

FIRST WORLD WAR

PART EIGHT: NEW TECHNOLOGIES

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The inventions that changed warfare

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WELCOME

Everything we know about the Second World War was born out of the Great War, a test bed for technological development that pioneered the use of revolutionary methods in all fields from medicine to warfare.

In this issue, Patrick Bishop looks at what emerged from “the laboratory of the First World War” and what he describes as “the machinery of death”, while Nigel Jones handpicks eight ground-breaking inventions that changed the face of modern warfare.

The spirit of innovation abounded on land, air and sea. Nick Hewitt writes about how the Battle of Jutland showcased the conflict’s apogee of naval engineering and Alan Wakefield looks at the revolutionary impact of aerial photography on battles.

The Imperial War Museum’s experts bring their regular critique of wartime art, poetry and letters from the Front and we look at how Henry Moore may have buried memories of his trench experiences in everyday life, but the trauma of what he saw lives on in his sculptures. Please also keep sending your letters about loved ones, whose wartime exploits appear in our Post Box page.

Zoe Dare Hall
Series Editor



THE SPONSOR

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Inside the First World War, a 12-part series, is sponsored by Lord Ashcroft KCMG PC, an international businessman, philanthropist and military historian. Lord Ashcroft is sponsoring the monthly supplements because he wants to promote a greater understanding of the First World War and

to remember those who gave their lives in the conflict.

Lord Ashcroft has established himself as a champion of bravery, building up the world’s largest collection of Victoria Crosses (VCs), Britain and the Commonwealth’s most prestigious award for courage in the face of the enemy. He has also written four books on bravery: *Victoria Cross Heroes*, *Special Forces*

Heroes, *George Cross Heroes* and *Heroes of the Skies*. In each of the 12 supplements, Lord Ashcroft tells the incredible stories behind First World War VCs from his collection.

Lord Ashcroft purchased his first VC in 1986 and currently owns more than 180 of the decorations. Three years ago, he began collecting George Crosses (GCs), Britain and the Commonwealth’s most

prestigious award for courage not in the face of the enemy, but in the face of the enemy. He currently owns 14 GCs. Lord Ashcroft’s VC and GC collections are on display in a gallery that bears his name at IWM London, along with VCs and GCs in the care of the museum. The gallery, built with a £5 million donation from Lord Ashcroft, was opened by HRH The Princess Royal in 2010. Lord Ashcroft has been a successful entrepreneur

for the past four decades, launching, buying, building and selling companies – both private and public – in Britain and overseas.

He is a former Treasurer and Deputy Chairman of the Conservative Party. In September 2012, he was appointed a member of the Privy Council and was made the Government’s Special Representative for Veterans’ Transition. He is Treasurer of the International Democratic

Union (IDU) and one of Britain’s leading experts on polling.

Lord Ashcroft has donated several millions of pounds to charities and good causes. He founded Crimestoppers (then the Community Action Trust) in 1988.

He is the founder of the Ashcroft Technology Academy and Chancellor of Anglia Ruskin University. His numerous other charity roles

include being Vice Patron of the Intelligence Corps Museum, a Trustee of Imperial War Museum, an Ambassador for SkillForce and a Trustee of the Cleveland Clinic in the US.

For information about the Lord Ashcroft Gallery, visit www.iwm.org.uk/heroes. For information on Lord Ashcroft, visit www.lordashcroft.com. Follow him on Twitter: @LordAshcroft



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A poster from French magazine *L'Heure* showing Montassier’s futuristic machine and hope for a speedy conclusion to the war

DARK SCIENCE



War has a way of speeding things up. The pressures it creates hasten the gestation of processes that would otherwise take much longer. This phenomenon was everywhere apparent in the First World War and particularly in the field of technology.

The 19th century was a time of great scientific advances in Europe and America. The innovations that resulted contributed to a feeling that it was a good time to be alive and that mankind's lot was generally improving. The applications saved labour, improved health, enhanced communications and shrank distances. With the coming of the war, the dark side of science was given free expression, becoming death-dealing instead of life-enhancing.

The conflict cannot be said to have been the mother of any great, transformative inventions. Aircraft, submarines, machine-guns and the wherewithal for tanks were all around before the war began. It was, however, a test bed for existing technologies, providing a gigantic laboratory in which they could be improved and made to be ever more efficient and destructive.

The commercial considerations that in peacetime determined how an innovation would be developed did not apply during the conflict. Governments threw money at anything that showed the slightest chance of improving their fortunes. So it was that the 1914-18 war forged prototypes of weapons that would be used with devastating effect when hostilities resumed a scant 21 years later.

The 1939-45 war would look very different to its predecessor. There would be no trenches; citizens found themselves in the front line, vulnerable to attack from the air; at sea, there were no great set piece battles between giant ships. This change in the nature of war was, to a large extent, the result of the accelerated evolution forced by military necessity during the great upheavals of the earlier struggle.

The catalyst for much of the change was a single pre-war invention – the machine gun. It was the brainchild of Hiram Maxim, a rumbustious,

The killing machines



PATRICK BISHOP SAYS THE BATTLEFIELD WAS A TEST BED FOR A RANGE OF TECHNOLOGY THAT TRANSFORMED THE NATURE OF WAR AND HELPED SHAPED THE 1939-45 CONFLICT

womanising American who moved to Britain and was knighted by Queen Victoria. The Maxim gun harnessed the gas energy produced by firing a round to re-cock the weapon. After Maxim sold it on, it became the Vickers gun, capable of spitting out 450 .303 rounds a minute. It was effective over a mile and a quarter, reasonably portable with a total weight of 500lbs and astonishingly reliable.

With this weapon, a team of three or more soldiers could mow down scores of advancing infantry with ease. As the Germans had also benefited from Maxim's design, the mass charges that had decided battles before became impossible. After a few months of slaughter, the early war of movement ground to a halt and the troops went to earth, burrowing out the great underground cities of the Western Front.

But machine guns did not claim the majority of lives lost. It was artillery that did most of the killing. At the start, the British and French forces relied on mobile field guns that would have been familiar to a veteran of Waterloo. Their purpose was to pump shrapnel shells into or over the heads of the enemy. The Germans had heavier guns, designed to pound enemy strongpoints. With the stalemate, direct fire became impractical and field guns gave way to howitzers and mortars that could lob indirect fire on to the trenches from hidden positions.

Shell bombardments became an integral part of the trench experience, arriving either singly in routine harassing fire or in the huge barrages that preceded big operations. In one attack in September 1918, British guns delivered nearly a million shells in the space of just two days.

But the ever-bigger and more explosive guns that arrived on the battlefield could not break the deadlock. Once the stasis hardened, the belligerents looked for other means to dissolve it.

Chemical weapons were considered uncivilised and had been banned under the Hague Conventions of 1899 and 1907. In 1915, frustration drove the Germans to turn to their highly developed chemical industry for a war-winning solution. On the afternoon of April 22, 1915, at the Second Battle of Ypres, they opened cylinders holding 171 tons of chlorine gas along a four-mile section of the front.

The prevailing wind carried it towards the French lines causing 6,000 casualties. The gas attacked wet tissue – the lungs and the eyes – and the deaths were agonising, “like drowning, only on dry land” according to one witness. The French troops panicked and ran. The Germans, many of whom had been killed releasing the gas, were reluctant to press the attack and the advantage was lost.

The Allies soon retaliated in kind. Phosgene and

mustard gas followed, but so too did the development of efficient gas masks and, despite accounting for about a million casualties, the use of chemical weapons never produced more than tactical and temporary successes. The verdict of the battlefield was that they were more trouble than they were worth and it was unsurprising that neither side would make use of them in the next war.

Instead, the future seemed to belong to three other innovations: the tank, the aeroplane and the submarine. A design for a caterpillar-tracked armoured vehicle had been offered to the British War Office in 1911 but was rejected and forgotten. Once again, the post-1914 paralysis revived interest in a weapon that might sweep through barbed wire and cruise over trenches and in September 1915, in the latter stages of the Battle of the Somme, a British tank made its first appearance in the conflict.

The French had simultaneously developed the revolutionary Renault FT, a light tank that had a traversable turret. The Allies would produce nearly 6,000 tanks before the end of the war, whereas the Germans, who were hampered by lack of resources, managed only a handful. Despite the imbalance, the tanks did not prove decisive. They were slow, unwieldy and chronically prone to breaking down. However, their potential was obvious, particularly to the Germans, who would employ them as the spearhead of their devastating blitzkrieg tactics at the opening of the Second World War.

Aeroplanes were present from the first days of the fighting, flying over the lines and reporting enemy movements. Aerial reconnaissance would quickly become an essential element in battle planning. Both sides had an intimate knowledge of each other's dispositions with every inch of the front lines photographed and mapped. Air crews also acted as artillery spotters, recording the fall of shot and signalling back so that adjustments could be made.

