
BUILT FOR BATTLE
RED ROCK FILMS INTERNATIONAL

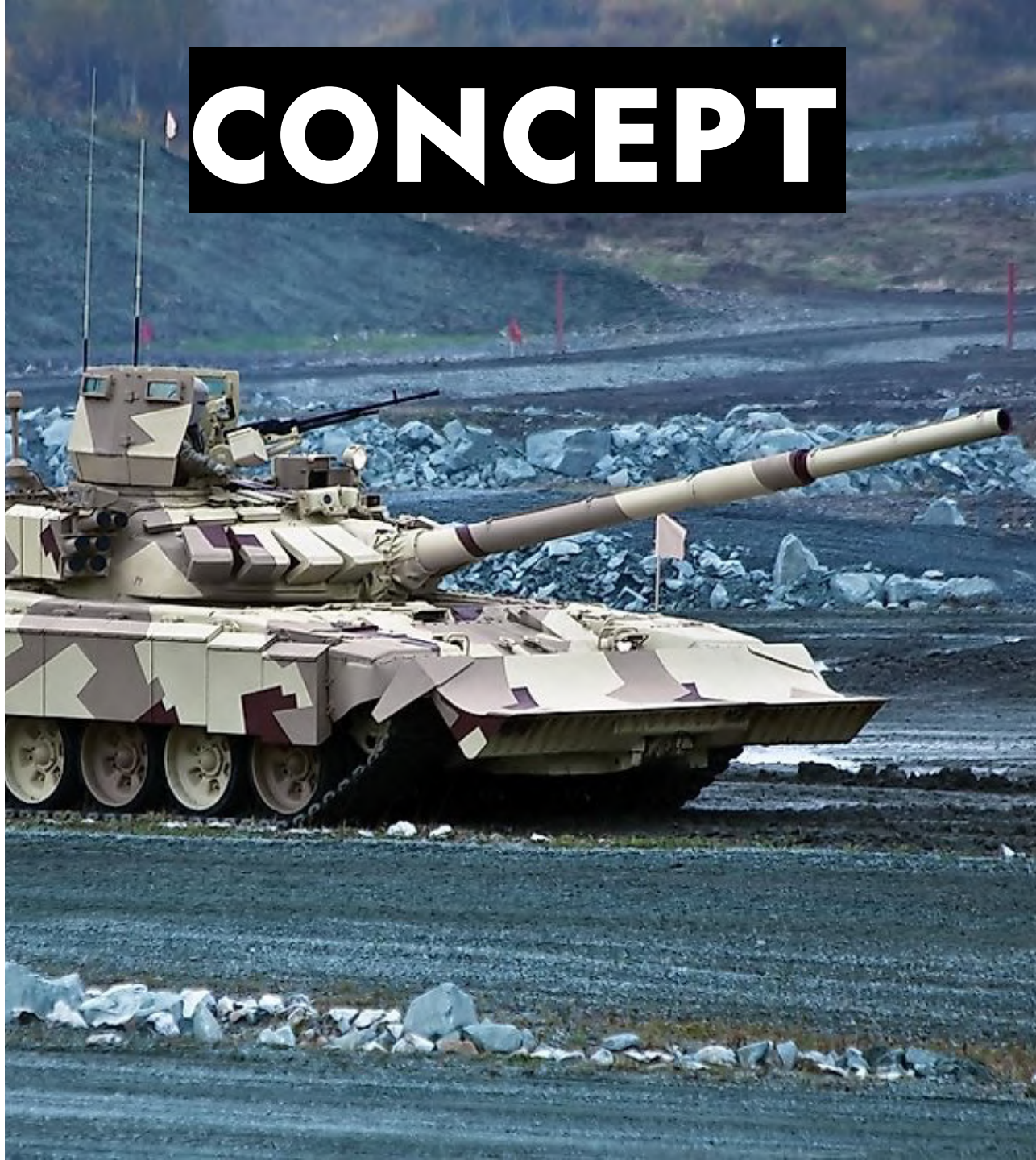
BUILT FOR BATTLE is an intensive, informative and engaging **returnable** series tracing the history, innovation and breakthrough moments of the world's most influential military machines. In this series we mix history, science and engineering to see how specific battles and combat missions defined the machinery of the time. We start with the battle and trace back the origin of each mechanism, the motivations behind its creation, the men and women behind the technology, the unpredictable problems that arise, the engineering marvels, the impact on the world and what the future holds.

In this series we see the greatest feats in engineering from a whole new perspective. **Tanks, helicopters, battleships, fighter jets, bombers, aircraft carriers and more** – this series deep dives into how and why the greatest machines of our time were built, throwing viewers into the epic battles that defined them. From aircrafts to weapon launchers, BUILT FOR BATTLE will cover the full breadth of various militaries and their capabilities, using a mixture of archive and interviews that clearly outline how unique each of these innovations are. This is an entertaining, comprehensive technological "biography" that will be accessible to all viewers.

