

Red BaronTM

Part 1 Historical Overview

GAME CREDITS

Directed and Designed by	Damon Slye
Lead Programmer	Paul Bowman
Shell programmed by	David McClurg
Additional simulation programming and mission recorder by	Lincoln Hutton
Flight model programmed by	Damon Slye
Technical Assistance	Peter Lukaszuk
Historical Missions	Nels Bruckner
Art Director	Mark Peasley
3D Graphic Artist	Cyrus Kanga
Casting and costuming by	Sher Alltucker
Director of Image Production	Randy Dersham
Off-line maps by	Mark Peasley
16-color artwork by	Damon Mitchell
Audio Director	Alan McKean
Sound effects and music editing by	Chris Stevens
Musical score by	Cyanie Music
Historical research by	John Bruning
Research consultants	Arlon Harris
	Neal O'Connor
	Peter Grosz
Executive Producer	Jeff Tunnell

MANUAL CREDITS

Managing Editor and Designer	Jerry Luttrell
Historical Overview written by	Kevin Miller with John Bruning
Reference Sections written by	John Bruning with Tim Cushing
Medals and Awards section written by	Neal O'Connor
Control Section written by	Jerry Luttrell
Format designed by	Mark Peasley
Layout by	Jerry Luttrell Arran Riddle
Photo selections by	Sher Alltucker
Illustrations by	Jarrett Jester
Color Illustrations by	Raymond Rimell

SPECIAL THANKS

Arlon Harris for loaning us the bulk of his WWI aircraft library and photo collection
Old Rhinebeck Aerodrome for supplying photos
Ed Usinowicz, who flies an Albatros D.Va for Old Rhinebeck, for test flying his Albatros and giving us
real performance figures.
John Bruning, Sr. for loaning us his WWI aircraft library.
Patrick Henry, a modern day Fokker Triplane pilot, for talking with us about his aircraft and allowing
us to photograph it.
National Air and Space Museum, Smithsonian Institution

**IT IS ILLEGAL TO MAKE
UNAUTHORIZED COPIES OF
THIS SOFTWARE**

This software is protected under federal copyright law. It is illegal to make or distribute copies of this software except to make a backup copy for archival purposes only. Duplication of this software for any other reason including for sale, loan, rental or gift is a federal crime. Penalties include fines of as much as \$50,000 and jail terms of up to five years.



as a member of the Software Publishers Association (SPA),
supports the industry's effort to fight the illegal copying of personal
computer software.

Report copyright violations to:
SPA, 1101 Connecticut Avenue, NW, Suite 901
Washington, DC 20036

LIMITED WARRANTY NOTICE

The publisher of this software wants your continued business. If you fill out the enclosed product registration card and return it to us, you are covered by our warranty. If your software should fail within 90 days of purchase, return it to your dealer or directly to us, and we will replace it free. After 90 days, enclose \$5 for 5.25" disks (or \$10 for 3.5" disks) and return the software directly to us. Sorry, without the registration card you are not covered by the warranty. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

COPYRIGHT NOTICE

This manual, and the software described in this manual, are copyrighted. All rights are reserved. No part of this manual or the described software may be copied, reproduced, translated or reduced to any electronic medium or machine-readable form without the prior written consent of Dynamix, Inc. P.O. Box 11806, Eugene, OR 97440-9988.

TABLE OF CONTENTS

HISTORICAL OVERVIEW – PART 1

Chapter 1: PRELUDE TO THE FIRST WAR	1-1
Chapter 2: DEADLOCK BELOW, FREEDOM ABOVE	2-1
Chapter 3: THE FOKKER SCOURGE	3-1
Chapter 4: BLOODY APRIL	4-1
Chapter 5: THE RED KNIGHT OF GERMANY	5-1
Chapter 6: AN END TO THE GREAT WAR	6-1

HISTORICAL FLIGHT REFERENCE – PART 2

AIRCRAFT	A-1
FLIGHT	F-1
FLIGHT MANEUVERS	U-1
SCOUT TACTICS	S-1
AIRCRAFT SPECIFICATIONS	T-1
HISTORICAL MISSIONS	H-1
MEDALS AND AWARDS	M-1

GAME PLAY – PART 3 ***C-1***

APPENDIX – PART 3

DESIGNER NOTES	X-1
BIBLIOGRAPHY	X-4
GLOSSARY	X-7

The Beginning of the Great War



PRELUDE TO THE FIRST AIR WAR

"I hope none of you gentlemen is so foolish as to think that the aeroplane will be usefully employed for reconnaissance purposes in war."

— General Douglass Haig, Commander of the British Expeditionary Force in France.



The aces of World War I were heirs to a valiant tradition. Like the lance-wielding warriors who roamed Europe in medieval times, the aviators of the Great War often did battle alone, one man against another. Mounted on magnificent, temperamental steeds, they did the bidding of kings and emperors, fighting for their honor with a spirit that recalled the knights of old.

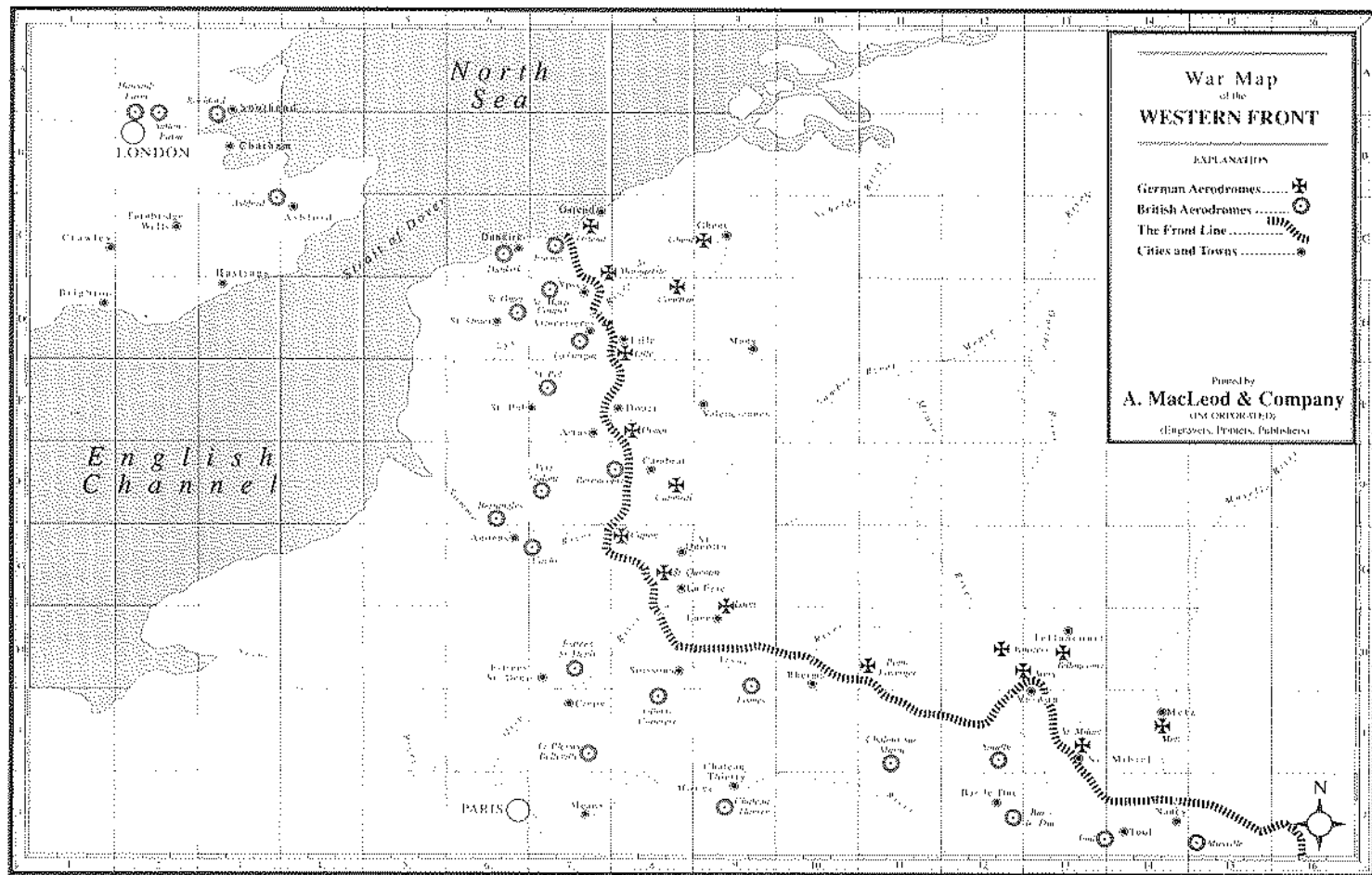
The Europe these young pilots knew in 1914 hadn't seen a major conflict since 1815, when the British and Prussians defeated French Emperor Napoleon at Waterloo. So many years without

a test of military prowess had made it easy for any nation to claim superiority. Patriotic fervor ran high, and centuries-old antagonisms between royal families began to flare.

As the people of Europe tragically discovered, the technological advances made possible by the Second Industrial Revolution had altered the nature of warfare. With the advent of the machine gun, long-range artillery and barbed wire, the cavalry charge had become as obsolete as the Greek phalanx, and the bayonet as useless as the Roman short sword. No longer would mass human-wave assaults decide the course of battles and campaigns. The weaponry had become so destructive that any offensive would produce catastrophic casualties.