Aircraft did a certain amount of bombing and strafing, though the effects were slight. But once again, their limited activities provided a grim picture of what future wars would bring. Warning had already



been given. The arrival of airships and aeroplanes stirred the imaginations of writers such as HG Wells, who in 1908 alarmed readers of *The Pall Mall Magazine* with a serial, *The War in the Air*. The high point of the story was an attack on New York by an armada of German airships, dropping bombs that collapsed skyscrapers, ignited infernos and drove the city's population mad with panic.

In 1915, Wells's vision became fact when the Germans launched a long series of Zeppelin raids on coastal towns. On May 31, an airship attacked London, showering grenades and incendiaries on Stoke Newington. Seven people were killed, including a three-year-old girl, Elsie Leggat. The experience fell far short of Wells's apocalypse but none the less created an atmosphere of fear that translated into hatred of the perpetrators.

Despite their impressive size, the Zeppelins seemed extraordinarily hard to shoot down. When, on the night of September 2, Lt William Leeft Robinson finally set an airship ablaze over London, the population rejoiced and he became a national hero. By the end of the war, Zeppelins and Gotha four-engined bombers had launched 103 attacks on Britain, killing a total of 1,414 civilians and wounding 3,866. This was fewer than would be killed on the worst night of the Blitz.

Nevertheless, the lessons drawn from the experience would shape the post-war RAF as a strategic bombing force, whose function was to carry the war to German industry and infrastructure.

The war at sea was conducted far from civilian eyes. But here again, a new weapon was at work that would prove potentially even more dangerous to ordinary people in the conflict to come.

Like the tank and the aeroplanes, the concept of

“**THE CONFLICT FORGED PROTOTYPES OF WEAPONS USED WITH DEVASTATING EFFECT 21 YEARS LATER**”

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BRAVE NEW WORLD

Clockwise from main picture: a British MkIII tank; machine-gunners of the 77th American Division training near Moule, France, in May 1918; a Zeppelin, probably the L50, leaves the hangar; the aircraft carrier HMS *Angus* in dazzle camouflage

the submarine was an old one, made realisable by the great scientific leaps of the 19th century. All the belligerents' navies were equipped with them at the start of the war, but the German diesel and electric-powered U-boats were the most effective, with a range of 5,000 miles. As with the air war, the scope of their operations was initially strictly military but grew ever wider, ending in unrestricted attacks on all enemy shipping. The consequences for civilians became clear with the sinking of the British liner *Lusitania*, which was torpedoed by U-20 off Kinsale, Ireland, on May 7, 1915, with a loss of 1,198 lives.

German submarines sent more than 5,000 Allied ships to the bottom of the sea during the course of the First World War. It was a harbinger of what was to come during the Battle of the Atlantic in the next war, when U-boats, in combination with the Luftwaffe's long-range bombers and reconnaissance aircraft, almost severed the transatlantic trade routes on which Britain depended for its existence, raising the spectre of mass starvation.

In 1918, HMS *Argus*, a converted liner, became the first ship with a full-length flight deck capable of routinely launching and landing planes. The aircraft carrier and the submarine would change the nature of naval warfare, signalling the end of giant warships. But it would be some years before the world's admirals accepted this truth.

From the laboratory of the First World War emerged the means and methods that would determine the shape of the Second and the machinery of death took a great leap forward. The innovations were not wholly malign. In medicine, for example, dealing with the mass physical and mental trauma of battle improved surgical and psychological techniques, treatment and understanding. Marie Curie designed a mobile X-ray machine capable of operating near the front lines and Allied nurses adapted the new cellulose bandage material to create the first modern sanitary napkins.

But the bad massively outweighed the good. The technological legacy of the First World War would prove fatal for many millions of the next generation.

A MODERN WAR

Inventions forged in the heat of battle

They say necessity is the mother of invention – and the desperate circumstances of trench warfare and unprecedented combat at sea and in the air paved the way for all manner of innovation, from the life-saving to the gruesomely life-taking. Nigel Jones looks at eight First World War discoveries that changed the face of modern warfare.

BARBED WIRE

Barbed wire, invented in the US in the 1860s to pen cattle, was one of the foremost features of trench warfare, defending the front lines of both sides in great brambled “hedgcs”. German wire, as part of an overall defensive strategy, was more formidable, being stronger, with longer, thicker barbs. On the Somme, shelling intended to cut the wire only made it more

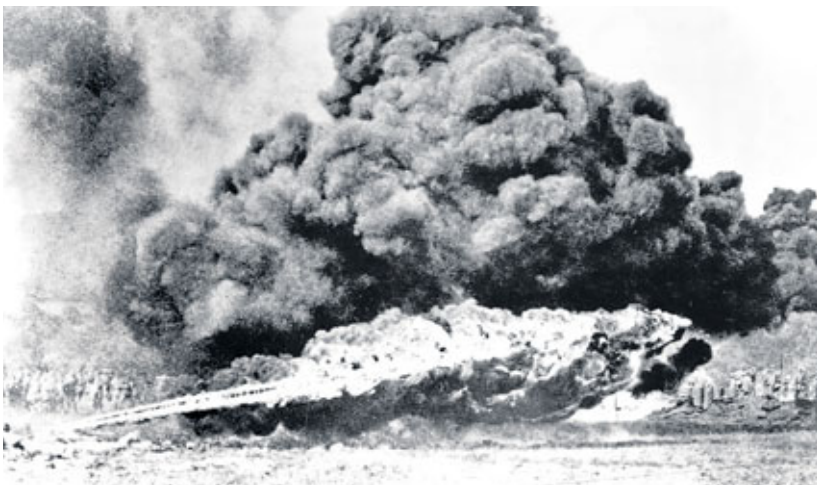
tangled, hampering the Allied offensive of July 1916. “Wiring parties” would go into no-man’s-land at night to cut enemy wire or lay new wire and maintain existing barriers. The sound of mallets knocking stakes into the ground to hold the wire attracted enemy attention, so the British developed a “silent picquet” shaped like a giant iron corkscrew, which could be quietly pushed into the earth.



FLAMETHROWERS

Flamethrowers (*Flammenwerfer*) were a vicious new instrument in the orchestra of war introduced by the Germans in the Ypres salient in 1915. The Germans had experimented with stationary flamethrowers at Verdun that February, and a backpack version of the same fearsome weapon carried by single soldiers was jointly developed by a reserve army captain named

Bernhard Reddemann and an engineer called Richard Fiedler. Flamethrowers were first used in an attack on July 30 near the shattered village of Hooze, recently captured by the British with the aid of a giant subterranean mine. Lt G V Carey of the 8th Rifle Brigade said they were “like a line of powerful fire-hoses spraying fire instead of water across my fire-trench”.



STEEL HELMETS

Steel helmets, not seen on Europe’s battlefields since the knights of the Middle Ages, were re-introduced as standard issue for all combatant armies on the Western Front in 1915 to offer some protection against bullets and shell splinters. The German helmet, topped by a spike and called the Pickelhaube, was much prized by British souvenir-hunters on the battlefields. But it was phased out in favour of the practical, protective Stahlhelm, known to the British as the “coal scuttle”, which remained the basic German helmet design up to the end of the Second World War. The French helmet, called the Adrian, was favoured by Winston Churchill during his spell in the trenches – he thought it made him look “Cromwellian” – while the shallow British “soup plate” offered less protection than its rivals. German helmets best stood the test of time, and the helmets used by the US Army in the 2003 Iraq War bore more than a passing resemblance to that design.



THE GEOPHONE

The geophone, invented by Professor Jean Perrin of the Sorbonne in 1915, detected enemy tunnelling. It consisted of two discs with mica membranes holding mercury and attached to a stethoscope. By placing the discs on the floor or walls of a tunnel, sounds were magnified two and a half times; a skilled listener could estimate how far away and how deep the German tunnels were, giving warning of the enemy’s activity, or enabling counter-mines to be dug. Tunnellers earned four times more than their surface comrades because of their dangerous work. British mining culminated in the simultaneous detonation of 19 giant mines at Messines in June 1917, which entombed 10,000 Germans in the biggest explosion in human history before Hiroshima.



FLARE PISTOLS

No-man’s-land on the Western Front was a terrifying place. Exposed to the full force of enemy fire, the terrain between the frontline trenches was littered with barbed wire, rotting corpses, dud shells, waterlogged craters and other hazards. Unless attacking over the top, troops only ventured into this perilous place on patrol or on trench raids at night when the main enemy was the whoosh

of a flare pistol – known to the British as a Very pistol, after its inventor, US naval officer Edward Wilson Very. The pistol was a one-shot brass gun that fired a coloured light – usually white at night – high in the air, illuminating the landscape and enabling snipers to pinpoint anything moving in no-man’s-land. Very pistols were also used by day for signalling with coloured flares.



