, modesty and self-deprecation. As a ground attack pilot he refers to himself as `a pure mud mover` and writes of his 'talent for good luck' and for 'being in the right place at the right time'. Indeed, his promotions and good fortune often come to him as 'bolts from the blue', with his successes attributed to the support of the team around him, generously named throughout the text. This is, thus, a book full of insights and, apart from anything else, an intriguing study of leadership.

BIG WEEK: THE BIGGEST AIR BATTLE OF WORLD WAR TWO

James Holland

Review by **Colonel Alistair McCluskey**

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Ask anyone to recount the key military events of 1944 in the West and most would reply, 6 June, D-Day and the subsequent Battle of Normandy. Some might expand their horizons to include the Battles of Anzio and Monte Cassino in Italy, or Montgomery's ill-fated attempt to bounce the Rhine with Operation MARKET GARDEN at Arnhem. Few however, will remember the crucial aerial campaign in which the USAAF and the RAF broke the back of the Luftwaffe as an essential pre-cursor to the invasion of mainland Western Europe. James Holland's *Big Week* attempts to close that gap.

This is a gripping narrative which highlights the impact of technical innovation, the weather, raging personality clashes and a significant level of hubris on the planning and execution of a strategic campaign. Following victory in the Battle of the Atlantic, Holland describes the subsequent build-up of US military strength in the UK, and the growing realization in Allied High Command that any successful cross channel assault into Western Europe would require the defeat of the Luftwaffe as a prerequisite. As Holland recounts however, this was neither a universally held belief, nor was there much agreement in how the aircraft available could be best used. While Harris at Bomber Command believed that the war could be won by a strategic bomber attack on German cities, his peers in the USAAF, Spaatz and Eaker, preferred a more targeted application of strategic air power against Germany. While the former was showing little if any headway in the Battle of Berlin, the latter was proving to be prohibitively expensive for the unescorted bombers of the US Eight Air Force.

The solution was the development of the exceptional P-51 long-range fighter, able to support USAAF strategic bomber attacks deep into Germany. Overcoming objections from within the USAAF, Spaatz secured the

prioritization of the strategic air forces over their tactical counterparts for the precious P-51s and directed the development of a campaign to destroy the Luftwaffe in the air and on the ground. The key component of this assault was to be a sustained attack on the German aircraft industry base, codenamed Operation ARGUMENT, but known to those that flew as simply 'Big Week'.

Those familiar with Holland's style will not be disappointed. His description of the interpersonal tensions will give food for thought for anyone interested in military leadership, reinforcing the truth that despite the impact of technology, warfare is constantly shaped by the vices and virtues of human nature. Holland's deft use of memoir and interview brings the experiences of the aircrew involved to the fore. He describes the physical demands of operating at high altitude in freezing conditions, such as USAAF waist-gunner Robbie Robinson's constant battle against the cold in his exposed position; or the gut-churning fear of German night-fighter pilot, Wilhelm Johnen, and Bomber Command pilot, Rusty Waughman, who both battled the elements just to keep their aircraft in flight against the insidious threat of ice in the winter skies. At the heart of these events however, are the descriptions of aerial combat by veterans such as USAAF fighter pilots Gabby Gabreski and Don Blakeslee, or their German counterparts such as Heinz Knocke, and the bomber crews around whom they fought. Holland's prose is concise and fluent, which captures the exhilaration and fear of high speed combat at 20,000 feet.

Where *Big Week* perhaps falls short of Holland's earlier work however, is the balance of the book and importance of the attack of the German aircraft factories in the wider battle against the Luftwaffe. Unlike his 800-page treatment of the Battle of Britain, *Big Week* is condensed into 350 pages, with the description of the February 1944 battle not commencing until page 250. Likewise, the impact of Spaatz' subsequent decision to target oil industries and then transportation systems to force the German fighters into an ongoing battle of attrition they could not win is condensed to a mere 14 pages at the end. The result is a somewhat lop-sided book which has perhaps too much strategic setting prior to the description of the main campaign and too little attention to its later phases. Consequently, *Big Week* lacks the context and therefore the quality of his 1940 work.

That said, there are other works - such as Richard Overy's *The Bombing War*, that can provide an analytical history if that's what the reader prefers. However, if you're looking for an informed 'page-turner', *Big Week* hits the mark. In the 75th Anniversary of these events, it is a timely reminder for the modern soldier, that the campaign to liberate Western Europe in 1944 was not fought solely on the ground and did not start in the surf-line at dawn on the 6th of June. It is a fitting tribute to those who fought.