In the years preceding the war, the major powers had embarked upon an arms race previously unseen in modern history. Because of this, the looming Great War would become an enormous war of attrition whose victors would be determined not by prowess in battle, but by the quantity of war material their nations could produce and ship to the front.

It took only a few bullets fired from an assassin's pistol to ignite the powder keg Europe had become.



■ Quiet Sarajevo, where the Archduke was assassinated on June 28, 1914.

The Miracle of the Marne

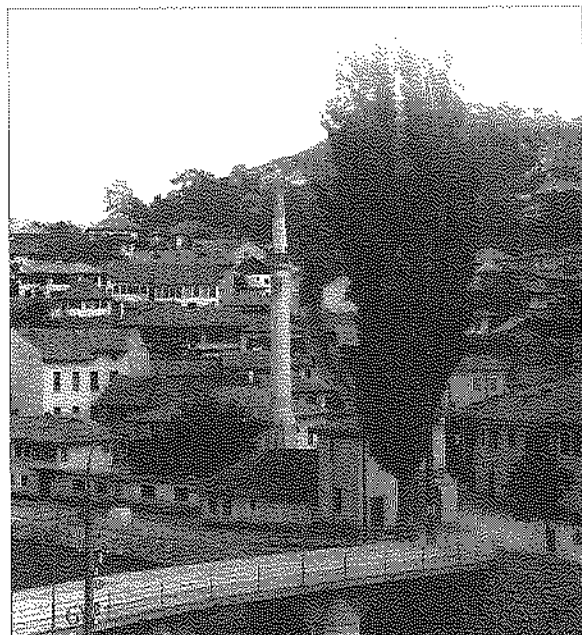
In September 1914, when the Allies had discovered that von Kluck's First Army had exposed its flank to an attack from Paris, every available man was mustered for a counterattack. Parts of the French Sixth Army were actually transported from Paris to the battlefields in Parisian taxi-cabs.

Germany's ally to the south, Austria-Hungary, and Serbia, a small Balkan state, had been on the verge of war for decades. On June 28, 1914, a Serbian nationalist assassinated Archduke Franz Ferdinand, the heir to the Austro-Hungarian throne. Seizing this incident, Austria accused Serbia of plotting the assassination. In late July, Austria issued an ultimatum that demanded unreasonably harsh concessions from the Serbs. Although they agreed to the majority of the Austrian demands, Austria chose to declare war and invade Serbia.

Russia, long the champion of the Balkan Slavic states, mobilized for war against Austria. Germany, Austria's ally, mobilized and declared war on Russia and France. When the Germans violated Belgian neutrality on August 4, 1914, Great Britain entered the war against Germany. World War I had begun.

With the lines clearly drawn, an entire generation of young men paraded off to war with martial songs and the cheers of thousands still ringing in their ears. There would be no such homecoming for many.

In the last few years of the nineteenth century, German Chief-of-Staff Count von Schleffen had devised a clever plan to wage war against France



©The Keystone View Company

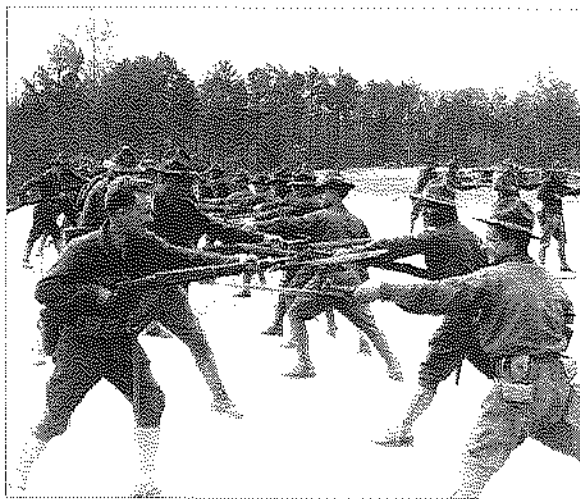
and Russia simultaneously. Realizing that his country could not win a long war on two fronts, Schleffen concluded that the best strategy was a quick, decisive attack against France. With a surprise invasion through Belgium, the German Army would outflank the French defenses in the east and sweep around Paris in an envelopment maneuver.

With France defeated, the Germans could turn upon an ill-prepared Russia and defeat it easily.

In 1914, Germany implemented von Schleiffen's plan and, to the shock of France and Britain, crushed Belgium with the weight of more than one million German troops. In just a few days, German soldiers were pouring into Northern France.

To the southeast, the French army, resplendent in their brilliant red-and-blue uniforms, spent itself in futile mass bayonet charges in the face of

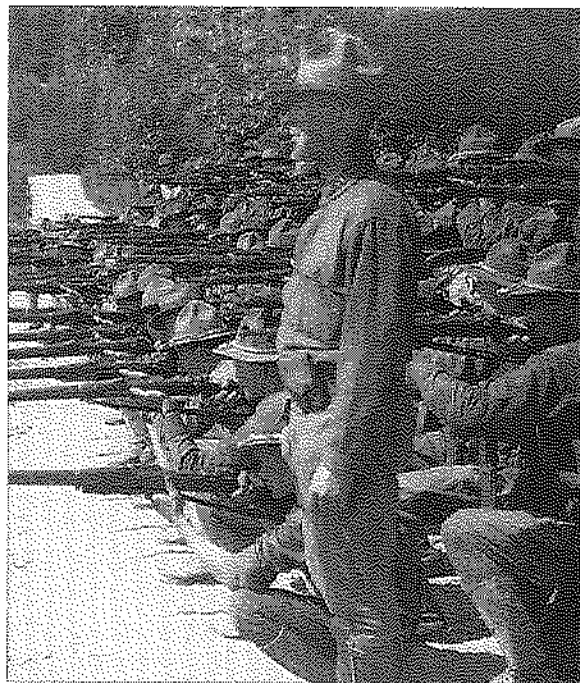
hundreds of machine guns. More than 300,000 Frenchmen fell in the first nine days of this counteroffensive, known as the Battle of the Frontiers. The British sent an army to the battle lines of Northern France. In late August, this army was virtually annihilated at the Battles of Mons and Le Cateau.



©The Keystone View Company

■ Above: Practicing the Napoleonic Bayonet charge.

Right: Americans in the 3 rank Napoleonic Formation.



©The Keystone View Company

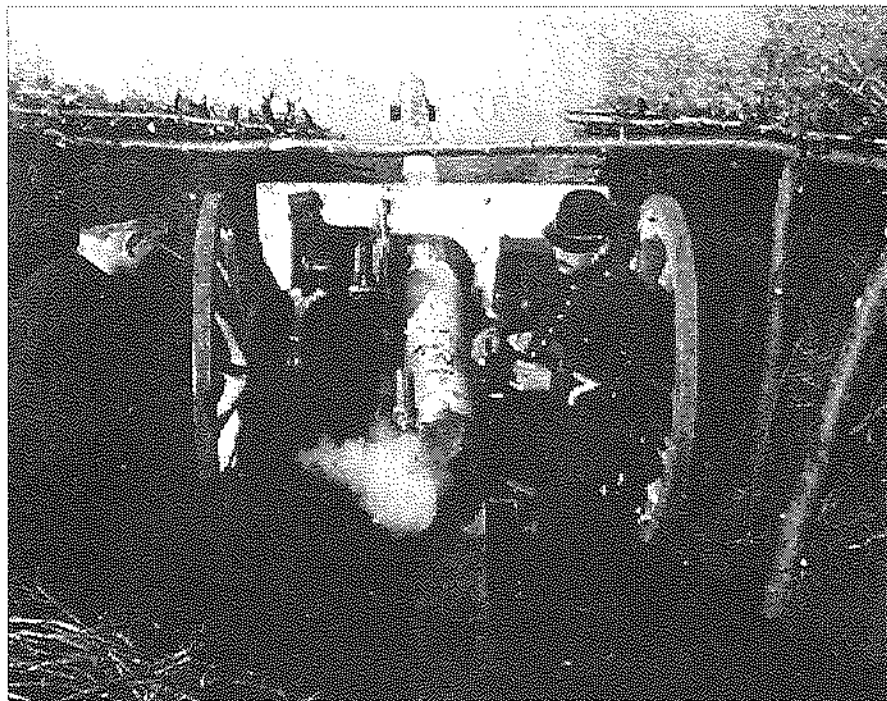
In the final days of August, the world remained breathless, horrified at the sight of the apparent collapse of the Anglo-French Alliance. Soon the advance German units reached the outskirts of Paris. A German victory seemed to be at hand.

■ The awesome French 75mm cannon—one of the best weapons of the war.

Then the Germans began to make mistakes. General von Kluck, who commanded one of the two western-most armies, cut inside his assigned path and went east of Paris instead of around its west side. As a consequence, he exposed his right flank to attack. Worse, he lost contact with the neighboring army on his left, and a gap opened between them. After an Allied observation plane discovered the gap, the French and British counterattacked into the hole and along von Kluck's flank. The German advance was stopped at the Marne

River and the invaders thrown back. The von Schleiffen plan failed, and with it Germany's best chance to dominate Europe.