Episode Structure:

- **THE MISSION:** Background of battle... mission...machinery.
- **THE ENGINEERING:** Details of the specific air carriers/tanks/aircrafts/ ships etc. Their specifications, how they were built, what they were intended for, problems that arose. Interviews with experts.
- **THE BATTLE:** Back to the battle - the strategic use of the machinery. How the battle played out and how the machinery helped the militaries in winning. Interviews with military personnel.
- **AFTER THE BATTLE:** The future - what happened to the war machines after the battle? How the machinery evolved from there?

Historic missions, innovative engineering and landmark military usage... With hundreds of epic battles and world-class engineered military machines to cover, BUILT FOR BATTLE is the returnable series that will enthral and engage the military and history enthusiast in all of us.



STYLE

Each episode of BUILT FOR BATTLE takes viewers right into the action. We start with the background of the battle, using visually compelling archive footage and narration to set the scene.

The mechanics and stories behind the building of the machinery is then broken down. Interviews and narration show viewers how the aircrafts/ships/tanks/carriers were built in order to be battle ready. Using archive footage and 3D holograms, viewers are taken behind the scenes into the “making of”. Expert interviews highlight the issues that arose, the engineering that was required and why it was deployed for battle.

Finally, viewers are taken into the thick of the action again. Narration and archive footage show us how the machinery was used. The battle plays out with the machinery as the heroes.