LORDS OF THE DESERT: BRITAIN'S STRUGGLE WITH AMERICA TO DOMINATE THE MIDDLE EAST

James Barr

Review by **Major Sergio Miller**
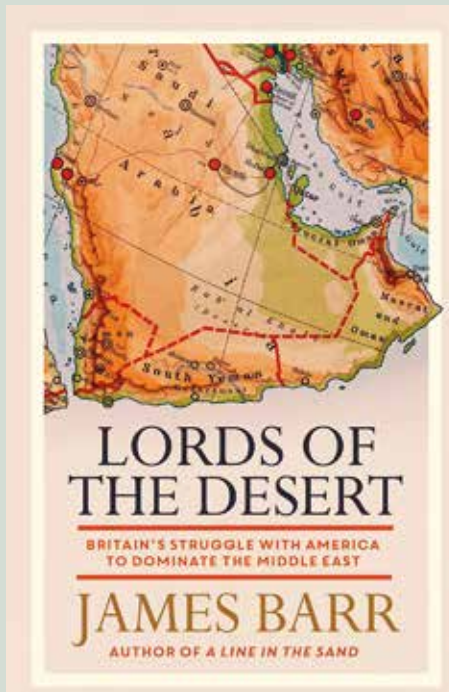
It is exciting to be present at the moment when a good new author emerges. Such is the case with James Barr, author of the widely praised *A Line in the Sand*, an authoritative history of the Anglo-French rivalry that spawned the Sykes-Picot agreement. In *Lords of the Desert* he now turns his attention to the subsequent post-war Anglo-American rivalry in the Middle East. When a second book is published following a successful debut there is the inevitable question - is it as good as the first? In this case, the answer is an unequivocal yes.

Barr has a gift for sniffing out history's good stories without compromising the history for the sake of filling pages with entertaining yarns. In this respect he picks his subject matter well as he is ploughing a furrow in particularly rich soil.

With the passage of time it is difficult not to feel nostalgic for that post-war period when Britain was still 'Great' Britain (however mythologised and ultimately self-deluding), and before the troubled 70s, the Thatcher years and the present. This was the landscape of Ian Fleming's 007 (and the book is bunged full of such characters); disbanded SOE-types looking for overseas adventures; and fading SAS veterans who could still get animated at the thought of blowing things up for Her Majesty.

It is difficult to imagine now but in 1957, MI6 had not one but three coup plots on the boil: Quwalty (Syria), Ibn Saud (Saudi Arabia), and Nasser (Egypt). Alongside CIA colleagues, of course, the secret service had already ousted Iranian Prime Minister Mohammed Mosaddeq four years previously in Operation Ajax (named after the abrasive cleaner, not the Greek hero). It is worth recalling that this coup was successfully concluded because both MI6 and CIA officers ignored instructions from their governments. Such free-wheeling behaviour would now be unthinkable. Churchill, naturally, was delighted. When presented with Kim Roosevelt, a relative of the eponymous president and CIA officer in Tehran, the bed-ridden and somewhat sozzled Churchill remarked,

Had I been a few years younger, I would have loved nothing better than to have been under your command in this great venture. No British prime minister would utter such words today.

So what was the rivalry all about? At first it was all about the oil, but for entirely the wrong reason. At the time, the universal belief was that the black stuff was running out. This mattered because it was also believed that a world war beckoned with the Soviet Union. For Britain, the key was the Abadan refinery in Persia, its single-biggest overseas investment, managed in a generous concession by the Anglo-Iranian Oil Company. For Washington what mattered was preserving American reserves in case of war and pumping Saudi oil under the aegis of the newly-incorporated Aramco. This oil rivalry drew in Iraq and Syria (the equally vital pipeline from British-run Mosul), Kuwait, and the Trucial States, all at the time British protectorates. The Arab actors ranged from autocratic sheiks keen to amass wealth but little responsibility for running their fiefdoms, to reform-minded young officers like Nasser (and Gaddafi, of course) who over-turned the old regimes but found ruling much harder.

Behind the commercial rivalry ran deeper geopolitical battle lines. Macmillan put it honestly when he observed in 1952: 'Now we are treated by the Americans with a mixture of patronising pity and contempt.' None other than Eisenhower was as withering of Churchill's fondness for entrenching a 'special relationship'. 'Any hope of establishing such a relationship', he told his hawkish secretary of state 'is completely fatuous.'