Following the "Miracle of the Marne," both sides



©The Keystone View Company

vainly attempted to outflank each other to the west in what became known as the "Race to the Sea." The whole affair came to an end on the beaches along the North Sea. The Allies and the Germans dug in on a front that stretched from the coast of France

■ In Flanders Fields...blue-clad Frenchmen dug in awaiting a German assault.

and Belgium all the way to the Swiss border, some 600 miles.

In the course of the next three years, the front remained virtually static. Troops slogged through thigh-deep mud, and disease ravaged the men in the forward trenches. Generals ordered pointless charges across open ground into withering machine gun and artillery fire. The corpses in no man's land piled up, and the promise that "the boys will be home by Christmas" was forgotten. Places such as Verdun, the Somme and Ypres became monuments to carnage and futility.

Disillusioned with the horror of war on the ground, the airplane captured the imagination of the people. World War I was the first war where airplanes were used in large numbers. Slow, unwieldy and resembling something akin to an apple crate, the earliest flying machines served the armies of Europe as aerial scouts for the infantry. Unarmed, underpowered and undependable, the Taubes, Bleriot's and Farmans crisscrossed the sky, plotting enemy troop movements and concentrations. The

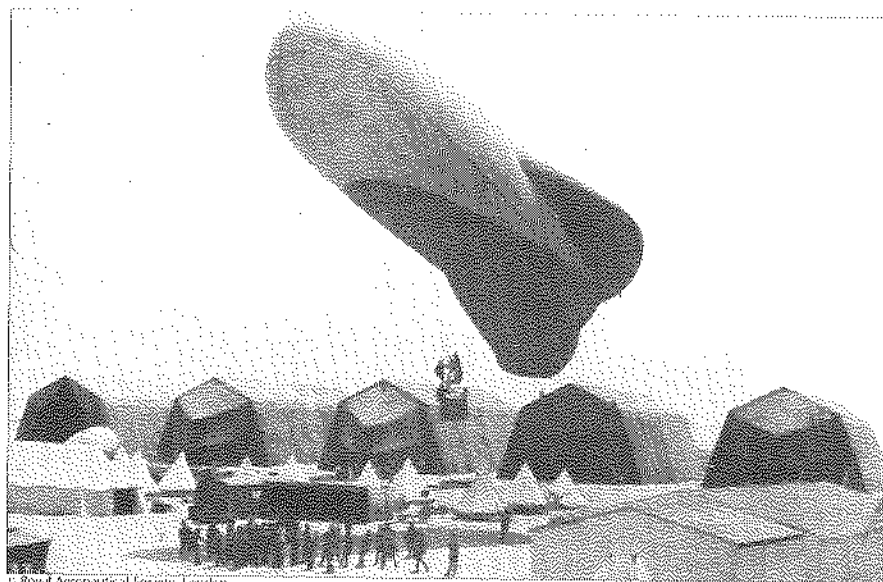


▲ The Eye in the Sky

aircraft replaced the cavalry as the eyes of the army from the outset. It was a duty these machines performed well. Yet, it would take time for the generals to comprehend the role and importance of the airplane. "The aircraft is all very well for sport," said Marshall Foch the Commander-in-Chief of all Allied forces, "...for the army it is useless." He would shortly have cause to change his mind.

BALLOONS AND ZEPPELINS

It was the moonlit nights that Londoners feared the most. With the moon full, they knew the Zeppelins would make their dreaded appearance and deliver their cargoes of destruction upon the city. These raids foreshadowed the Battle of Britain and the London Blitz, and gave birth to the notion of strategic bombing. Before the Zeppelins flew their deadly missions, civilians and cities were generally isolated from warfare. With the industrialization of war, however, the home front became as important as the battlefield. The Zeppelins were the instruments the Germans used to destroy, or at least disrupt, the British home front and its production of vital war material.



© Royal Aeronautical Society, London

since the gas was perilously flammable. The sight of a burning Zeppelin falling from a darkened sky was a spectacle that could be witnessed for miles.

Through the course of the war, Zeppelins raided Britain some 40 times, dropping nearly 200 tons of bombs. These were minuscule amounts compared to the city-busting raids undertaken by the British in World War II. Numbers alone however,

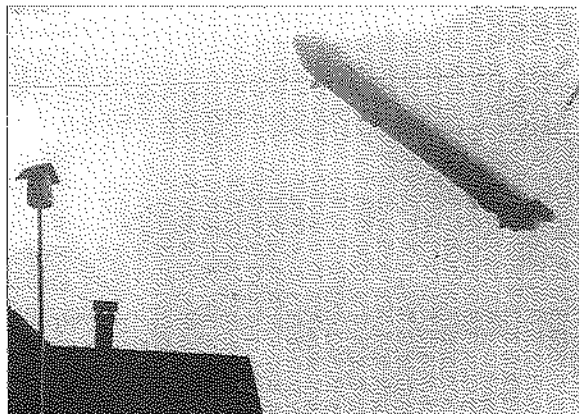
Zeppelins were huge, rigid airships sometimes longer than 400 feet. Filled with hydrogen, these enormous crafts eventually proved to be extremely vulnerable

■ Right: An observation balloon being lowered. The British called them "sausages" the Germans called them "drachen" (dragons).

cannot tell the story of the panic and fear this new weapon created in England. Most people in the early 1900s had never seen an airplane, and the sight of a monstrous, airborne, bombing platform lurking above them incited fear that later generations cannot even begin to imagine. After

The first Zeppelin to fall to an Allied pilot was LZ-37. A British naval pilot, Reggie Warneford, chased the German dirigible along the Belgian coast. Armed with only six 20-pound bombs, his only hope to bring the Zeppelin down was to climb above it. Unfortunately, the dirigible could climb faster and Reggie couldn't get in an attack position. Finally, the Zeppelin captain made a fatal mistake. Approaching his home shed near Ghent, he chose to dive and draw Warneford into the range of the base's antiaircraft defenses. Seizing the opportunity, the Englishman flew above and along the top of the airship and released his bombs. With the sixth hit the LZ-37 exploded into flames. Only one crewman survived when he fell through the roof of a convent and fortuitously landed in an empty bed. For his victory, Warneford earned the Victoria Cross, but did not have time to enjoy his success. A short time later he crashed into a cornfield and died en route to a hospital.

■ A dreaded Zeppelin as seen from the ground.



©The Keystone News Company

every raid, absenteeism in the war factories rose abruptly. Although this never did have a significant effect on the war, the British government was so alarmed by the raids that they held over 100 planes around London in Home Defense service. Those planes were sorely missed on the Western Front.

Gradually, the Zeppelin menace was countered and then defeated by increasing the defenses in the British Isles. Bad weather constantly hampered Zeppelin operations as well, and served to make the raids ineffective in many instances. By mid-

1917 it became nearly suicidal for Zeppelins to fly over England. Eventually, the giant Gotha aircraft replaced the Zeppelin as Germany's strategic bombers.

Tethered observation balloons, Gothas, weren't as glamorous as Zeppelins, but they proved to be of greater military value. Throughout the war they provided perfect viewpoints for artillery spotters.

Anchored two to five miles inside enemy lines, they floated as high as a mile above the battlefields.

Like the airships, the balloons were filled with hydrogen. Called "sausages" by the British and "drachen" or dragons by the Germans, they were easy targets if an attacking plane could get close. However, many pilots made a point of staying away from the balloons because they were heavily defended by antiaircraft fire. For this reason most air services ranked destroying a balloon equal to shooting down an enemy airplane. The observers who rode in the baskets beneath the balloons didn't get much glory, but their job was one of the most dangerous assignments of the war. It was no coincidence that they were the first military aviators to carry parachutes.



©The Keystone View Company

■ Launching an observation balloon.

Deadlock Below,
Freedom Above

DEADLOCK BELOW, FREEDOM ABOVE

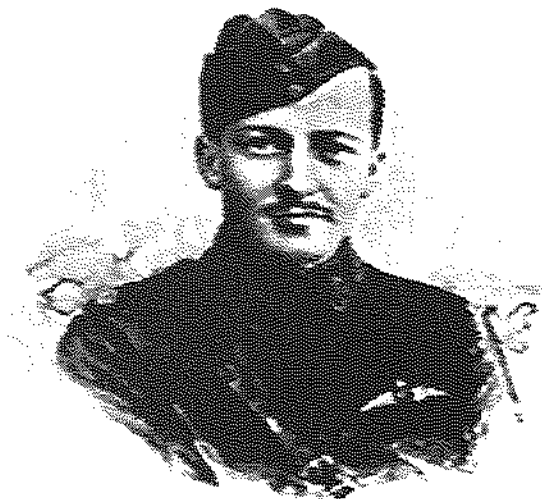
"I felt very sorry for him when he fell in flames, but war is war and they have been very troublesome as of late."

— Lt. Lanoe Hawker, on downing his first German

Frustrated by lack of progress in the trenches, strategists sought new weapons and tactics to break the stalemate. On April 22, 1915, the Germans first used poison gas in the Second Battle of Ypres, near the northern end of the front. They opened a four-mile gap in the lines and inflicted 70,000 Allied casualties. However, the Germans underestimated the power of their horrible new weapon and did not have adequate reserves to exploit the breakthrough. Once again the fighting had been fruitless.