SAMPLE EPISODES

OPERATION DESERT STORM

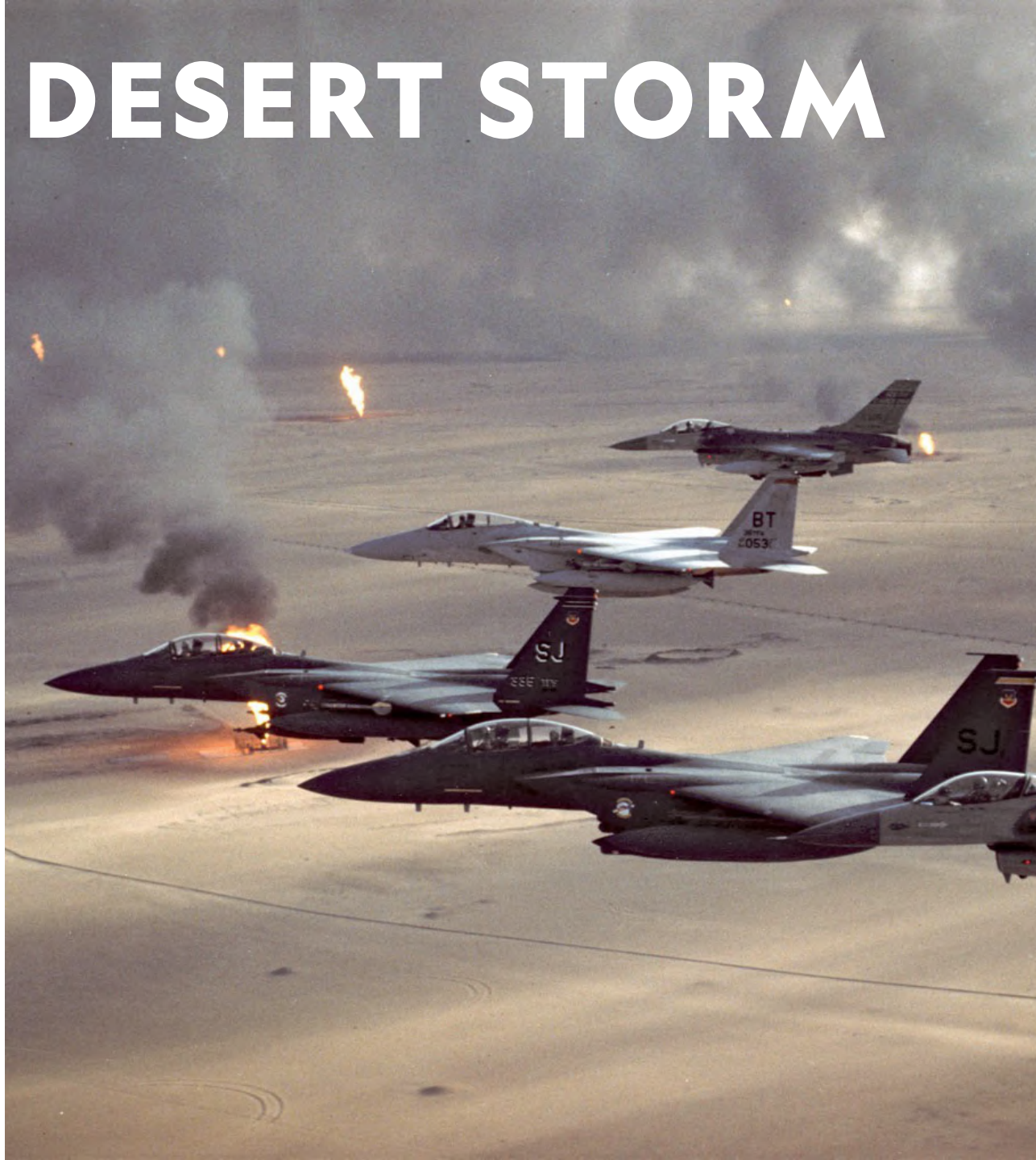
F-16 FALCON

THE MISSION: January 16, 1991, President George H. W. Bush announces the start of Operation Desert Storm—a military operation to expel occupying Iraqi forces from Kuwait, which Iraq had invaded and annexed months earlier. It is an operation that will turn the tide for the incredible F-16 and mark the largest single operational F-16 strike package flown to date.

THE ENGINEERING: Conceived in the early 1970s by a small group of engineers and defense analysts known as the *Lightweight Fighter Mafia*, the F-16 was designed as an alternative to fighter aircraft that had grown heavy and unmaneuverable. The team set out to trade excess weight for speed and maneuverability, to develop an inexpensive fighter that would fly so fast and turn so quickly that adversaries would be unable to strike it with either missiles or machine gun fire. The F-16 team turned those ideas into the most advanced combat aircraft of its day, leaning on new technologies that had never before been integrated into a single aircraft. Its smooth blended-wing body provided extra lift and control; its critical fly-by-wire system kept the design stable and increased its agility. It was so sleek and fast, that it took on more missions and by the 1980s the team were able to add more powerful weapons and targeting systems transforming the Falcon into a true force of a military aircraft.

THE BATTLE: Operation Desert Storm is in full force. In the group deployed are two hundred and forty-nine F-16s. The F-16 Fighting Falcon proves itself to be a versatile machine which can attack targets day or night- in good or bad weather. This all due to their new higj-tech radar system. The aircrafts fly almost 13,500 sorties - the highest attack total for any system in the war! They also maintain a 95.2% mission capable rate. F-16s attack ground elements in the KTO, fly SCUD missions, and destroy interdiction targets, such as military production and support and chemical production facilities, and airfields.

AFTER THE BATTLE: The F-16 is only supposed to fly 4000 hours but its durability and success at Operation Desert Storm convince the Air Force to double its lifespan. It is even sent out to intercept Flight 83 on September 11th—a mission that pilot Heather Penney will never forget. Much like its older brother, the F-15, it won't be retiring anytime soon.