DEPTH CHARGES

German U-boats took a heavy toll on the shipping that Britain relied on to feed her people – and the Government feared the country was close to starvation. A new weapon arrived in the nick of time: the depth charge, an underwater bomb. Primitive underwater charges detonated by a jerked lanyard had been experimented with before the war, but the first workable depth charge

was developed by Herbert Taylor at the Royal Navy’s torpedo school HMS Vernon near Portsmouth. The charge, shaped like an oil barrel and filled with TNT, was automatically detonated with a hydrostatic pistol when the charge reached a designated depth up to 300ft. By the war’s end, 16,451 depth charges had been fired, sinking 38 U-boats and helping destroy 141 more.



INTERRUPTER GEAR

The progress of aircraft from observation planes to fighters early in the war was hampered by their inability to fire their centrally-mounted machine guns through the arc of their propellers without destroying the blades. French ace Roland Garros partly solved the problem by lining his wooden propeller with metal strips to deflect his bullets. In April 1915, the Dutch aviation designer Anthony Fokker, working for the Germans, introduced his Eindecker single-wing aircraft fitted with “interrupter” or “synchronisation gear” which hydraulically timed gunfire to miss the rotation of the propeller. This enabled German fighters to dominate the skies over the Western Front for a year until the summer of 1916, when the Allies emulated Fokker’s invention.



ANTI-AIRCRAFT GUNS

In the run-up to war, the potential combatant nations were waking up to the threat posed by attacks from planes and airships. France and Germany began to adapt field guns to fire into the air, while in Britain, in July 1914, plans were in hand to build anti-aircraft (AA) towers around nine ports and the armaments company Vickers developed a “pom-pom” anti-aircraft gun.

The Royal Navy took the lead in anti-aircraft defence with naval three- and four-inch guns being used. Admiral Sir Percy Scott co-ordinated the defence of London with AA batteries equipped with searchlights ringing the capital. After the shooting down of the L-31 Zeppelin over Potter’s Bar by a combination of AA fire and aircraft attack in October 1916, Zeppelin attacks ceased.

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FROM IWM’S ARCHIVE - LETTERS HOME

‘Planes are often full of holes caused by shrapnel’

The aeroplane was one of the most important forms of new technology adapted to fight the First World War, with both sides boasting a number of “aces” who flew hazardous combat missions over the battlefields. Among the most notable pilots of the Royal Flying Corps was James McCudden who, accounting for 57 confirmed enemy aircraft shot down, became one of the most respected airmen of the war.

The beginning of the conflict, however, saw McCudden as an air mechanic and it was in this role that he embarked for France with No 3 Squadron RFC, a reconnaissance unit. McCudden’s enthusiasm for flying and quickness to learn meant that he was soon in the air as an observer, helping identify German artillery positions. Promoted to corporal in November 1914, he exchanged letters with a girl named Adelaide whom he had befriended in England. His letter of December 29, 1914, reveals his passion for flying while explaining the dangers of aerial warfare.

“Things are very quiet at present, as the weather being so bad, there is not much flying. I have just taken over a new machine for my officer which does 83 miles an hour. I have not had a flight in it yet but hope to shortly. It will be very useful for chasing German aeroplanes which, however, are very scarce now, as we rarely see one. I should very much like to chase a German machine and bring him down with a rifle. Do not think me bloodthirsty will you, as it is only my duty if I get the chance.”

“I had a lot of Christmas presents sent me, and lots of puddings, which I severely dealt with. What do you think of the German aeroplane over my place, Sheerness? I guess our people soon chased him back again with ‘Archibalds’ [anti-aircraft guns] and machines. You should see some of our machines being shelled by the German ‘Archibalds’. As many as 40 and 50 puffs of smoke can be seen round one machine, each puff denoting a shell burst. The composition of the shells is shrapnel, which is timed to burst just above the machine if possible, some of them get very close as we often find holes in the wings and body of the machine where shrapnel bullets have passed through. The machine is often also hit by rifle shots. It is, however, extremely difficult to take aim accurately with a rifle on a machine in the air as you have to allow a lot for the speed of the machine and you can only judge the height of it approximately so as to adjust your sights. The majority of rifle bullets we get through our machines are, I think, more by luck than judgment.”

“I should think that Kitchener’s Army will soon be coming out here, and then we shall get a move on.”

McCudden would not become a fully qualified pilot until May 1916, but claimed his first aerial victory four months later with No 29 Squadron. Many further combat successes followed and, combined with numerous gallantry awards (including most notably the Victoria Cross in March 1918), the national press began to promote him as a celebrated war hero.

Major James McCudden was killed in a flying accident on July 9, 1918, when the engine failed on his SE5a aircraft. He was only 23, but by the time of his death had become the most highly decorated British airman of the First World War.

Commentary by Anthony Richards, IWM head of documents

WAR POEM

'A Dead Boche', Robert Graves (1917): literary giant writes of 'a certain cure for lust of blood'

Robert Graves was one of the most distinguished British literary figures of the 20th century. A man of powerful original ideas, he was a critic, historical novelist and biographer. The caustic memoir he wrote of his early life, *Goodbye to All That* (1929), included a damning account of his First World War experiences, but it is now regarded as a classic evocation of the Western Front.

Graves saw himself primarily as a poet. From 1915 until his death in December 1985 at the age of 90, his output was prodigious. However, in the late Twenties he set aside his wartime poetry and it was not published again in his lifetime.

Commissioned into the Royal Welsh Fusiliers (RWF) in August 1914, aged 19, Graves published three volumes of poetry during

the war: *Over the Brazier* (1915), *Goliath and David* (1917) and *Fairies and Fusiliers* (1917). He arrived in Flanders in 1915 and served mostly with the 2nd Battalion, RWF, until he transferred to the 1st Battalion in November. There he began a close friendship with fellow poet and RWF officer Siegfried Sassoon.

In April 1916, Graves was sent to London to have an operation on his nose, which had been broken in such a way that he could not wear the new gas masks. He returned to the 2nd RWF in July of that year and subsequently went with the Fusiliers to the Somme, where he was so badly wounded that he was reported to have died. After recovering, Graves returned for a third period of frontline service with the 2nd RWF in January 1917 but was returned home unfit within weeks.

A Dead Boche appeared in Graves's second book, *Goliath and David*, which was published after he returned to France in January 1917. He and Sassoon, who was preparing his own first volume, *The Old Huntsman*, had worked together on their poetry at the end of the previous year while convalescing after periods in hospital. A manuscript version of *A Dead Boche* in IWM's archive shows Sassoon's influence, with the words 'I'll say' and "'War's Hell!'" added in Sassoon's handwriting and the poem's two stanzas reversed into their published order.

For the title of his poem, Graves used the commonly used First World War term "Boche" to describe a German soldier. A disparaging derivation of the French word *caboches* for cabbage, it was used more loosely to mean "square head". Ironically, Graves's mother was German and seven of his cousins were killed fighting in the German army.

A DEAD BOCHE

TO YOU WHO'D READ MY SONGS OF WAR

AND ONLY HEARD OF BLOOD AND FAME,

I'LL SAY (YOU'VE HEARD IT SAID BEFORE)

'WAR'S HELL' AND IF YOU DOUBT THE SAME,

TO-DAY I FOUND IN MAMETZ WOOD

A CERTAIN CURE FOR LUST OF BLOOD:

WHERE, PROPPED AGAINST A SHATTERED TRUNK,

IN A GREAT MESS OF THINGS UNCLEAN,

SAT A DEAD BOCHE; HE SCOWLED AND STUNK

WITH CLOTHES AND FACE A SODDEN GREEN,

BIG-BELLIED, SPECTACLED, CROP-HAIRED,

DRIBBLING BLACK BLOOD FROM NOSE AND BEARD.

In the original edition of *Goodbye to All That* (1929), Graves says he went out to scrounge blankets for his men in the wood: "I had to pass the corpse of a German... propped against a tree. He had a green face, spectacles, close-shaven hair; black blood was dripping from the nose and beard. He had been there for some days and was bloated and stinking."

The village of Mametz was captured on July 2, 1916, the Battle of the Somme's second day. Yet an advance into nearby Mametz Wood, although it was only lightly defended, was not undertaken for some days. From July 7-12, the 38th (Welsh) Division attacked through the broken trees of the wood. Its capture cost almost 4,000 British casualties, including 600 dead. The ground was littered with debris and both British and German bodies, as Graves discovered when he arrived in the wood only days after the end of the fighting.

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ART OF WAR

WILLIAM ORPEN 'DEAD GERMANS IN A TRENCH' (1918)

"The dreary dismal mud was baked white and pure – dazzling white. White daisies, red poppies and a blue flower, great masses of them, stretched for miles and miles. The sky was a pure dark blue, and the whole air... thick with white butterflies." This was how the official war artist William Orpen recalled the extraordinary sight of the Somme battlefield in August 1917.