The land war in the west remained stagnant for most of 1915, but the air war evolved into a duel of technology and tactics. In the trenches, commanders continued to send waves of men over the top to certain death. In the air, the Allies struggled to maintain their advantage. While the Germans sought their own way to fire through the

propeller, the Morane-Saulniers with Garros deflector plates easily outflow the first-generation Aviatik two-seaters and other clumsy German craft. The Allies regularly flew behind German lines in search of targets, with little more to fear than small arms fire and the occasional antiaircraft barrage.

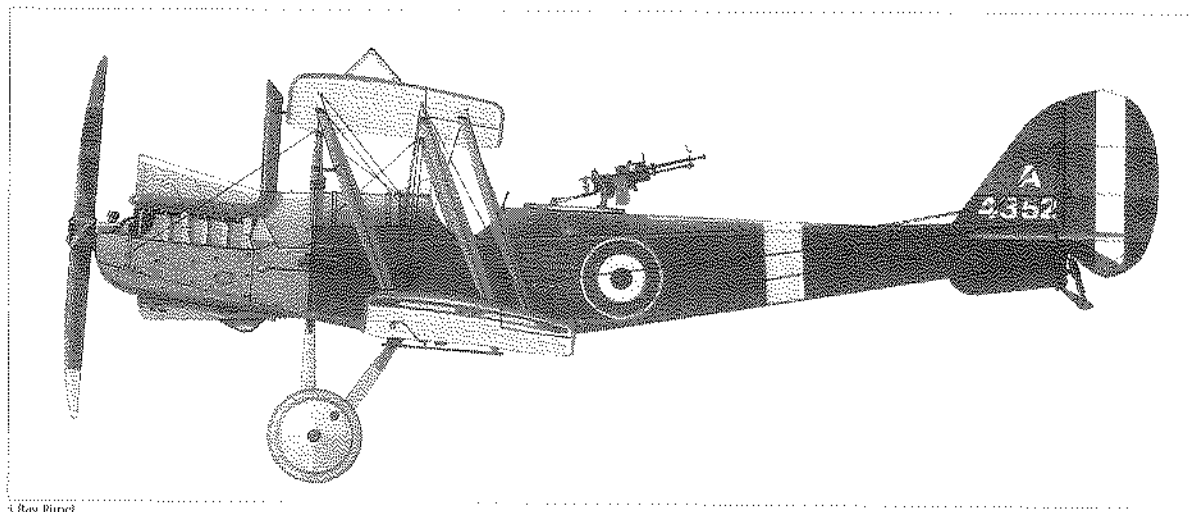


Courtesy National Air and Space Museum, Smithsonian Institution



©The Keystone View Company

■ Above: French soldiers, known as Poilus, crouch inside their trenches.
Right: Lt. W.B.R. Rhodes-Moorhouse



Ray Birtel

■ One of the lumbering R.E.8 observation aircraft used by the RFC

During the battle, the British sent a flight of four B.E.2 Quirks to bomb the strategic railyard at Courtrai, about 40 miles down the La Lys River from their base at Merville. Only one plane, piloted by Lt. W.B.R. Rhodes-Moorhouse, reached the target.

Rhodes-Moorhouse carried a single 100-pound bomb in the place where the observer usually sat. He dropped it on the railroad signal box, temporarily shutting down the railyard and slowing German troop

movement. With fuel to spare, he circled low over the area and observed the Germans massing for an assault at Ypres.

The German troops repeatedly fired their rifles at Rhodes-Moorhouse, and finally a bullet mangled his left hand. He turned for home as a machine-gunner in a church tower opened fire, hitting him in the thigh and stomach. Passing other friendly

airfields where he could have received medical attention, he struggled back to Merville, made his report and lapsed into unconsciousness. He died the next day, and became the first British airman to receive the Victoria Cross.

Another Victoria Cross recipient, the first one "for success in Air Combat," went to Lt. Lanoe Hawker. Eager to bring down a German, he hated flying the two-seaters to which he was first assigned. On several occasions he unnerved his machine



Capt. L. D. HAWKER, VC, DSO
Courtesy National Air and Space Museum,
Smithsonian Institution

■ Above: The English pilot,
Lanoe Hawker.
Right: A German soldier,
killed at his post.

gunner by firing a rifle over his head at the enemy. In June 1915, Hawker was given a Bristol Scout. A prewar racing machine, the single-seat biplane could reach 100 mph in level flight and could dive at 120 mph without losing a wing. At this point, the British didn't have deflector gears, so Hawker came up with something that would at least be better than his rifle. He and his mechanics mounted a Lewis machine gun to the left of his engine, pointed down just enough for the bullets to clear the propeller. This meant he could attack only from above and to the right of the enemy. On July 25, Hawker prowled near Ypres at about 10,000 feet. At dusk he attacked one German two-seater, fired and watched it disappear in a diving roll. No one learned its fate for sure, but it is believed to have escaped by flying just above the ground to safety. Twenty minutes later Hawker shot at another



National Archives 21115C-34408R

machine. As darkness fell, Hawker swept down from out of the setting sun and raked a German aircraft with a long burst. It spun into the ground.

Allied air superiority lasted from March to August of 1915. By the late summer, the Germans started deploying the first Fokker Eindeckers, a mediocre airplane with a deadly secret weapon. The "Fokker Scourge" had begun.

MEET ARCHIE

"You can laugh at Archie, he's a joke compared to machine guns. You dodge him carefully and roll in derision as you cross the lines and hasten home for tea."

— Anonymous British flier

In a popular British music-hall show of the time, the leading lady fended off a suitor's advances by telling him, "Archibald, certainly not!" British humor being what it is, early pilots used the same phrase to give themselves courage as they sailed through the black-and-white puffs of anti-aircraft fire. The anti-aircraft weapons became known simply as "Archie."

Like the bombing and strafing pilots inflicted on the ground-bound enemy, Archie was never a decisive factor in World War I. One German report estimated that less than half of the gunners'

shells exploded and only one in twenty reached the target.

The first anti-aircraft shells were artillery rounds with fuses set to explode after traveling a certain distance. The gunners estimated the altitude of an approaching airplane, set their shells for that altitude and then fired a string of shots in front of the plane. The anti-aircraft batteries defending observation balloons

were very effective because the gunners knew the altitude of their balloons, knew that the enemy pilot had to fly close to a balloon to shoot it down, so they set their shells for that altitude.

Soldiers on the ground complained that anti-aircraft shrapnel falling back to earth was more dangerous to them than to enemy fliers. Early on, small arms and machine-gun fire from the ground brought down more aircraft than



©The Keystone View Company

■ An early anti aircraft gun—simply a machine gun mounted on a platform.

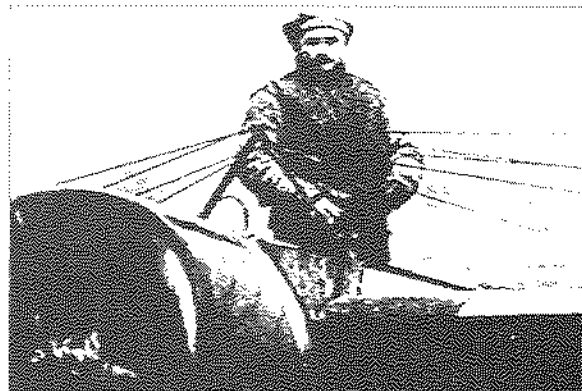
■ Garros posed in the cockpit of his Morane Bullet. He was killed late in the war after returning from a German prison camp.

the Archie batteries did. Many pilots trying to land airplanes that had been crippled in a dogfight were killed by pot-shooting soldiers as they glided over their positions.

British flier Arthur Gould Lee got both views of Archie one day in November of 1917, above the Battle of Cambrai. Lee had just destroyed an Albatros D V when, "Crump, crump, crump—a clang in the cowl—a thud somewhere up front. My engine stopped dead." Hit by German Archie, he glided to a crash-landing near a British antiaircraft battery. From there he watched as Archie from

THE FIRST FIGHTER PILOT

One of France's most famous prewar pilots, Roland Garros became the world's first true fighter pilot. An inventive character, he and his mechanic mounted a Hotchkiss machine gun on the cowl of his Morane-Saulnier that fired forward through the propeller arc. To keep the blades from getting shot off once the gun was fired, Garros screwed two steel wedges onto the rear of the prop. These deflected the few bullets that wouldn't clear the spinning blades and possibly shatter them. Thus armed, the aircraft became a deadly



Courtesy National Air and Space Museum, Smithsonian Institution

weapon. Garros only had to point the aircraft at his target and pull the trigger.

Garros tested his new weapon for the first time in the spring of 1915. Within 18 days, five German two-seaters fell

before his gun. "It was tragic, frightful," Garros wrote about his first kill. German pilots started to avoid French monoplanes. Their commanders accused them of having the "hallucinations of old women."

Luck ran out for Garros, however, on April 9, 1915. He had just completed a bombing run when his engine either malfunctioned or was damaged by ground fire. In any case, he crashed behind German lines and was captured before he could set fire to the Morane.