MiG ALLEY

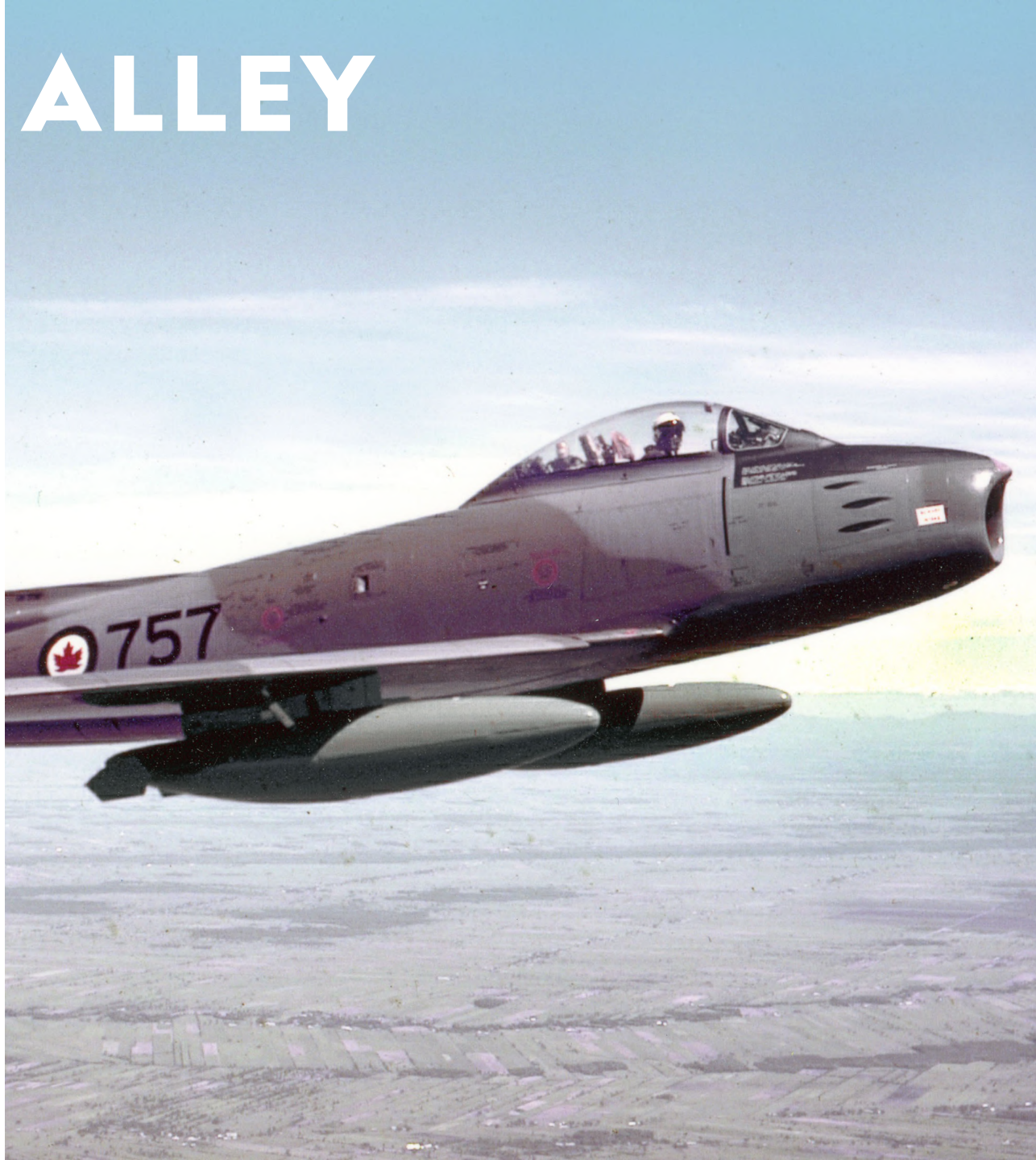
F-86 SABRE

THE MISSION: December 1950, U.S. pilots flying F-86s begin history's first large-scale jet fighter combat against Soviet-built MiG-15s in Korea. The unknown combat area becomes known as "MiG Alley", an aviation conflict zone that will become instrumental in the Korean War. The F-86 pilots have one mission... take down as many MiGs as possible...

THE ENGINEERING: 1947 - Edgar Schmued at North American Aviation completes design for the F-86 Sabre. The F-86 is designed in answer to the US Air Force's need for a high altitude, day fighter. For armament, the F-86 mounted six .50 caliber machine guns in its nose. They have an electrically-boosted feed system and were capable of firing 1,200 rounds per minute. It becomes the first jet fighter in the West to exploit aerodynamic principles learned from German engineering at the close of World War II. The F-86 is built with the wings swept back in order to reduce transonic drag rise as flight speed approached the sound barrier, and becomes capable of exceeding the speed of sound in a dive.

THE BATTLE: December 17, 1950 – The first Sabre mission takes place. It is an armed inspection of the region just south of the Yalu. Lt. Col. Bruce H. Hinton, commander of the 336th Squadron, succeeds in shooting down one MiG-15 out of a flight of four, to score first takedown for the Sabre. Though inferior to the MiG-15 in weight of armament, turn radius, and maximum speed at combat altitude, the F-86 quickly establishes supremacy over its Soviet adversary, in part because of its superior handling abilities. On December 22, the MiGs manage to shoot down a single Sabre out of a flight of eight without loss to themselves, but later that day the Sabres get their revenge by destroying six MiGs out a flight of 15. The MiGs and Sabres continue to go head-to-head as the war progresses. As the first year of the Korean War comes to an end, it becomes apparent that the Sabre has been instrumental in frustrating the MiG-15's bid for air superiority. Without control of the air, the enemy are unable to establish their series of air bases and they were not able to carry out effective air support of their spring offensive, and the Korean War settles down to a stalemate on the ground.

AFTER THE BATTLE: By the end of the war, the F-86 claims a victory ratio of 10:1 (although recent stats assume it to be 2:1), with 792 MiGs lost versus 78 Sabres. In the years after the war, the F-86 retired from frontline squadrons as the Century Series fighters start to arrive. This sees F-86s transferred to Air National Guard units for use by reservists. The aircraft remains in service with reserve units until 1970.