Britons (or readers of Barr's book) need not be wounded. This is not a fashionable Brit-bashing work, poking at the withdrawal from empire. For every Washington official disdaining those 'colonial' Brits 'messing up', there were wiser heads who could see that if America was the indispensable nation - borrowing Madeleine Albright's later phrase - then Britain was the necessary ally. Who else, after all, was there?

There is no question that the rivalry was real and led to odd positions. Driven by the twin engines of Protestant fundamentalism and the Jewish vote (recast as 'Hebrews' to appeal precisely to the Protestant vote), Washington felt no qualms supporting terrorists through the American League for Palestine, who were killing the soldiers of their very ally, the British. In the cockpit of American domestic politics, winning votes trumped everything. The same hypocrisy would of course be evident with American support for the IRA through NORAID (with the attendant appeal to the Irish vote, which this reviewer witnessed as a young officer on an occasion when senator Ted Kennedy turned up on the streets of Northern Ireland, to garner votes back in Massachusetts).

But for all the jostling, there was also cooperation. Washington did not want London to fail. The Suez Crisis was a low moment but it was quickly patched up. The jointly-run Iranian coup was a high point, albeit with deleterious long-term consequences that remain unresolved to this day. Both governments realised through setbacks, surprises and failures that the Middle East is an intractably tough place to master. The combined effort to 'contain' the Soviet Union ultimately failed with both Syria and Egypt becoming client states. Iraq was also lost. But London won its battles in Kuwait, Bahrain, the modern-day United Arab Emirates and impressively in Oman. As Barr recounts when he visited the latter country in 2006, 'Would the British like to come back?' a local inquired. Washington got cosy with Riyadh and the embrace has held to this day. Israel and Palestine festers apparently without solution then and now.

Lords of the Desert ends somewhat anti-climactically in 1967, a year of loose ends but no great events. If this is intentional because Barr intends to complement his first two offerings with a trilogy conclusion that takes the story from the 1973 Yom Kippur War to the present day, this reviewer will certainly be in the queue for that publication.

AN ARMY OF TRIBES - BRITISH ARMY COHESION, DEVIANCY AND MURDER IN NORTHERN IRELAND

Edward Burke

Review by **Colonel (Retired) David Benest OBE**
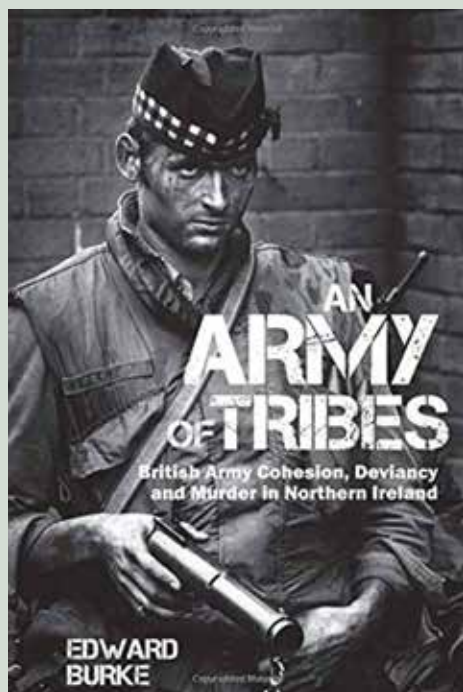
This account of Northern Ireland covers the 'early days' circa 1969 to 1972, especially the part played by two Scottish regiments, The Scots Guards and The Argyll and Sutherland Highlanders. Of the latter, much has already been researched in the context of Aden in 1967 by Dr Aaron Edwards, RMAS. Both Regiments thus share a somewhat chequered past and both battalions have some considerable experience of counter insurgency in recent times. This book is very much a reflection on how the 'lessons' of those earlier COIN campaigns were, or were not, applied in Northern Ireland.