Garros made an epic escape from a prisoner-of-war camp later in the war and returned to the French Air Service. The

man who helped lay the foundation for air combat was overwhelmed by what it had

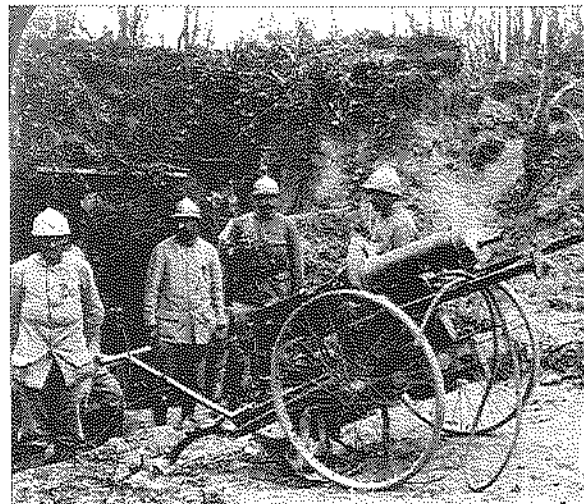
become by 1917-18. He was shot down and killed after only a few more missions.



Courtesy National Air and Space Museum, Smithsonian Institution

■ Above right: An early French flame thrower—another example of the technological advances made during the war.

both sides contributed to the dogfight: "I saw something I'd never seen before.... A machine was hit by a shell and blown to fragments. Bits of it fell quickly, like the engine and pilot's body, but most of it seemed to float down lazily like leaves from trees in autumn."



©The Keystone View Company

During major offensives, both sides bombarded each other with thousands of artillery pieces. At the height of these bombardments, pilots could actually see the shells arching over the battlefields. To be an artillery spotter above such a concentration proved to be incredibly dangerous. Often, the hapless B.E.2s and Aviatiks were literally torn apart when they flew into a falling artillery shell. It was a peculiar danger unknown to aviators from other wars.

THE ACE



Courtesy National Air and Space Museum, Smithsonian Institution

Above: Oswald Boelcke, the son of a teacher, became the premier tactician and instructor in the German Air Service. Above right: René Fonck, the best marksman of the war.

Only about five percent of all World War I fighter pilots became aces, and they accounted for about 40 percent of the kills. The remaining 60 percent were spread out among the rest of the pilots. To be an ace in World War I truly set a man apart. More than 1500 pilots shot down five or more enemy airplanes or balloons during World War I, but not all were aces in the eyes of their countrymen.

The Germans required ten kills to earn the term. The British, at first, refused to use the term aces at all but eventually gave in and used the French figure of five kills. The French press first applied the term aces to describe brilliant scout pilots. Soon it was accorded to only those pilots with five kills or more. French aces sometimes received gold watches and cash awards; they drew worshipful acclaim in a nation desperate for heroes. The Germans and, eventually,



Courtesy Imperial War Museum, London

the British, followed suit. In a war with few victories for either side to celebrate, the aces attracted attention far out of proportion to their military significance. Soldiers in the trenches read of ace pilot exploits as if they were fictional superheroes. People on the home front sought their autographs. They were not just soldiers, but chivalrous adventurers who fought a clean war above the muck of the trenches.

AIRCRAFT MARKINGS OF THE ACES

During the Great War, many of the aces personalized their aircraft. German regulations were very lax when it came to individual color schemes and markings. As a result, the Allies encountered some very exotic looking airplanes.

The British did not allow such individualism, so their aces could usually only be identified by a few letters or numbers on their fuselage sides. There were exceptions of course, such as Raymond Collishaw's Black Flight. The French were a little less rigid than the British

in this regard, but some of their most famous aces were allowed enough latitude to paint their own planes. Charles Nungesser, for example, painted a black heart with a skull and crossbones, two candles and a white coffin drawn inside the heart on his fuselage.

The aces personalized their aircraft for different reasons. Manfred von Richthofen painted his Albatros and his Fokker Dr.I scarlet red so that he could be identified by his comrades, as well as his foes. Ernst Udet painted "LO!" on the side of his Fokker in memory of his love back home. Some were just plain extrav-

agant. Werner Voss painted a blood-red heart on the side of his lavishly colored Albatros DIII. Hermann Goering went from flying an all black Albatros to an all white Fokker DVII.

As you gain experience with Red Baron, you will learn to recognize the majority of the famous aces' aircraft. If you're patrolling around Lille in early 1916 and you stumble upon a green Fokker Eindecker, you will know that Max Immelmann is behind the stick. If you run into a blue nosed Nieuport 17, you'll discover that Billy Bishop is your adversary. So when you see a uniquely marked enemy aircraft, beware!

■ Charles Nungesser chatting beside his Nieuport. Note the macabre insignia.



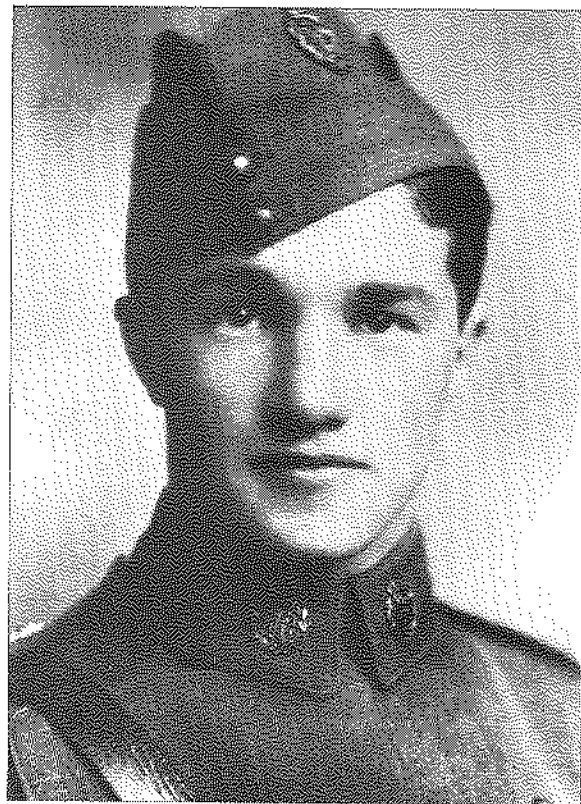
Courtesy National Air and Space Museum, Smithsonian Institution

ALBERT BALL

"It must be fine to have the sort of guts Ball had, to be completely without fear, to attack regardless of the odds, not giving a damn whether you're killed or not."

— British pilot Arthur Gould Lee

Albert Ball was one of a new breed of aerial warriors who was drawn to the fight by news of the first aces. He was the first British ace to be elevated to widespread hero status by his "glorious" exploits. Ironically, the man who received such publicity was a recluse. While on the ground, he kept to himself in his ramshackle hut, playing his violin and breeding rabbits. In the air, he tolerated formation flying, but preferred to hunt alone.

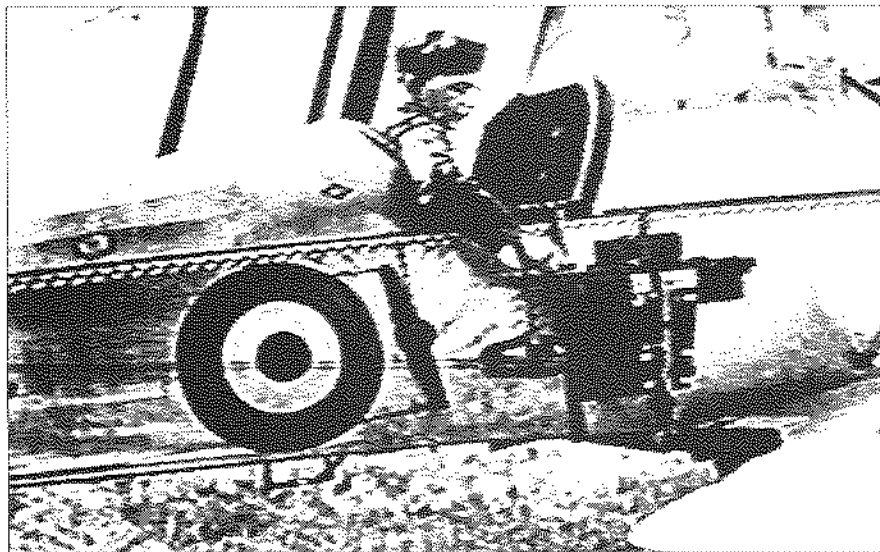


Imperial War Museum, London

"His favorite after-dinner amusement," wrote fellow aviator Cecil Lewis, "was to light a red magnesium flare outside his tent and walk around it in his pajamas, fiddling."

Once in the air, however, his eccentricities vanished. Ball exhibited absolute fearlessness in combat flying and set the standard for aggressiveness. Often, he would throw himself headlong into formations of German planes even though they outnumbered him five to one. During one such fight, his engine sputtered to a halt after a bullet damaged it. Ball dove out of the fight, but unholstered his pistol and shot at the Germans still on his tail.

■ Albert Ball, Britain's first fighter-pilot hero.



Courtesy National Air and Space Museum, Smithsonian Institution

■ In early B.E.2s, the pilot flew and operated the camera as seen here.