BATTLE OF GUADALCANAL

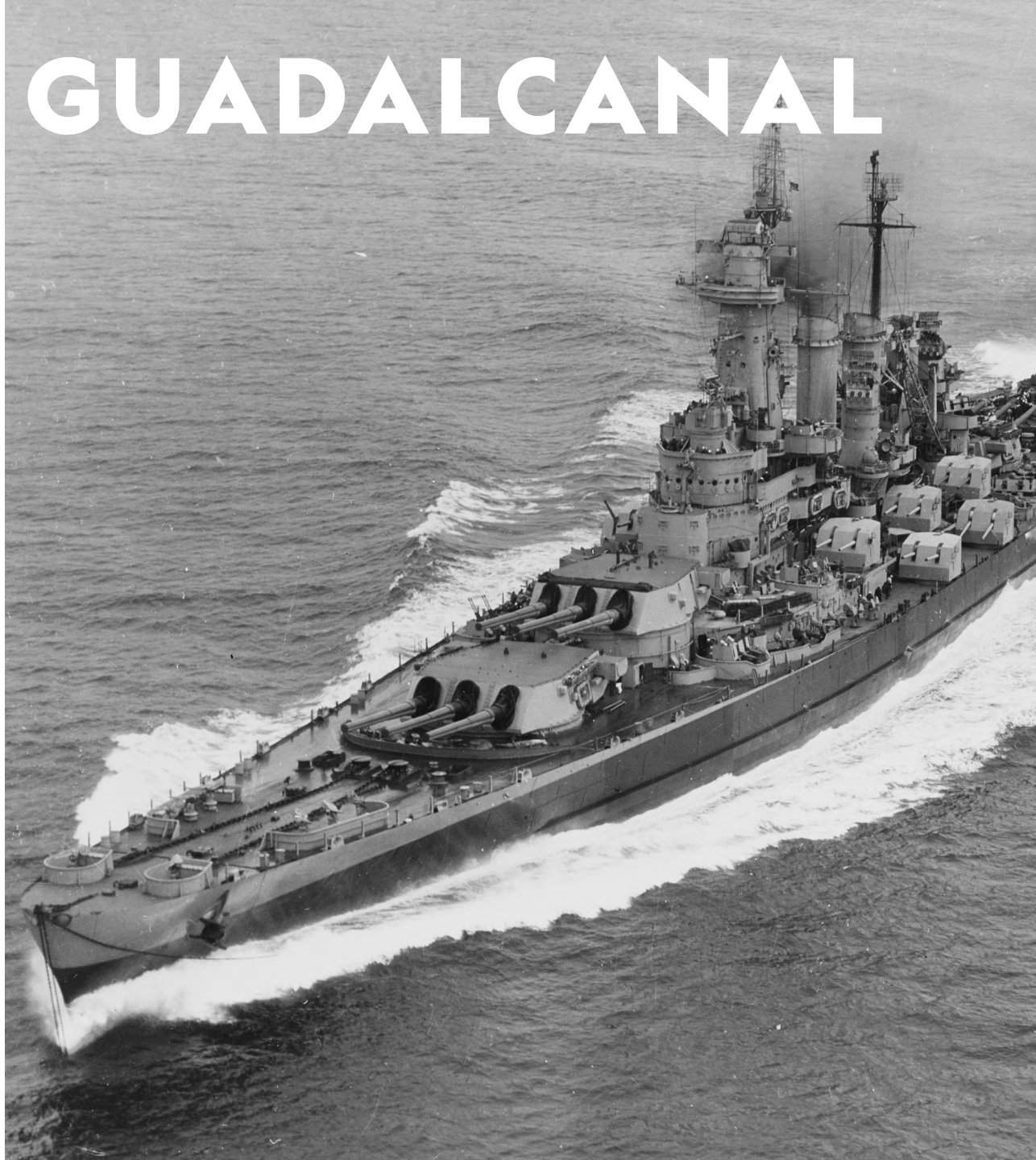
USS WASHINGTON

THE MISSION: In 1942, after seizing a strategic airfield site on Guadalcanal, the United States halts Japanese efforts to disrupt supply routes to Australia. The invasion ignites a ferocious struggle marked by seven major naval battles, numerous clashes ashore, and almost continuous air combat. But, the tide of the Guadalcanal campaign will be turned by one new American battleship, the USS WASHINGTON (BB-56)...

THE ENGINEERING: The USS Washington (BB-56) is the second and final member of the North Carolina class of fast battleships, the first vessel of the type built for the United States Navy. Her design is limited in displacement and armament, so the United States increased the main battery from the original armament of nine 14-inch (356 mm) guns to nine 16-inch (406 mm) guns. Her initial career is spent training along the East Coast of the United States until Japan attacks Pearl Harbour on 7 December 1941, bringing the United States into the war. Her state-of-the-art radar technology makes her outclass numerous other battleships. RADM Lee was the Navy's foremost flag-level expert on the integration and use of radar, and that knowledge and technology provided the critical edge in turning what could have been a disaster into a decisive victory, that contributed in a major way to ending the last major Japanese push to re-take Guadalcanal.

THE BATTLE: November 1942 - Washington single-handedly takes on a Japanese force of one battleship (Kirishima), two heavy cruisers, two light cruisers, and nine destroyers. In a matter of minutes, with accurate radar-directed fire, Washington pummels the Kirishima with about 20 hits by 16" shells and over forty hits by 5" shells, which cause Kirishima to sink after midnight. The Kirishima is hopelessly outclassed by the are manoeuvrability and weaponry of the Washington. Washington also hits other Japanese ships with her secondary armament, including the destroyer USS Preston (DD-379). Washington then manoeuvre to avoid multiple torpedo attacks. The loss of the Kirishima causes the rest of the Japanese force to withdraw, with the exception of one sinking destroyer. Washington comes through the battle (and the rest of the war) unscathed with no casualties.