There is some very unpleasant reading that follows, especially the so-called 'pitchfork murders' of Michael Naan and Andrew Murray, allegedly by 13 Platoon, D Company of the Argylls. In addition, the reader is introduced to the 'Ballymurphy Massacre' of August 1971 (wrongly stated as 1972) when it is alleged that soldiers of 2nd Battalion The Parachute Regiment were/are culpable. I joined that Battalion in 1973 and commanded it from 1994-7. At no time was I ever made aware of any such incident, which suggest to me that the unofficial British Army doctrine, then and now, has changed very little – the notion of ethical duty almost completely absent from our training and teaching. This is so very closely associated with entirely misguided notions of 'loyalty' as described above, regarded in the Argylls as almost as a religious duty - and this is not just the 'jocks' but appears to emanate from the very top levels of command, well above battalion level. Ed Burke could have said as much regarding the events of 30 January 1972 in Londonderry, where to this day, not a single officer has been held accountable for 'Bloody Sunday'.

Ed Burke thus prises open quite a number of 'skeletons' that many would much prefer had remained in the cupboard. Against him is the - ludicrous - political support for veterans of those years who are claiming that some form of amnesty should be applied for any and every civilian death regardless of the circumstances. In fairness, at the very height of 'The Troubles' in the summer of 1972, such a notion was indeed considered by HMG, only, rightly in my view, rejected as a recipe for absolute mayhem should HM Forces be allowed free fire zones - as was then prevalent in Vietnam. That nearly all responsibility for discipline rested with company, platoon and section commanders meant that as far as I am aware, not a single senior officer has ever been held to account for the misbehaviour of those under his command. The Argyll unofficial doctrine of 'minimum use of maximum force' was certainly applied, regardless of the law.

So, this is a study into both 'historical context' and the social institutional framework that epitomised battalion life at the time. I am sure the British Army has changed for the better, not least the move towards a more mature and intelligent graduate officer entry, a far better educated soldier, courtesy of the much criticised system of comprehensive education.

My main point is that I rather wish that Dr David Fisher's *Morality and War* might have been published in those dire times and made essential reading at RMAS and at Staff College.

GURKHA: BETTER TO DIE THAN LIVE A COWARD: MY LIFE IN THE GURKHA

Colour-Sergeant Kailash Limbu

Review by **Aaron Fuller**
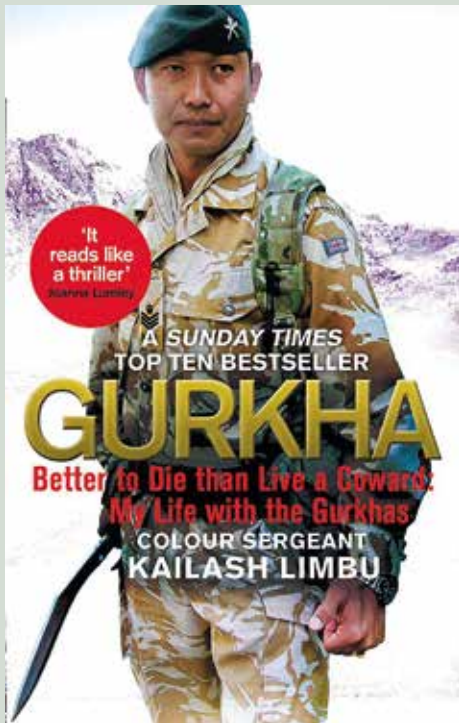
In the Summer of 2006, then-Corporal Limbu was a Section Commander in 2 RGR, sent to occupy an Afghan police station in Now Zad, Helmand province. His platoon was ordered to occupy the position for 72 hours before being relieved by 3 PARA, but in the event they were there for 30 days, with contacts on 28 of them.

The main reason why Limbu's book will have a potential readership beyond those interested in HERRICK, however, it that its structure alternates the narrative between the deployment in Now Zad with episodes from Limbu's early life and recruitment into the Gurkhas. Although sometimes the transition between the two timelines seems a little forced, the chronologically earlier parts contain some very interesting descriptions of Nepalese family life, and cultural and religious practices. The author does not attempt to portray rural Nepal in an uncomplicated 'Poor, but happy' way, and is open about how several members of his family were, essentially, alcoholics.

It provides a solid explanation of small-scale infantry operations, without doing so so thoroughly as to patronise those who are starting from a more experienced position. In terms of subject matter, while some aspects cover the same ground as in other, similar works about the Afghan campaign, it is a very well-written example of its kind. No reference is made to any ghostwriter, and for Limbu to have written the book of this fluency in a second language, is an impressive achievement. One minor, but interesting feature is the reference that the author makes to the lack of profanity in the typical Gurkha's speech - I cannot remember the last military-themed book I read in which so few expletives were uttered, by so many infantry soldiers!