Such aggressiveness was intimidating and two enemy pilots abandoned the fight and fled at the sight of Ball waving his revolver. Disgusted with such unworthy behavior by his adversaries, Ball resorted to pencil and paper. He dropped a note challenging the two pilots who had retreated to meet him in the same airspace the next day. They were there when he flew back, but as he engaged

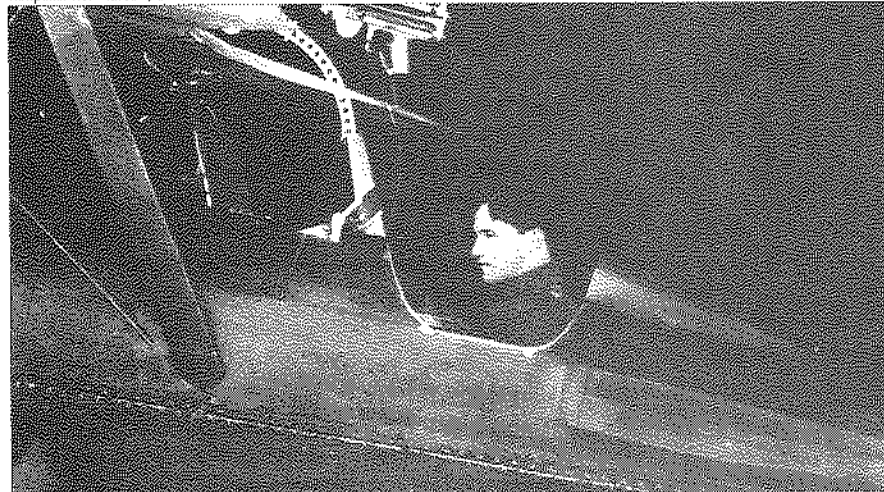
them, three more enemy planes dove from above, and Ball realized that he had been trapped. Violently yanking his aircraft across the sky, he could not evade the five Germans, each eager to make a name for himself by downing the hated Briton. Then Ball thought of a ploy that would not only save his skin, but would further humiliate the Germans. He entered a steep dive, made a rough landing and sat still. Certain that such a famous killer would only give up the fight if mortally wounded, the Germans assumed victory. Two pilots headed for home to spread the news, while three landed to inspect the body. However, as the three approached, he fired up his engine, took off and flew away.

While he was totally reckless in combat, he did have a favorite method of attack. When he could, he would dive underneath his victims and pull-up just behind and beneath them. Then he would manually aim his wing-mounted Lewis gun and spray the belly of his quarry. It was quite effective.

After originally serving with his hometown unit, the Sherwood Foresters, Ball paid for private flying lessons and transferred to the Royal Flying Corps (RFC) in 1915. He was sent to France as a B.E.2 pilot whose primary duty was artillery spotting.

■ Ball in the cockpit of his S.E.5a. He later modified it by mounting a machine gun through the floor of the cockpit.

©Imperial War Museum, London



Nicknamed the "Quirk," the B.E.2 was hopelessly vulnerable and Ball hated it, complaining to his father that the aircraft was "bloody awful." It wasn't until May 1916, that he was transferred to No. 11 Squadron and given a fragile but highly maneuverable Nieuport 17. It was the beginning of one of the most amazing one-year combat careers of the war.

Ball eventually was credited with 44 victories in all, 30 of which came during the incredible summer of 1916. Usually prowling the skies alone, he

preyed upon the Germans with a viciousness that became legendary at aerodromes on both sides of the line.

"I always let them have it all I can," he wrote to his father, "but really I don't think them devils. I only scrap because it is my duty."

Ball was returned to England in October 1916, when his superiors realized that his exploits would eventually get him killed. He trained pilots and fell in love with a 17-year-old girl, getting himself dubbed "The Flying Romeo." Sent back to the front in 1917, he promised to win her the Victoria Cross.

On May 7, 1917, Ball disappeared into a cloud at 8000 feet during a dogfight over the German-held village of Annoeullin. Many historians believe that he was shot down by a machine-gunner hiding in a church tower. Legend has it that he breathed his last breath in the arms of a French farm girl who rushed to the wreckage of his plane. One of the most feared and famous air aces of all time was dead at the age of 21. Having earned three Distinguished Service Orders while he was alive, as well as a chest full of medals from other nations, Captain Albert Ball was posthumously given Britain's highest military honor, the Victoria Cross.

THE PARACHUTE

The parachute was a prewar invention that only saw widespread use in the German Air Service after 1917. Aside from their balloon observers, the Allies never issued these lifesaving

devices to their aviators. The Allied generals reasoned that if the pilots were equipped with parachutes, they would be prone to abandon "government property." Seeing an enemy approaching, the generals argued, the pilot might just jump out and float to safety. Such logic was eventually put to shame, but too late for thousands of Allied pilots. The sight of a pilot jumping from a flaming airplane, then falling beside it to his death, was all too common. As E.R. Calthrop, a British inventor and advocate of a military parachute, put it: "No one in high quarters had any time to devote to investigating the

merits of an appliance whose purpose was so ridiculously irrelevant to war as the saving of life in the air."

BEGINNINGS

"The course of the flight up and down was exceedingly erratic, partly due to the irregularity of the air, and partly due to lack of experience in handling this machine."
—Orville Wright, describing man's first powered flight

A new era began on December 17, 1903, when the Wright Brothers took to the skies for the first time. It was not, however, immediately apparent to the people watching the "Wright Flyer" soar across the sands at Kitty Hawk. While practical civilian use of the airplane was a ways off, the military applications were investigated before

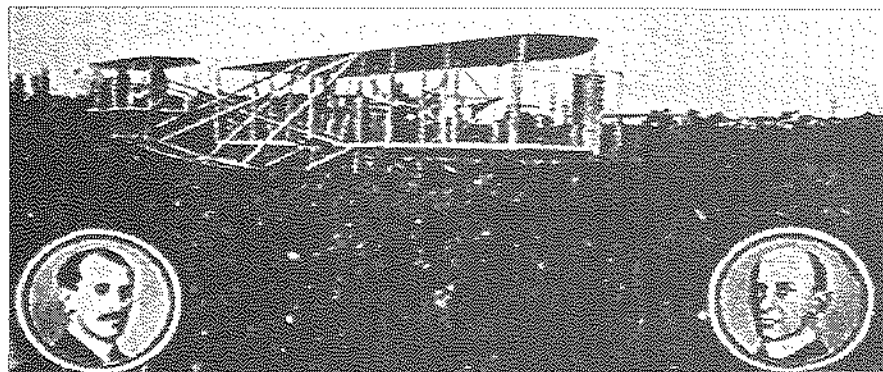
the end of the first decade of the new century. In 1908, the United States army mounted a machine gun on a Wright Flyer and tested it against a ground target. The results were encouraging, but not spectacular enough to overcome the scepticism of high-ranking officers.

In 1909, Louis Blériot, an enterprising Frenchman, crossed the English channel and crash-landed in sight of the Dover cliffs. One observer, who recognized the military consequences stated, "The day Blériot flew the English Channel marked the end of our insular safety, and the beginning of a time when



Courtesy National Air and Space Museum, Smithsonian Institution

■ An observer bails out of his balloon.



Courtesy National Air and Space Museum,
Smithsonian Institution

■ The Wright Flyer,
harbinger of a revolution.

Britain must seek another
defense besides ships."

The combat potential of the airplane was explored in two brush-fire wars, involving the Ottoman Empire. The Italians used aircraft to spot artillery in a war against the Turks in Libya in 1912. Later, in one of the many Balkan conflicts, the Bulgarians dropped primitive, hand-

held bombs on Ottoman troops with marginal success.

In the first weeks of the Great War, the airplane was used primarily in liaison and reconnaissance roles. The Allies' unarmed observation pilots rarely saw enemy aircraft, and when they did they could do little more than wave. But it wasn't long before it

dawned on the Germans that the information carried home by enemy fliers was helping kill their countrymen on the ground. The flyers started attacking each other with bricks, steel darts, rifles and pistols—even grappling hooks, light anchors and hand grenades were tried on occasion.

On October 5, 1914, a Frenchman, Sgt. Joseph Franz, went up in a Voison pusher with his mechanic, Cpl. Louis Quenault, manning a free-aiming Hotchkiss machine gun. They completed a routine bombing raid, and, while returning to base, spotted a German Aviatik two-seater. As Franz bore down on the Germans, the

enemy observer shouldered a carbine and began firing. Franz described the mismatch: "The Hotchkiss, well steadied by the tripod, was easy to maneuver, but was subject to stoppages when fired fully automatic. We had therefore decided to shoot one round at a time. Quenault fired, one by one, 47 rounds—at the forty-eighth, the gun jammed. Quenault, whose composure was astounding, commenced to strip the receiver to clear the jam when the German machine lurched before our eyes, began to dive, then turned on its back and smashed into the ground in a cloud of black smoke." Thus fell the first airplane to be downed by an air-to-air machine gun.

The Fokker Scourge

THE FOKKER SCOURGE

"One must not wait until they come across, but seek them out and hunt them down."

— Oswald Boelcke



In the morning of August 1, 1915, a squadron of nine British Quirks appeared over a German aerodrome near the city of Douai. The English planes surprised the German pilots, most of whom were sound asleep in their barracks a few hundred yards from the landing field. Max Immelmann, one of the German units' best pilots, sprinted from his quarters and headed for the base. Immelmann and Oswald Boelcke had been assigned to fly the units two Fokker Eindeckers, a new monoplane that had just arrived at the front.