AFTER THE BATTLE: From 1943 onward, this special battleship was primarily occupied with screening the fast carrier task force, though she also occasionally shelled Japanese positions in support of the various amphibious assaults. During the later stages of the Battle of Okinawa, Washington was detached to undergo an overhaul, though by the time it was completed, Japan had surrendered, ending the war. She was thereafter decommissioned in 1947 and assigned to the Atlantic Reserve Fleet, where she remained until 1960 when she was stricken from the naval register and sold for scrap the next year. Nevertheless Washington served her purpose as a fierce battleship in a time she was most needed.



BATTLE OF MOSUL

APACHE AH-64E

THE MISSION: October 2016. It's one week after Iraqi forces begin their push into Mosul, and they need back up. This battle is essential in taking back the city from ISIS. The US army makes the decision to send a handful of Apache helicopters into battle as support for Iraqi forces, in hopes that this versatile helicopter will help reclaim Mosul...

THE ENGINEERING: 1984. The Apache attack helicopter is developed by McDonnell Douglas (Boeing) for the US armed forces and enters service. A target night-vision sensor and other advanced technologies add to its effectiveness. Highly manoeuvrable and heavily armed, the combat-proven Apache helicopter becomes the backbone of the U.S. Army's ground support capabilities. The Apache Longbow's fire-control radar and advanced avionics suite give combat pilots the ability to rapidly detect, classify, prioritize, and engage stationary or moving enemy targets at standoff ranges in nearly all weather conditions. Over the years, the Apache is enhanced with advanced technology to make the helicopter more survivable, deployable and easier to maintain. The AH-64 Apache becomes the most advanced multirole combat helicopter for the U.S. Army and a growing number of international defence forces. It serves in thousands of missions over the decades, but in 2016... Apache pilots face the ultimate test.

THE BATTLE: Apache pilot Capt. Lucas Gebhart heads the operation. He is instructed to support the Iraqi forces on the ground. The total number of engagements his unit was involved in during the year and a half he was deployed in Afghanistan is approximately equal to the number they will experience in the span of just a single week while in Mosul. The enemy are armed with anti-aircraft weapons meaning he must fly at high altitudes which thankfully the Apache is capable of. The flexibility needed in the operation suits the Apache... its night sensors help pilots to accurately locate the enemy from a long distance and the precision of the guns means that the target is rarely a miss even from the high altitudes they must fly at. By January 2017 eastern Mosul is back under Iraqi government control thanks to the support of this versatile aircraft... the city is liberated.

AFTER THE BATTLE: Apaches remain in service to this day. With the AH-64E in production until at least 2028, the Apache will serve the U.S. Army and its partner nations as the world's primary attack helicopter into the 2060s.