At the outbreak of the First World War, the Irish-born Orpen was an established and successful society portrait artist, so he did not need the professional recognition of official employment. Nor was he motivated by self-preservation; connections formed by pre-war portraiture had ensured him a safe position at the Army Service Corps in London.

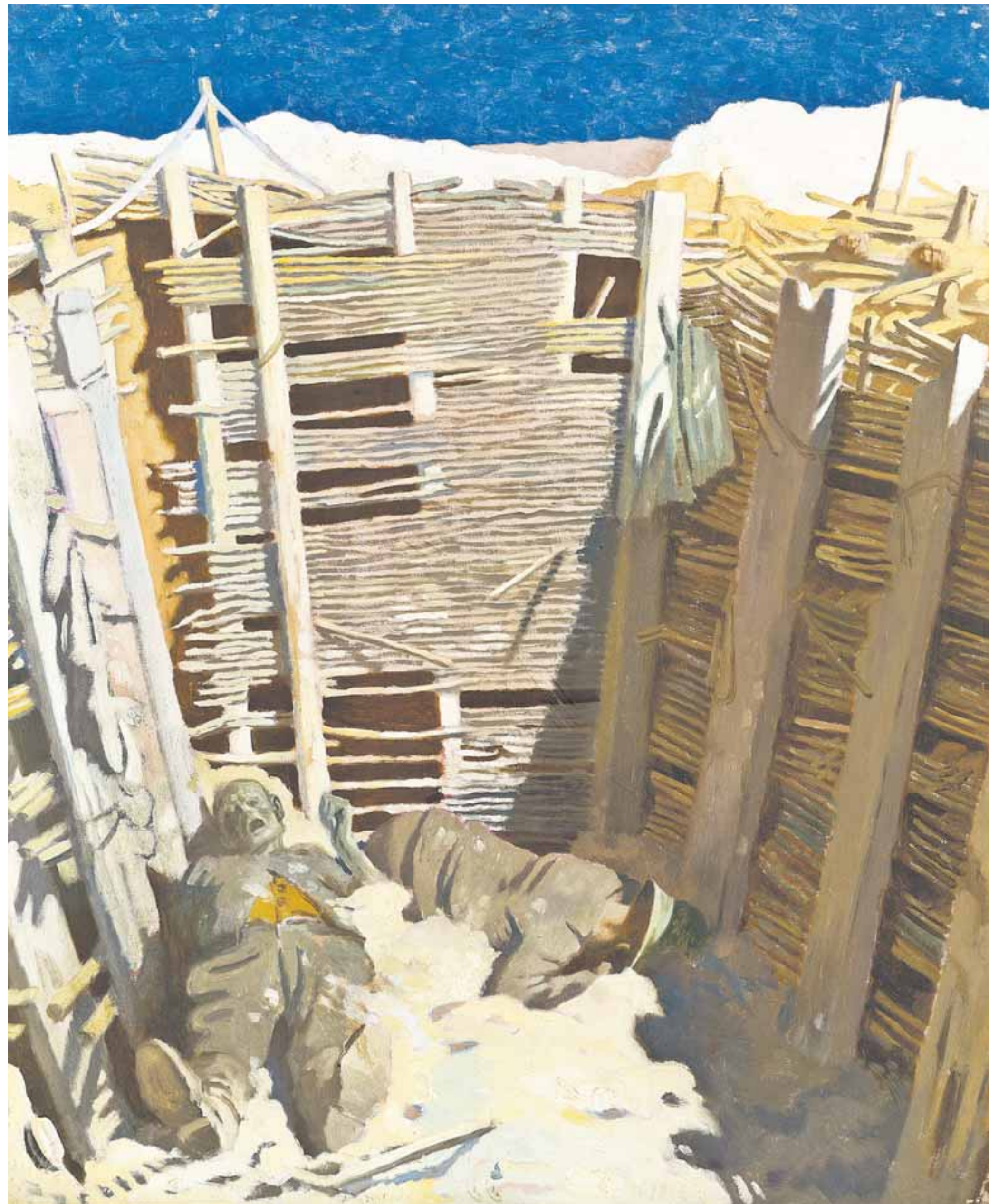
Rather his desire for official employment came as a reaction to the wartime commissioning of less successful artists than he. Here again, Orpen's connections, who included the Secretary of State for War, Lord Derby, proved useful and in April 1917 the artist arrived in France a Major and in the indefinite employ of the British propaganda agency, the Department of Information.

Four months later, Orpen arrived on the Somme. The battlefield, by this time, had been abandoned when German forces withdrew to stronger positions on the Hindenburg Line. Despite the profusion of nature, Orpen found the area disorientating and unnerving. The occupying British forces had buried their own dead but left the Germans to rot where they lay in one vast open cemetery. *Dead Germans in a Trench* depicted just two of their countless corpses and was one of more than 20 memorable canvases by Orpen of the eerie modern wilderness.

When exhibited for the first time in London in May 1918, *Dead Germans in a Trench* caused surprise to a public and critics familiar with the destruction of the First World War. "Mr Orpen is certainly not a sentimentalist; he seems to paint [the corpses] with cold, serene skill, just as he might paint a bunch of flowers," wrote *The Times*. The newspaper also noted that though images of dead British soldiers had been suppressed, *Dead Germans in a Trench* had been passed for exhibition, causing the cynical quip "[the Censor's] aim being apparently to persuade us that only Germans die in this war".

Richard Stoccombe, senior art curator, IWM

Dead Germans in a Trench will feature in IWM's *Truth & Memory: First World War Art exhibition*, which will open on July 19, along with new *First World War Galleries*; www.iwm.org.uk



VC BRAVERY

Defiant and ruthless, the top-scoring pilot



MAJOR EDWARD 'MICK' MANNOCK WAS AWARDED MORE MEDALS FOR COURAGE THAN ANY OTHER BRITISH ACE. BUT HIS FINAL MOMENTS ARE A MYSTERY, SAYS **MICHAEL ASHCROFT**

'Mick' Mannock was the highest-scoring and most highly decorated British fighter pilot of the First World War and was eventually credited with 73 combat victories, or "kills". Furthermore, he transformed himself from someone who initially came across as arrogant and brash into one of the greatest legends in RAF history. Mannock undoubtedly had a ruthless streak and a deep hatred of the enemy, but he had a more thoughtful, caring side, too. He was one of the world's first theorists of aviation tactics and was renowned for his prudent but aggressive leadership in the air.

Mannock, whose first name was Edward but who was known as Mick because of his Irish roots, was born in Brighton on May 24, 1887, one of five children. His father was a tough Irishman who was a corporal in the 2nd Dragoons, Royal Scots Greys. As a child, he was bright and an avid reader, but had severe astigmatism in his left eye. Incredibly, given his later achievements as a pilot, he suffered from impaired vision in this eye for the remainder of his life.

When he was 13, his wayward father abandoned the family, leaving them desperately short of money. Mannock was forced to leave St Thomas' School in Canterbury and take a series of menial jobs before he eventually joined his brother, Patrick, who worked for the National Telephone Company.

Mannock was 27 and had moved to Turkey as the leader of a telephone cable-laying gang when the Great War broke out. When Turkey entered the war on Germany's side, he and other British workers were imprisoned. In jail, he sang patriotic British songs and received regular beatings from the Turkish guards for his impertinence. When he tried to escape, he was put in solitary confinement and his health deteriorated – he had dysentery and suppurating sores – but the American consulate secured his release. Back in Britain, Mannock was listed as "unfit for military duties" but during his imprisonment he had become obsessed with "destroying Germans" and sought a way to channel this obsession.

In July 1915, he re-joined as a sergeant in the Territorial unit of the Royal Army Medical Corps (RAMC) in which he had served before going to Turkey. But some of the requirements of the job – one of which was a duty to treat enemy prisoners – troubled him. For after his experiences in the Turkish prison, he had no compassion for the Central Powers or their soldiers. On April 1, 1916, Mannock was commissioned as a 2nd lieutenant in the Royal Engineers. Then, a chance meeting with an old friend led to a discussion about flying and in August 1916, 2nd Lt Mannock transferred to the Number One School of Military Aeronautics at Reading, qualifying as a pilot in November after further training.

Posted to France in April 1917, he joined his first operational unit, 40 Squadron, at Trezennes. But he created a bad first impression among the squadron as a "boorish know-all" and his first sortie, when he was badly shaken by anti-aircraft fire, reinforced this view. However, he was determined to succeed and opinions soon started to change



when, through brilliant flying, he pulled his damaged Nieuport Scout (a single-seater French fighter) out of a "terminal" dive when he was on a practice flight.

He also learnt to control his fear, believing he only needed strength of mind to overcome it. On May 7, he claimed his first success when he and five others shot down a kite balloon – a manned, gas-filled balloon used for reconnaissance – five miles behind German lines. On May 25 and June 1, 1917, he was convinced he had enemy kills, but decided to bide his time until he could make an unquestionable claim. He did not have long to wait; the following week he shot down an Albatros D.III.