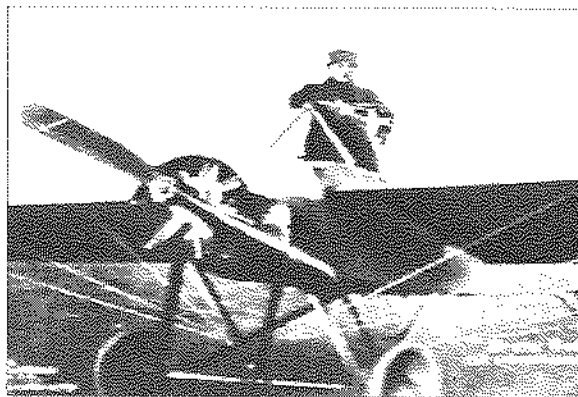
Fairly maneuverable but underpowered, the Eindecker was a copy of the French Morane-Saulnier Bullet. Like the Morane, the Fokker carried a single machine gun mounted on the cowling. After examining Roland Garros'

aircraft, Anthony Fokker developed a synchronizing gear that allowed the gun to fire only when the blades weren't in its line of fire. The synchronizing gear proved to be far superior to the deflection wedges Garros had invented.

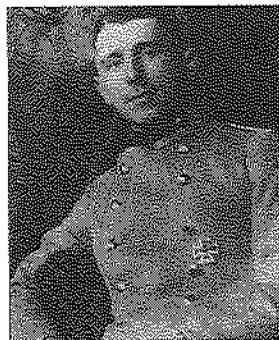
As the Quirks circled the aerodrome and methodically dropped their bombs, Boelcke jumped into his Eindecker clothed only in his flying boots and pajamas. Immelmann raced to the second Fokker and took off a few minutes later. Within a few moments, Immelmann had caught up with Boelcke, who had found two of the British planes. Both Germans began firing runs, but

Boelcke's gun jammed, forcing him to retire. Alone, Immelmann pressed his attack. At about 3000 feet, he caught his quarry with a hail of lead spewed from the Fokker's Spandau machine gun. The Quirk staggered under the impact of the bullets, and began a long shallow glide. After firing approximately 400 rounds,

■ An early version of the Fokker Eindecker.



Courtesy National Air and Space Museum, Smithsonian Institution



©Imperial War Museum, London

■ Above: The boyish Eagle of Lille, Max Immelmann. Right: The Spandau-armed Fokker Eindecker, which wrought havoc on Allied planes during 1915-16.

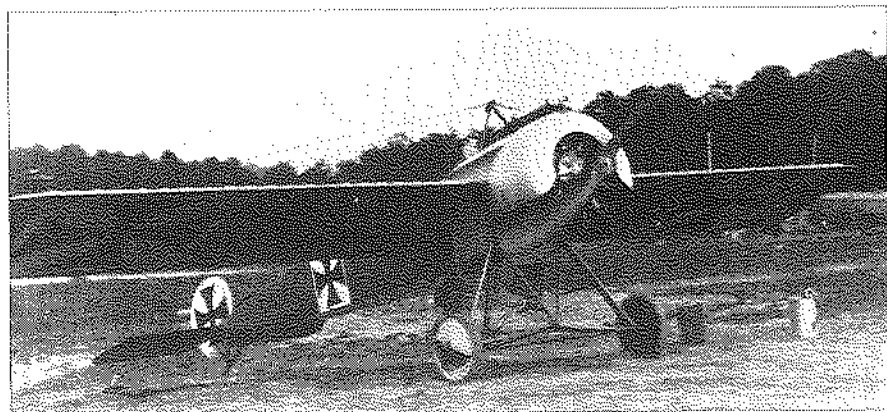
Immelmann's gun jammed. He followed the British plane anyway, until it crashed on the German side of the front.

"When I saw him land," Immelmann wrote to his parents, "I went down beside him, climbed out, and went up to him. I shook hands and said 'Bonjour, monsieur,' but he answered in English. 'Ah,' I said, 'you are an Englishman?' 'Yes, my arm is broken,' the Englishman said. 'You shot very well.'"

Boelcke, Immelmann and their colleagues soon became masters of the sky. The Allied planes they flew against were hopelessly outclassed by the Eindecker, which the Germans kept improving. Later versions had two or even three Spandaus, along with more powerful engines.

Throughout the fall and winter of 1915-16, German forward observers only needed to telephone a nearby aerodrome and a flight of Fokkers would drive Allied

observation planes away from their positions. Allied morale plummeted as the Fokkers took a terrible toll on the poorly armed observation planes. British



©Imperial War Museum, London

pilots grimly started referring to themselves as "Fokker Fodder." From August 1915 until the spring of 1916 the stubby monoplanes reigned supreme over the Western Front, giving Germany undisputed air superiority for the first time.

Many aviation historians blame the Fokker Scourge on Allied hysteria. It's clear that, while the Eindecker was an impressive weapon, it was not invulnerable. Several Allied planes had forward-firing guns mounted



©The Keystone View Company

■ Above: A French aviator explains the mechanisms of the Nieuport airplane. Right: French troops awaiting transport to the front.

on the upper wing, or on the nose of rear-engine pushers. Despite their qualitative advantage, the Germans still found themselves out-produced by French and British aircraft industries.

One British pilot wrote, "To bring down an enemy machine at any time required luck, persistence, a fast airplane, and a well-aimed machine gun; but to bring down a Fokker or even to defend oneself successfully from it required something much more. It required from the scientist a better war machine." It was only a matter of time before they got them.

Allied pilots begged for a synchronizer, but it took until mid 1916 before they would receive them in quantity. In the meantime, the pushers were forced to hold the line against the Fokker onslaught. It took a full-scale reorganization of the RFC to curb this menace. In February 1916, the first specialized fighter unit, No. 24 Squadron, flew to France under the command of Lanoe Hawker. Before his squadron arrived at the front, fighters had been spread around in small numbers to the observation outfits. Equipped with D.H. 2s, Hawker

and his men helped reestablish air supremacy over British lines.

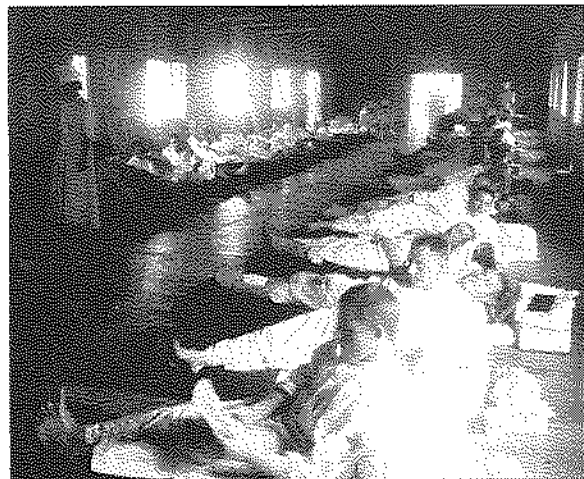
Meanwhile, the war on the ground heated up again after a short lull. The Germans decided to launch a limited offensive before the fortress city of Verdun in 1915. Their current Chief-of-Staff, Erich von Falkenhayn, wanted to bleed the French white with a massive battle of attrition. The French had to hold Verdun because it served as a fortified hinge on the Allied line. If Verdun fell, the Allied line would be severed—leading to disastrous consequences.



©The Keystone View Company

Yet the Germans did not really intend to actually take Verdun. They wanted to draw the bulk of the

French army into the battle and slowly grind it to pieces. They were nearly successful. Two-thirds of the French army eventually passed through the horror of Verdun.



© The Keystone View Company

■ Above: A rather placid hospital scene. Most were horribly overcrowded, understaffed, and underequipped. Above right: Corpses litter the landscape. A typical scene after any offensive.

On February 21, 1916, the German assault began on a very narrow front on the east side of the Meuse river. The French defenses were ill-prepared to counter the attack. In the ensuing days, the French narrowly averted a catastrophic route. Casualties on both sides defied comprehension. By the end of the year, the French suffered more than 542,000 soldiers killed, wounded

and missing. The Germans lost nearly 440,000 men. It is one of the bloodiest battles in history.

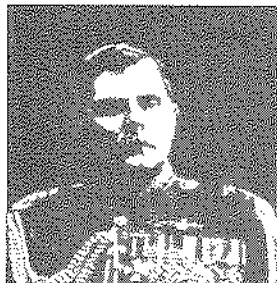
After initially losing ground, the French eventually managed to fight the Germans to a standstill. The Allies counterattacked and recaptured all the territory lost to the German assaults by the end of the year.



National Archives #111 SC 13944R

Verdun permanently scarred the French army. Morale steadily fell through 1916 and early 1917. The effects of the battle were a major contributing factor to the mutinies in the spring of 1917. Worse, Verdun altered the French military outlook for generations to come. Before 1916, the French stressed the offensive at any cost. After 1916, they became ardent believers in defense. This attitude can be traced all the way through World War II, their Vietnam War, and the conflict in Algeria.

Airpower came of age at Verdun. Both sides massed air services in the area in an effort to win air supremacy. Both sides struggled to prevent the other from observing their troops movements.