OPERATION BARBAROSSA

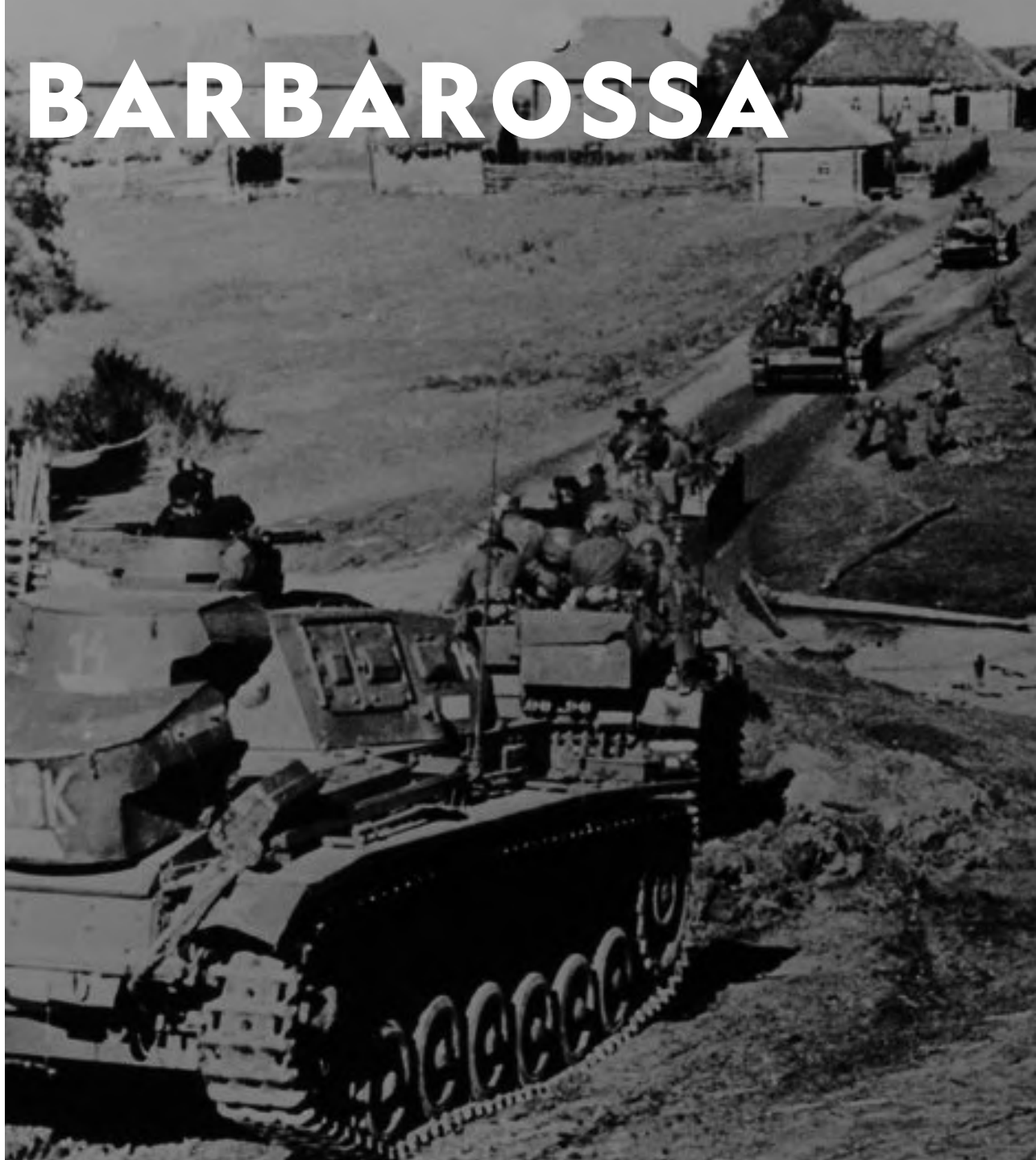
KV1

THE MISSION: 22 June 1941 - German soldiers, accompanied by the KZKPFW III and IV, make their way into the Soviet Union after a successful campaign invading Poland. Their battle tanks are light and fast - they are able to cover enormous distances. This feature had certainly proved to be very effective in their new style of lightning war that they call Blitzkampf and the soldiers are confident of their continued success. However, this is new territory, and little do they know that the Russians have a secret weapon that is spread throughout the Soviet Union - the KV1.

THE ENGINEERING: 1939: the first wooden mock-up is ready for inspection. It is the first heavy tank ever made and is nothing like anyone has ever seen before. Powered by diesel, it is difficult for the KV1 to catch fire compared to the petrol driven tanks of the enemy. Armoured with a welded hull, and armed with a 76mm gun, it easily outranges the 37mm gun of the German PZKPFW II and IV.

THE BATTLE: Night approaches in 1941, German soldiers rest near a supply route, unaware of the hidden dangers lurking in the mist that is rolling in. In any case, the beast that is approaching is beyond all of their worst nightmares. They hear the first rumbles of the KV1. The Germans start firing on it in alarm as it draws closer still. Their tanks and Pak 36 anti-tank weapons bullets seem to do no harm, bouncing harmlessly off the soviets' armour. The terror that the Germans are experiencing is about to get worse, as the Soviet KV1 starts firing back with its 76mm canon. Unprepared for the retaliation, the Germans retreat and report back about the soviet tank they had seen.

AFTER THE BATTLE: The Germans are tempted to reverse engineer their own based on the soviet model, but in doing so they would admit engineering defeat so instead it inspires them to make the Tiger I and Tiger II.



OPERATION FREQUENT WIND

"HUEY" Helicopters

THE MISSION: Despite the Huey playing a vital role in the Vietnam War, it was at the end of the war that it really showed its capacity for combat and rescue operations. 29 April 1975 - Operation Frequent Wind commences. It is the final phase in the evacuation of American civilians and certain Vietnamese from Saigon before the takeover of the city by the PAVN. Air America choppers start the evacuation flights early in the morning, with about 17 helicopters taking part, both military and civilian versions of the famous UH-1 "Huey"...

THE ENGINEERING: When the United States joined in the Vietnam war, they soon discovered that ground troops were next to useless due to Vietnam's terrain. The U.S. Air Force was tasked to design a new breed of helicopter, one that could be multifunctional. Bell Helicopter was awarded the contract for what would be called the Huey Helicopter. It was esteemed for its vertical take-off and many uses. Initially conceived as a utility helicopter optimized for internal stretcher carriage, it was later upgraded to the Gunship, a heavily armed helicopter equipped with weapons. Their main purpose was to escort these two other units and rain firepower down on whoever challenged them. Some were equipped with miniguns that could fire up to 4,000 rounds per minute, while others could hold and fire up to 48 rockets. Even the mechanics that flew with them served as door gunners. The Gunship's sole mission was to destroy the Vietcong, and before long, it succeeded in striking fear into their hearts whenever in earshot. While the Huey was useful in the war, it was not without its problems. The rotors of the Huey were expected to last 1,000 flight hours before needing to be replaced. However, under the harsh Vietnam conditions, they needed replacements every 200 hours.