On September 17, 1917, Mannock was awarded the MC. His citation stated: "In the course of many combats he has driven off a large number of enemy machines, and has forced down three balloons, showing a very fine offensive spirit and great fearlessness in attacking the enemy at close range and low altitudes under heavy fire from the ground."

On October 18, Mannock was awarded a bar to his MC. His citation stated: "He has destroyed several hostile machines and driven others down out of control. On one occasion he attacked a formation of five enemy machines single-handed and shot one down out of control. On another occasion, while engaged with an enemy machine, he was attacked by two others, one of which he forced to the ground. He has consistently shown great courage and initiative." Mannock was becoming a better team player, too: during one sortie he protected a promising young pilot, Lt George McElroy. "McElroy", as Mannock christened him, went on to become the 10th highest-scoring pilot of the war, with 46 victories.

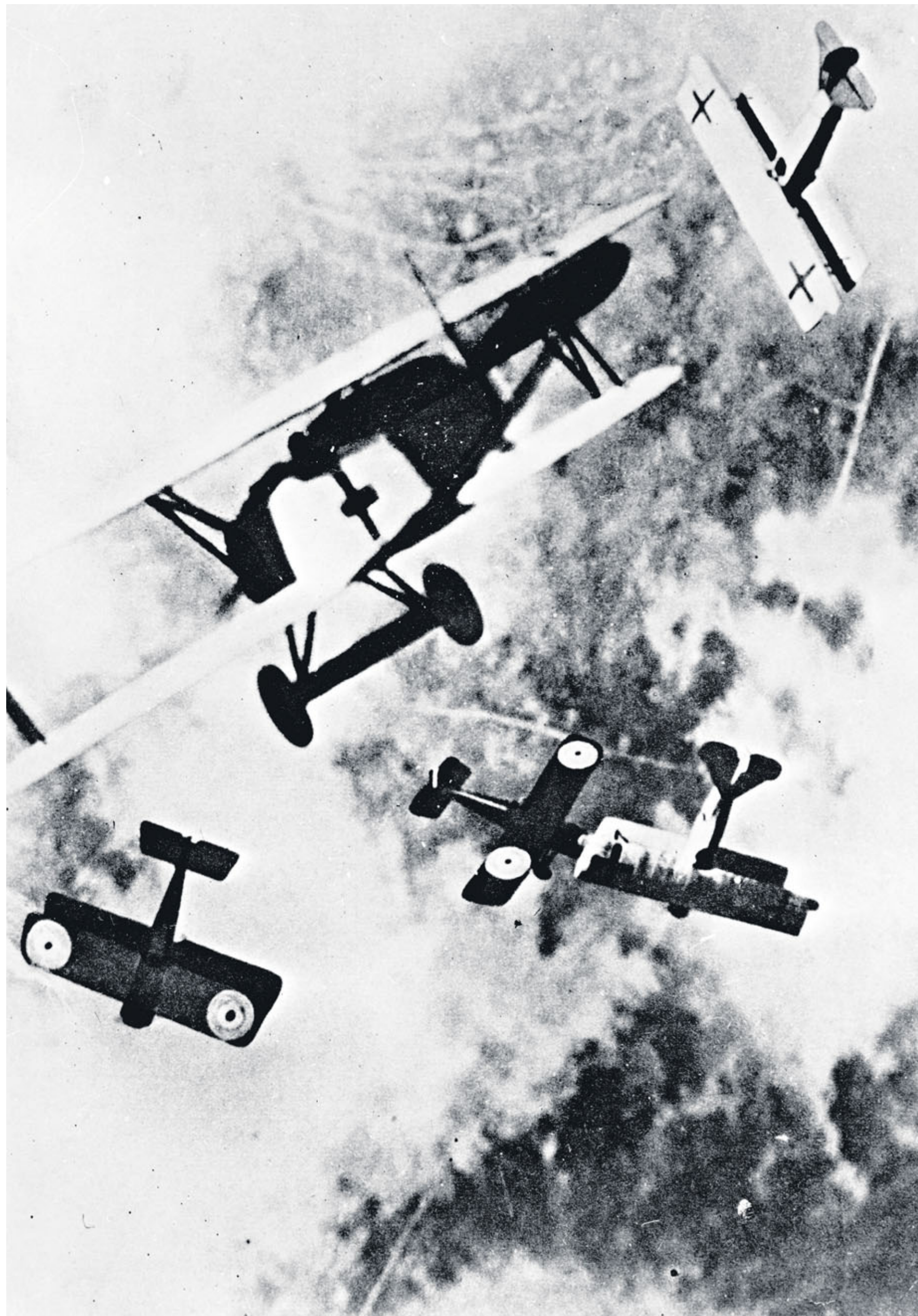
Mannock had his last day with 40 Squadron on January 1, 1918, when he recorded his 21st official "kill". He returned home for a rest from active service but soon joined 74 (Tiger) Squadron, which was then forming with the new, robust SE5a fighter. He returned to France with the squadron on March

30, leading A Flight. In May, he was reduced to tears by the death of his protégé, Lt Dolan, his wails of grief continuing long into the night. Afterwards, his comrades noticed a new bloodlust, but he never let it cloud his judgment in the air and his number of kills rapidly escalated.

He carried out a series of brilliant manoeuvres against his German opponents; one kill was described by Ira Jones, a fellow pilot, as "a remarkable exhibition of cruel, calculated Hun-strafting". However, amid all the success he remained a realist, never taking off without his revolver: "to finish myself off as soon as I see the first sign of flames".

In May 1918, he learnt he had been awarded the DSO. A bar to this award followed later the same month, although neither decoration was formally "gazetted" until September 16. On June 21, 1918, when home again in Britain on much-deserved leave, Mannock was promoted to major and chosen to succeed Major "Billy" Bishop VC in command of 85 Squadron. On his arrival, Mannock reinvigorated the squadron, introducing new tactics and forcing the pilots to work more effectively as a team.

However, Jim Eyles, a close friend, noticed that before he left Britain for



HIGHEST HEROISM

'Mick' Mannock, whose extraordinary record was achieved despite impaired vision, far left; a dogfight involving German Fokker VIIIs and British SE5 fighters, as flown by Mannock, main image; the ace's VC, DSO and two bars and MC and bar, below



HEROIC STORIES

Lord Ashcroft KCMG PC is a Tory peer, businessman, philanthropist and author. The story of "Mick" Mannock's life and career appears in his books *Victoria Cross Heroes* and *Heroes of the Skies*. For more information, visit victoriacrossheroes.com and heroesoftheskies.com. Lord Ashcroft's VC and GC collection is on public display at IWM, London; visit iwm.org.uk/heroes. For details about Lord Ashcroft's VC collection, visit lordashcroftmedals.com. For more information on Lord Ashcroft's work, visit: lordashcroft.com. Follow him on Twitter: @LordAshcroft

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his new posting, his nerves seemed to be frayed. Eyles later said: "I well remember his last leave. Gone was the old sparkle we knew so well; gone was the incessant wit. I could see him wringing his hands together to conceal the shaking and twitching, and then he would leave the room when it became impossible for him to control it."

"On one occasion, we were sitting [and] talking quietly when his eyes fell to the floor and he started to tremble violently. He cried uncontrollably. His face, when he lifted it, was a terrible sight. Later he told me that it had just been a 'bit of nerves' and that he felt better for a good cry. He was in no condition to return to France, but in those days such things were not taken into account."

On July 24, 1918, Mannock told his friend Ira Jones by telephone: "I've caught up with Bishop's score now – 72 [including unofficial kills]." Around 5am, two days later, Mannock, flying alongside Lt Donald Inglis, made his final kill above Lestremme.

Disregarding his own strict rule, he then made a couple of low passes over the wreckage, leading the inexperienced Inglis into a storm of small-gun fire from the German trenches. As they zig-zagged away from the scene, Inglis noticed a small bluish flame on his major's engine cowling. Then the left wing of Mannock's aircraft fell away and he plunged into a death spin. Inglis, showered in petrol from his own punctured fuel tank,

made a crash landing shortly afterwards. After being pulled from his battered aircraft, he announced: "They killed him, the bastards killed my major. They killed Mick." Mannock had died, aged 31.

Exactly what happened to Mannock remains a mystery. He was buried in an unmarked grave by a German soldier, who also returned Mannock's identity discs, notebooks and personal effects to his family through the Red Cross. His identity discs are displayed alongside his VC, which is now part of my medal collection. Their pristine state suggests that Mannock's body had been thrown clear of his aircraft before it was consumed by fire. It may be that he jumped clear of the plane or he may even have fulfilled his pledge to shoot himself at the first sign of flames, falling dead from his machine. The truth will never be known.