THE BATTLE: With the collapse of South Vietnam, numerous helicopters fly out to the evacuation fleet. Thousands of people are being lifted to naval bases and other safety spots. Huey Helicopters begin to clog ship decks and eventually, some are pushed overboard to allow others to land. Pilots of helicopters are told to drop off their passengers and then take off and ditch in the sea, from where they would be rescued. The manoeuvrability and easy landing and take off capabilities of the Huey result in its success. In Operation Frequent Wind a total of 1,373 Americans and 5,595 Vietnamese and third-country nationals are evacuated to safety by helicopter.

AFTER THE BATTLE: The Huey became an icon of the Vietnam War; some people even refer to it as the "Helicopter War." Many veterans still remember the sound of its rotors beating against the thick Southeast Asian air, while others recall how it saved their lives. To the U.S. and South Vietnamese troops, it was a hero and a savior. To the Vietcong and NVA, it was a sign of imminent destruction. The military still uses this helicopter in certain capacities to this day, its multi-functionality a continued asset.

BATTLE OF BRITAIN

HAWKER HURRICANE

THE MISSION: 10 July 1940, the devastation and nightmare of Nazi Germany arrives in the West. The key elements in this battle; Supermarine Spitfires and the Hawker Hurricane aircrafts.

THE ENGINEERING: The Hurricane might not have been as fast or as beautiful as the Spitfire, but it had a host of other virtues. It was highly maneuverable, with a turning circle even tighter than that of a Spitfire. Because of its traditional method of construction, it was easy for factories to produce in large quantities, a vital factor in early 1940 when the Spitfires were still in short supply. Just as importantly, its airframe made it straightforward to repair. No fewer than 60 per cent of all Hurricanes that crashed on British soil ended up back in service. The plane's structure also made the plane astonishingly resilient in combat. The Hawker could absorb phenomenal amounts of punishment, with enemy bullets often passing right through the fuselage.

THE BATTLE: During the battle, the public perceive the Spitfire to be the main RAF fighter, though the more numerous Hurricane aircraft shoulders a greater proportion of the burden against Nazi Germany's air force, the Luftwaffe. The Battle of Britain represented the Hurricane's finest hour. Without this fighter, the RAF's defences would have been too overstretched to survive. The turn-around time (re-arm and refuel) for the Spitfire was 26 minutes, while the Hurricane's was 9 minutes, which increased its effectiveness. Contrary to German mythmaking, the Hurricane proved a mortal foe to the Luftwaffe, on some estimates shooting down more than 1,000 German planes.

AFTER THE BATTLE: The Battle of Britain prevented Germany from invading and occupying Great Britain, eventually meaning that Europe could be liberated. Hurricanes continued to serve until the end of World War Two, particularly in Burma – where they were able to take off from basic airfields cut out of the jungle. Nearly 14,500 were built; fewer than the Spitfire, but Hurricanes were both faster and cheaper to produce.

OPERATION JERICHO

MOSQUITO BIV

THE MISSION: 18 Feb 1944, 100 French Resistance men are set to be executed by the Gestapo. Allied forces come together to plan Operation Jericho, an attempt to free the prisoners. It's an operation that requires extreme precision. One wrong move and they kill their allies. The allies use 18 of their most precise aircraft for the job, the Mosquito BIV.

THE ENGINEERING: 1938 - the aircraft is planned as a high-speed, unarmed daylight bomber to be made of wood to ease the use of strategic material. After years of uncertainty the prototype is built in 1940 and the first flight is a huge success. An order of almost 8000 is made with many being produced in woodworking factories across the UK. The wooden monocoque construction not only saved weight and compensated for the low power of the de Havilland Gipsy Twelve engines used by this aircraft, but also simplified production and reduced construction time. The MK IV Series II becomes the first of the mosquito bombers to enter service in 1942. An unprecedented speed of 382mph at 22 000 feet - it becomes the most versatile bomber.

THE BATTLE: In 1944, the Mosquito fleet enters battle at Amien Prison. It is a high-speed, low level attack, the likes of which have never been achieved before. The Mosquito's power comes from a pair of Rolls Royce Merlins, the same engine that drove the Supermarine Spitfire and made the Mustang into a long-range wonder, the finest single-engine fighter of the war. The size of the bombers is also an advantage, allowing the plane to manoeuvre precisely and close to the prison. The pilots do not need to destroy the entire prison, but precisely need to break down the northern and eastern walls so the inmates may escape. The mosquitos are able to get as low as 15 meters above the ground. They release 500kg of bombs onto specific sections of the prison, allowing over 250 prisoners of war to escape.

AFTER THE BATTLE: During the war the mosquitos fly more than 28,000 missions. Mosquitos strike Berlin in early 1943, giving lie to Göring's boast that no British bomber will ever reach the capital of Nazi Germany.