By then, Mannock had been awarded his third DSO but this too, along with his earlier awards, was only gazetted after his death. The citation for his second bar, announced on August 3, 1918, stated: "This officer has now accounted for 48 enemy machines. His success is due to wonderful shooting and a determination to get to close quarters; to attain this he displays most skilful leadership and unflinching courage. These characteristics were markedly shown on a recent occasion when he attacked six hostile scouts [aircraft], three of which he brought down. Later on the same day he attacked a two-seater, which crashed into a tree."

After the war, it was decided that Mannock's incredible and prolonged courage had still not been fully recognised. After much lobbying, largely by those who had served with and under him, *The London Gazette* announced his Victoria Cross on July 18, 1919, nearly a year after his death. It recognised only his 50 official kills but concentrated on his achievements in June and July, 1918, concluding: "This highly distinguished officer, during the whole of his career in the Royal Air Force, was an outstanding example of fearless courage, remarkable skill, devotion to duty and self-sacrifice, which has never been surpassed." As formal next of kin, Edward Mannock, the recipient's wayward father, was presented by King George V with his son's VC in the same month. Edward Mannock also received his son's other gallantry medals even though "Mick" Mannock had left instructions in his will that his father should receive nothing from his estate. His astonishing medal group of VC, three DSOs and two MCs, all awarded for bravery over 15 months, makes Mannock probably the most highly decorated man in my collection.



The trench deadlock that descended on the Western Front at the end of 1914 acted as a catalyst for the development of aerial reconnaissance. Traditionally, cavalry had served as the eyes of an army, scouting behind enemy lines and reporting to commanders about troop concentrations and movements. In trench warfare, such freedom of movement was impossible, leading armies to devise new ways of looking behind the opposing front line.

In the years immediately before the First World War, armies began to harness the growing capabilities of aircraft to warfare. Aeroplanes and airships provided an elevated, mobile observation platform, able to cross enemy lines and view a large area of territory. The results from pre-war manoeuvres overcame the scepticism of senior officers and by 1914 all major armies had an aviation arm.

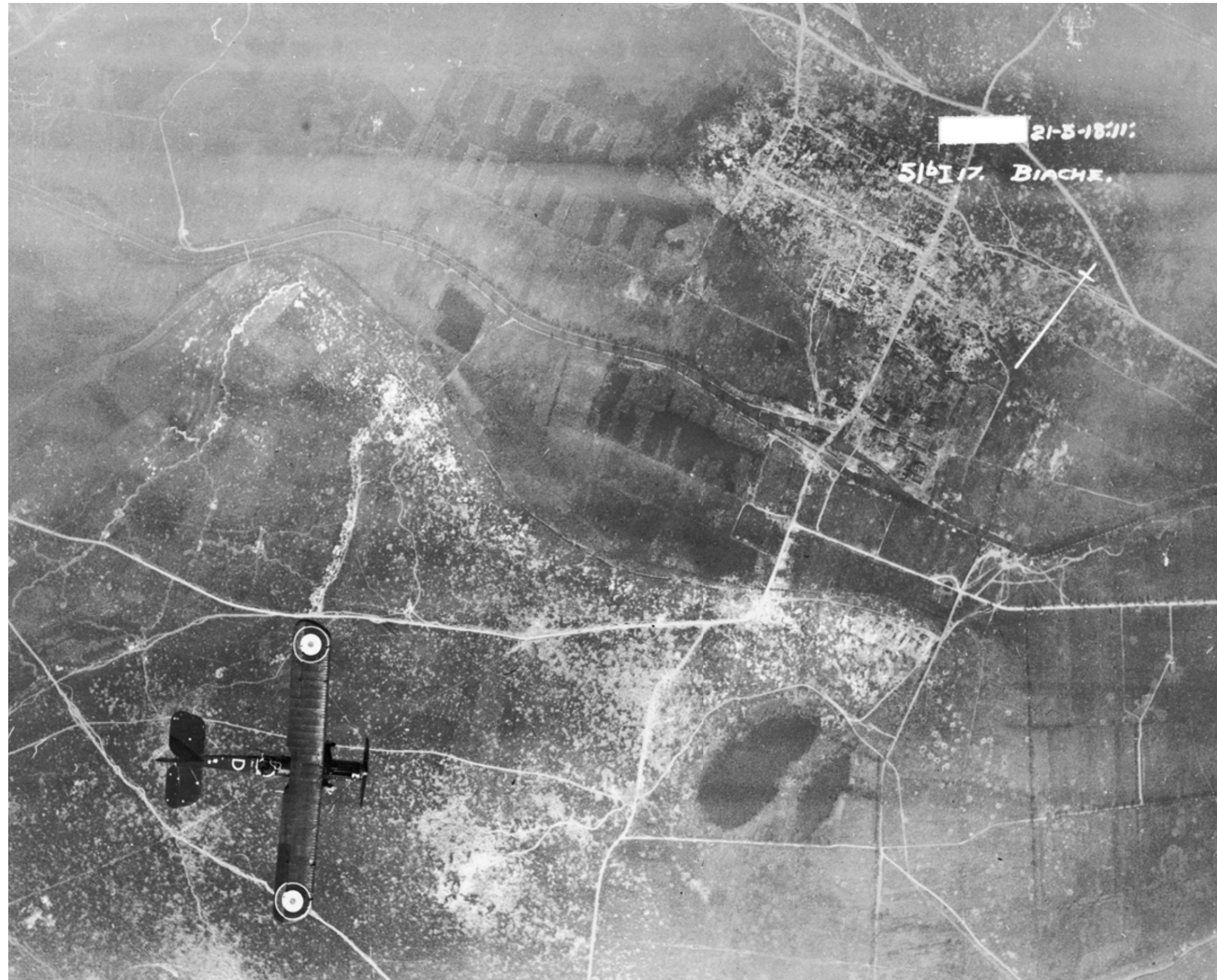
When war broke out in August 1914, the French led the way with aerial reconnaissance. By October, each French army included an aerial photographic section manned by specialist staff, pioneering camera development and the collation of intelligence information from aerial photographs.

Following the deployment of the Royal Flying Corps to France on August 13, 1914, the British quickly began learning from their ally. Nos 1 and 9 Squadrons experimented with hand-held press and private cameras to take photographs over the front line. These units included such pre-war pioneers of aerial photography as Frederick Laws, John Moore-Brabazon, Charles Campbell and John Brooke-Popham. Support for this work came from the top as the first commanders of the RFC, Lt Gen Sir David Henderson and Major Frederick Sykes, realised the importance of aircraft in gathering intelligence information for the army.

The first intensive use by the British of aerial photographs in military planning came at the Battle of Neuve Chapelle in March, 1915. Lt Charles Darley (No 3 Squadron) photographed the German lines. The resulting prints showed up new trench construction leading to modifications in the plan of attack.

Darley also pioneered the overlapping of photographic prints to form a mosaic of a sector of trench line, a technique that became standard practice. Following the French lead, Royal Engineers survey companies used a combination of aerial photographs and ground survey techniques to produce detailed trench maps.

Two men quickly won over by the usefulness of aerial photographs were Haig's senior intelligence officer, Brig Gen John Charteris, and Maj Gen Hugh Trenchard,



A bird's-eye view of the battlefield

ALAN WAKEFIELD ON HOW AERIAL PHOTOGRAPHY BECAME AN ESSENTIAL WEAPON IN THE INTELLIGENCE WAR

the man charged with leading the RFC from August 1915. Such high-level support ensured that from 1916 aerial photography was an integral part of the BEF's intelligence-gathering machine. At the Battle of the Somme, RFC squadrons took more than 19,000 aerial photographs of the German trenches, from which 430,000 prints were made. To cope with demand, the number of RFC photographic sections was greatly increased. Staff maintained camera equipment, loaded magazines with unexposed glass plates and, on return of an aircraft, fixed the negative and developed prints. In a speed test undertaken by No 10 Squadron in summer 1916, photographic prints could be delivered to HQ within 30 minutes of the development process having begun: commanders could have accurate photographic reconnaissance information to hand as a battle progressed.

To ensure maximum information was drawn from an image, specially trained photographic interpreters were employed. These men could spot signs giving away enemy positions, improvements to trenches or concentrations of troops and equipment for an offensive. As this work reached new levels of efficiency, camouflage was developed to mask battlefield activity from the "eye in the sky".

IN THE PICTURE

Clockwise from bottom left: a co-pilot using a pistol-grip camera; a Canadian officer studies a photo; a pilot is told which areas to photograph; an Airco DH.4 over Blanche-Saint-Vaast

Another way to prevent reconnaissance aircraft fulfilling their mission was to stop them from crossing the front line. Anti-aircraft guns proved a particular threat during photographic flights, which called for aircraft to remain over enemy territory for a prolonged period flying straight, level passes at a set altitude.

An even greater menace to the two-man reconnaissance aircraft were single-seat fighters. By 1915, an aerial arms race had begun as both sides developed faster and better-armed aircraft. Fighters had two tasks: to prevent enemy reconnaissance machines from crossing the lines and to defeat an enemy fighter force so their own two-seaters could penetrate over and behind the opposing front line.

Until mid-1917, the Germans stole a march in fighter technology, leaving the British and French to react by developing their own improved aircraft. Two periods of particularly high casualties among British aircrews were known as the "Fokker Scourge" (autumn 1915-summer 1916) and "Bloody April" (1917). Despite flying greatly inferior aircraft, the pilots and observers of reconnaissance squadrons continued their vital work. Trenchard realised Haig's army would be at a great disadvantage without intelligence information gathered from aerial reconnaissance. He drove his men on despite heavy losses while at the same time demanding the production of more effective aircraft.

By summer 1918, the Allies had in effect won the battle for air superiority, mass-producing large numbers of aircraft to more than ensure the replacement of combat losses at least in terms of machines if not experienced aircrew. The Germans, in contrast, were increasingly hard pushed to maintain an air arm as shortages of raw materials, fuel and industrial unrest in factories ensured that, even when new aircraft were designed, few reached frontline units.

The final year of the war witnessed a massive aerial effort on the part of British, French and US air arms. RAF squadrons alone took a total of 2.5 million aerial photographs during 1918. Throughout the war, both sides employed aerial photography in all theatres of war to assist military operations. The personnel of reconnaissance squadrons achieved impressive results in the face of difficult operating conditions and the technical limitations of cameras and aircraft. This work ensured that, by 1918, the aerial photograph and its detailed interpretation had become the defining source of military intelligence.

Alan Wakefield is head of photographs at IWM

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Hour of the Dreadnought: the titans clash at Jutland

NAVAL BATTLE SHOWED IMMENSE DESTRUCTIVE POWER OF THE NEW MILITARY TECHNOLOGY, SAYS **NICK HEWITT**

The First World War was a war of machines – of tanks, machine guns and quick-firing artillery – but the most extraordinary technological behemoths emerging from Europe's workshops fought at sea. Dreadnought battleships were the apogee of early 20th-century industrial capability. They were the most complicated, extravagantly expensive assets nations possessed and the benchmark for their prestige. Each ship was a bewildering agglomeration of mammoth rifled guns, pitching shells the weight of car engines across miles of ocean, and turbine engines driving 30,000-ton ships at speeds approaching 30mph, protected by steel armour belts up to 13in thick.

When Kaiser Wilhelm II ordered a massive expansion of his Imperial German Navy, the British responded by launching the battleship HMS Dreadnought. It was faster, with better armour and more big guns, than anything else afloat. Dreadnought reset the escalating arms race, a decision born out of confidence that Britain could outbuild Germany. The British also developed "battlecruisers", new ships with heavy guns but light armour and exceptional speed. When Britain declared war on August 4, 1914, the Grand Fleet had nearly twice as many heavy ships as Germany's High Seas Fleet.

For two years, the Kaiser hamstrung his commanders with orders not to endanger his expensive fleet and the British had no means of forcing the Germans to fight, although their trade blockade would eventually prove a devastating weapon. All the British commander-in-chief, Admiral Sir John Jellicoe, needed to ensure victory was patience, but it was a frustrating business.

In January 1916, Vice-Admiral Reinhard Scheer took over the German Fleet. Hoping to goad the British into a mistake, Scheer obtained the Kaiser's approval for his battlecruisers, commanded by Rear-Admiral Franz von Hipper, to bombard Sunderland.

Scheer expected Vice-Admiral Sir David Beatty to engage them with his battlecruiser fleet from Rosyth, to be joined later by Jellicoe from Scapa Flow. German submarines would ambush the British fleets, and Hipper would lure Beatty towards the High Seas Fleet. Destroying Beatty first would give the Germans the equality in numbers they needed to win. When the weather worsened, Scheer simplified his plan, ordering Hipper to threaten British convoys to Norway.

British codebreakers had already detected the German sortie and the Grand Fleet had sailed, but the intelligence was misreported. So though Jellicoe and Beatty were at sea, neither expected a battle when the two battlecruiser forces sighted each other at 2.28pm on May 31, 1916, beginning the Battle of Jutland, named after the nearest land mass. Hipper reversed course to lead Beatty towards the High Seas Fleet, and both sides opened fire. The British were silhouetted against the western horizon, smoke obscured the German ships, and British gunnery was dreadful, so the Germans inflicted early blows. A shell penetrated a gun turret aboard HMS Lion, Beatty's flagship, causing a fire in the magazine below which could have destroyed the ship, had the compartment not been flooded, drowning all inside.

Moments later, a shell sliced into HMS Indefatigable's forward turret. No one had closed the magazine doors and the ship blew up in a catastrophic explosion, killing all but two of 1,019 men aboard. Shortly afterwards, HMS Queen Mary exploded, taking with her nearly 1,300 men and prompting Beatty to growl "there seems to be something wrong with our bloody ships today".

As Beatty pursued Hipper south, the German battlecruisers came under heavy fire from Beatty's four 15in-gunned "superdreadnoughts", until at 4.33pm the British spotted Scheer's High Seas Fleet. Beatty turned away, hoping to lure the Germans back north to Jellicoe, who was steaming towards him, wishing "someone would tell me who is firing and what they are firing at". The confusion was deepened by Rear-Admiral Horace Hood, who led his three battlecruisers and their escorting ships towards the enemy. As Hood pushed forward, the light cruiser HMS Chester was repeatedly hit, and Jack Cornwall, 16, was horrifically wounded. He died after the battle, and became the youngest recipient of the Victoria Cross.

Finally, at 6.14pm, Jellicoe received a signal from Beatty and ordered his ships into a battle line as the mist cleared, exposing Hood's battlecruisers to overwhelming German fire. A shell hit one of HMS Invincible's turrets. Again, the flash raced into the magazines and she vanished in a huge explosion.

Despite this, after just a few minutes' combat, Scheer realised that he could not defeat the entire Grand Fleet, reversed his line and disappeared into the mist. Twenty minutes later, the Germans briefly reappeared. Realising his mistake and desperate to buy time for another turn, Scheer sent Hipper's badly damaged battlecruisers to attack the British. They were barely afloat, but the plan worked and the German fleet slipped into the gloom. The night saw a series of bloody skirmishes, but Scheer got home and on June 5, the Kaiser proclaimed that "the spell of Trafalgar has been broken". The Grand Fleet's return was more subdued and the London newspapers lamented a "great naval disaster". The British lost more ships and many more men – 6,094 compared with 2,551 Germans. But the Grand Fleet was ready for action again the next day. Many German ships were so badly damaged they were out of action until October and the Germans never mounted another serious challenge. Jutland was not Trafalgar, but as one American journalist remarked, "the German fleet has assaulted its jailor, but is still in jail".

Nick Hewitt is a naval historian at the National Museum of the Royal Navy in Portsmouth



“THE KAISER CLAIMED THE SPELL OF TRAFALGAR HAD BEEN BROKEN

YOUR LETTERS

POST BOX

We have received a magnificent postbag and inbox of letters, documents and stories in response to our request for readers' First World War memories. Here are just a few of the many we would like to share with you. Please keep them coming.

Write to: First World War, Telegraph Media Group, 111 Buckingham Palace Road, London SW1W 0DT or email firstworldwar@telegraph.co.uk

AN UNSUNG WAR POET

David Coleman from Raynes Park, south-west London, feels war poet H Rex Freston deserved a mention in last month's supplement about The Cultural Front. "Freston ranks among poets such as Owen, Brooke and Sassoon, but because he perished early in the war, before fulfilling his literary promise, he remains for the most part unsung.

"He interrupted his studies at Oxford University to enlist in The Royal Berkshire Regiment and died in France on January 24, 1916," says Mr Coleman, who discovered Freston's poetry while sorting through an old suitcase under the stairs. "It included two diaries from 1919 and 1922, handwritten by my late father-in-law – and poet – Russell Markland, who was compiling an anthology of Freston's works when he heard of his death.

"My father-in-law wrote that Freston was 'truly a poet, a patriot and a gentleman, from a family devoted to poetry. His writings and letters leave ample proof of his great love for Oxford University, where he gave up what promised to be a brilliant career to serve his country. At the beginning of December, 1915, he went to France, attached to the 6th Royal Berkshires, and though the whole war appeared very vividly in all its sadness to such a temperament, he wrote most courageously, glad his actions might be of use to the world and bravely declaring that beyond leaving parents and friends, it meant no sacrifice to him. While at the Front, his thoughts turned often towards Oxford.'" His unpublished verses *Two Nights* shine the spirit of prophecy when he writes:

I listened to the bugles, and I hearkened to the bells
In old Oxford city, a night long, long ago:
O, the bells were full of music like the sound of fountain wells,
But the others played a music I never thought to know.
There's a lilt of martial music and a cry of

fountain wells

In the barrack square to-night beneath the lonely tree:

And I laugh to hear the bugles, but I weep to hear the bells,
For I know the bells of Oxford will ring no more for me.

ORIGINAL OLD CONTEMPTIBLE

Major John Chilton (retired), from Cirencester, writes about his father, 2nd Air Mechanic John Chilton, Royal Flying Corps. "Dad was an Old Contemptible and proud of it. He had enlisted in the RFC in September 1913, a year after its formation. He was trained as an air mechanic and shortly before the outbreak of war, his squadron, No 5, joined the rear of the RFC in June 1914 at Netheravon. In August, the aircraft flew across the channel to land on French airfields. Dad... had assembled at Fort Grange, Gosport, and it was from there he wrote to his father, Alfred. [His letter] reveals the excitement and patriotism of the British Expeditionary Force, derided by the Kaiser as 'that contemptible little army'.

"Once landed, on August 4, the ground crews made haste to rejoin the pilots before beginning a peripatetic point-to-point, which was only to end in

September. Dad's active service ended too in the retreat from Mons as he drove a Crossley 'tender', only to be overtaken by mounted Prussians Uhlans [lancer regiments]. He was captured, literally, at the point of a lance and arrived weeks later as a prisoner of war in a camp near Königsberg, East Prussia. After four years and two months, he returned to his home in Watford, two weeks after the Armistice of November 1918. He was one of the few RFC men to have qualified for the rare and coveted Mons Star and was a founder member of the Old Contemptibles Association, August 5–November 22, 1914. I count myself fortunate to be able to say that 'my father joined 100 years ago this September!'"

THE FIRST SIGHT OF PHOSGENE

Sue Whitfield from Leeds found a poem entitled *Division Forty Nine* among a collection of letters from her three great uncles. "The poem is about the first German phosgene attack on December 19, 1915, and was written by Pte A C Calton, 2nd W R Field Regiment, who so far as I know had no connection to my family, but my great uncle George Braithwaite was in the West Yorkshire Regiment." The poem begins:

Twas the break of dawn in Flanders, and the morning promised bright,
The nineteenth of December and a lovely day to fight,
The Forty-ninth Division had got order to "stand to",
But little did they know just then what they were going to do.
At five o'clock exactly the sentry gave a start,
For just beyond he saw a sight which touched his softening heart;

Twas the greenish fume of phosgene gas and those awful deadly fumes
Were sweeping towards our lines to send men to their dooms.

MY GRANDDAD ON THE SOMME

Elizabeth Lloyd from Neath, West Glamorgan, shares diary extracts written by her grandfather Corporal (later Major) G W Steele of the 7th Battalion London Regiment, who fought in the Battle of the Somme and expresses his dismay at seeing tanks and poisonous gas for the first time.

"On June 25, 1916, my grandfather wrote: 'The trench mortars fired a number of smoke bombs which, on exploding, sent a cloud of black gas floating towards the German lines, then the gas was turned on from the cylinders in our front line. This was the first time I had seen poisonous gas and a more unique sight I have not seen since; it seemed like a large yellow fog, or cloud rather, rolling along the earth very slowly...'"

"It was at the Somme



that the British uncovered their 'secret weapon' – the tank – and he wrote the following in late August, after the Battle of the Somme," says Mrs Lloyd. "In a wood... was a squadron of the now famous tanks. When I was first told about them, I refused to believe the man who told me... I had not far to walk along the Albert-Bapaume road when I saw the strangest thing... a lozenge-shaped steel fortress with two guns projecting from turrets and with two endless bands passing over and under the walls.

"On looking through a small door I saw that the interior was similar to an engine room of a small boat. The engine in the centre with a steel rail around, at the head a steering wheel of a motor car with a seat similar to a bicycle seat and fitting into the walls were four Hotchkiss machine guns."

Despite being wounded on September 15, Col Steele escaped death on the Somme. "He reached the safety of the trenches," says Mrs Lloyd, "and a week later, hospital in London."



FACES OF WAR
Circa 1916... a woman working on gas masks, main picture; John Chilton, centre left; Corporal GW Steele, seen right, bottom left

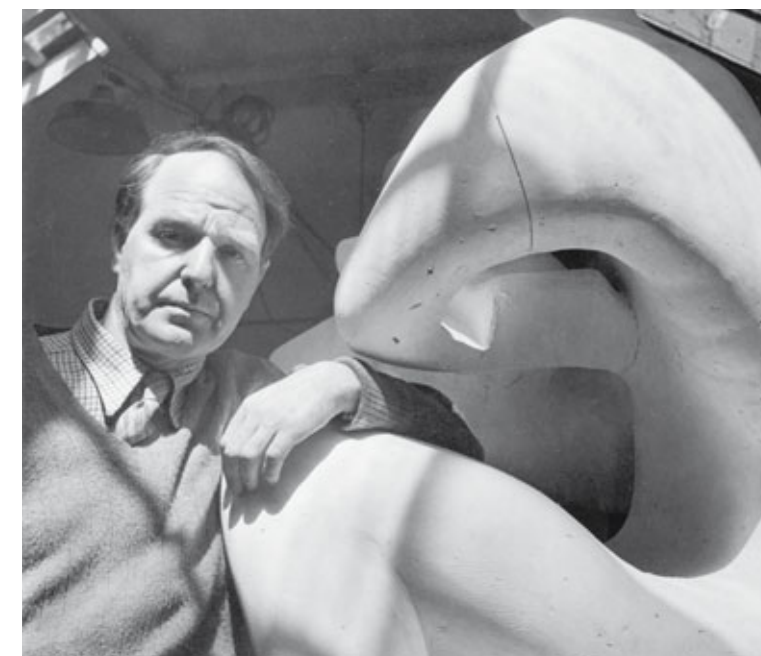
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WHAT DID YOU DO IN THE WAR?

How Henry Moore turned the horror of Cambrai into art



He suffered from gas poisoning while watching his 400-strong regiment reduced to 52 in a three-day burst of fighting in the Battle of Cambrai in 1917. Yet the English sculptor Henry Moore's reluctance to talk about his experiences on the Western Front has often been interpreted by commentators as a sign that the conflict left little mark on the Yorkshire coal miner's son.

The renowned art critic Herbert Read, who was greatly affected by his time on the Front, described Moore's war service as "a great adventure". Moore – who was one of eight siblings from an impoverished coal mining family in Castleford, West Yorkshire – also played down the hardships of his time in the Army, saying later that it was "just like a bigger family" and that "the war passed in a romantic haze of trying to be a hero". In 1968, he told the photographer John Hedgecoe: "I was not horrified by the war, I wanted to win a medal and be a hero."

But while he may have buried his emotions about the horrors he saw, Moore's work suggests his experience was anything but romantic. Three recurring motifs in his world-famous abstract bronze sculptures are of twisted or absent limbs, heads thrown back with their mouths wide open and heads split almost in half.

The art historian Richard Cork suggested that the 1952 sculpture *Warrior with Shield* was inspired not by a pebble Moore found on the beach, as the artist had claimed, but by the memory "of similar deformations Moore observed at Cambrai. He saw many of his fellow soldiers receive fatal wounds... and the patients he found could easily have included soldiers with bodily truncations as grievous as the amputated warrior Moore modelled 35 years later."

Combat made a physical mark, too. The gas attack left Moore's voice husky and, at times of strong emotion, it failed him altogether, according to his biographer, Roger Berthoud.

Moore's experience of combat was brief. After a short spell as a teacher, at the age of 18 he joined the Army and became the youngest member of his regiment, the Civil Service Rifles. Soon after came the Battle of Cambrai, but he made a speedy recovery and became a physical training instructor until the end of the war, returning to France just as the Armistice was signed.

From there, his artistic career began to blossom at the Leeds School of Art, where he met friend and fellow sculptor Barbara Hepworth. Together they studied at the Royal College of Art in London, where Moore turned away from traditional romantic-style sculpture in favour of the modernist approach that would become his trademark, inspired by the likes of Brancusi and later Picasso.

If, in common with many soldiers, he refused to talk about the reality of war at the time, for fear of worrying those back home, around 1919 he opened up to a friend in a letter. "The one great mistake in religion as I have known it," he wrote, "is the belief it creates in one that God is Almighty. He is strong & powerful & Good; but were he Almighty, the things I saw and experienced, the great bloodshed & the pain, the insufferable agony & depravity, the tears & the inhuman devilishness of the war, would, could never have been."

Zoe Dare Hall

MAY ISSUE

● **New politics:** Read about how the First World War cemented the roles of the 20th century's two superpowers, America and revolutionary Russia; the two very different women at the heart of the spy wars; and the "conchies" who were treated barbarically because of their objection to war.

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● *Inside the First World War* is a compelling 12-part series which will run monthly up to the centenary of the war's outbreak. To catch up with any of the seven parts published so far, visit telegraph.co.uk/insidethewar





**FROM
STREET
TO TRENCH:
A WORLD WAR
THAT SHAPED
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