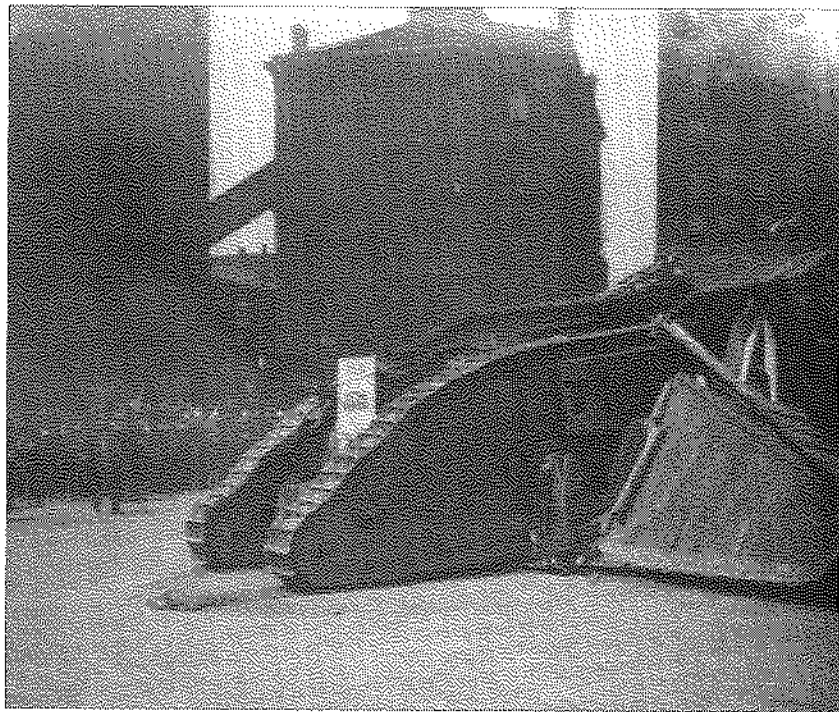
Courtesy National Air and Space Museum, Smithsonian Institution

■ Above: Hugh Trenchard, known as "Boom" to his men for his thunderous voice.

Right: Tanks were first used in the later phases of the Somme campaign.

Initially, the Germans held the advantage. Their Fokker Eindeckers had no equal, and their aerial tactics were far superior to what the Allies employed. This gradually changed, however, as the French reorganized their air service in the same manner as the British. With the introduction of the Nieuport 16 and later the 17, the German bid to conquer the skies was doomed. Nevertheless, neither side gained a clear victory. Like the land war, the war in the air became a stalemated struggle.

On the British sector of the front, General Hugh Trenchard, the RFC's commander, ordered a change in strategy that would set the tone for the rest of the air war. Instead of keeping his fighters chained to escort and patrol duties on the Allied side of the lines, he ordered them to roam behind the German front, attacking everything that moved. Aircraft, trucks, trains or

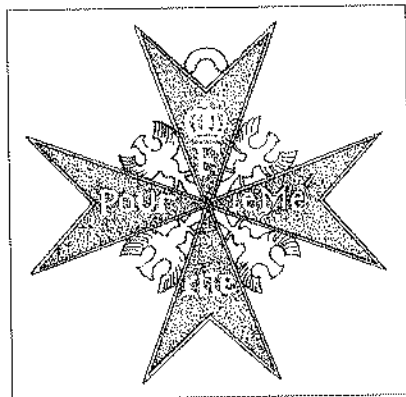


© The Keystone View Company

troop columns—Trenchard's aviators machine-gunned them all.

This change in strategy resulted in enormous Allied losses, but the Germans were slowly worn down.

THE SOMME



■ Above: Germany's Blue Max.
Right: No man's land, in what used to be a forest.

They simply could not afford as many casualties as the Allies could.

The Germans continued to take a tremendous toll on the Allied air services. In January, a month before Verdun, Immelmann and Boelcke gained eight victories each— unheard of numbers for those times. They were awarded Germany's highest military honor, the Pour Le Merite, also known as the Blue Max.

They dined with kings and princes and received fan mail from home. Immelmann went on to score 17 kills by June. He died that month after his synchronizing gear malfunctioned and destroyed his propeller. Boelcke downed 40 planes before he was killed in October. Between these two men, nearly five complete Allied squadrons fell before their guns.

With the arrival of summer, a new generation of Allied planes appeared over the Front. The Nieuport 17, Sopwith Pup and Spad 7 all proved to be far superior to the aging Eindeckers. Before long, the Fokkers were virtually swept from the sky, and it was now the German's turn to look skyward with fear. The Fokker Scourge had ended.

In an effort to take the pressure off the French at Verdun, the British army launched a full-scale offensive in the Somme Valley on July 1, 1916. In the first day alone, the English lost 60,000 men, making it the bloodiest day in their history. Whole battalions were wiped out as they walked the mile-and-a-half through no man's land toward the German trenches. The British commander, Sir Douglass Haig, continued the offensive all the way through the fall of 1916. No significant gains were made despite the introduction and use of the tank in the later phases of the battle. When the smoke had cleared, the British and German losses totaled over one million people. The French, who participated to a lesser degree, lost nearly 190,000 soldiers.



Courtesy National Air and Space Museum, Smithsonian Institution

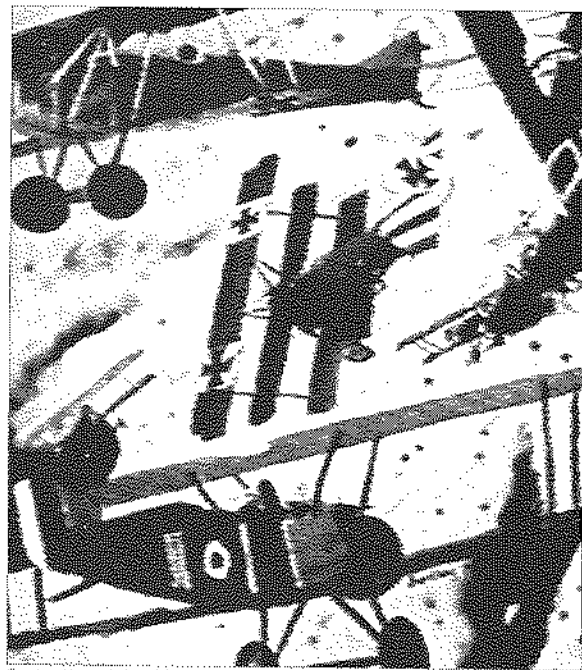
AN EDGE IN THE SKY

"Of course, Boelcke was the first to see them, for he saw more than most men."

— Manfred von Richthofen

In World War I, the only place where a man could learn the finer points of aerial combat was in the air above places such as Verdun, Ypres and the Somme. The teachers were enemy pilots and the grading system was strictly pass/fail. Today, three-quarters of a century later, the fighter pilot's discipline has evolved to the point that air forces have created fighter pilot training schools that teach Air Combat Maneuvering (ACM). The professors are veteran pilots, and they stress Situational Awareness, or "SA." SA didn't have a name until 70 years after the first fighter pilots faced each other, but it has meant the difference between the victor and the vanquished in *all* air wars. Basically, SA is the ability to discover, store and process the rapidly changing status of an aerial confrontation. Even before the fight begins, SA involves enough questions and answers to befuddle most people: Is there an enemy nearby? How far? How many? What type? Who has the advantage in altitude? Speed? Armament? Aircraft performance? Who has the most fuel? Ammunition? Is it the Red Baron himself, a maniac like Albert Ball or some rookie who's never

■ Typical dogfight scene circa April-May 1918.



Courtesy National Air and Space Museum, Smithsonian Institution

seen a tracer streak by his cockpit? Should I attack? Defend? Ignore?

In World War I, with no radar or radio messages to alert the pilots, the first question was always the most important: Is there an enemy in sight? The early

■ The reclusive Albert Ball in front of one of his aeroplanes.

fighter planes were small. Even on a crystal-clear day, a sharp-eyed observer was lucky to see one at two or three miles. A plane approaching head-on or flying directly away might be invisible at one mile, while a dogfight might be visible for six miles. And this was just spotting the aircraft, not determining if it was friend or foe. Once in a fight, a key part of a World War I pilot's SA involved another factor which didn't get a name until decades later: energy state. Essentially a combination of speed and altitude—the aircraft's energy state—governs which maneuvers it can perform at a given time. For example, a plane approaching its stall speed has a poor energy state. It will fall like a rock if the pilot attempts to do anything but put the nose down or make a shallow turn. The pilot has few options; he's a sitting duck. Conversely, a plane with an advantage in speed and



Courtesy National Air and Space Museum, Smithsonian Institution

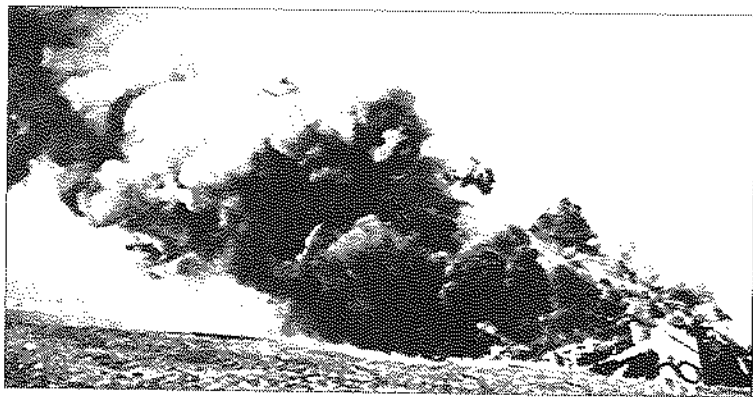
altitude has a great energy state, and its pilot has a wide array of options. Keeping track of your own energy state and the energy states of your opponents is critical to maintaining SA. When a pilot finds himself in a situation where it's impossible to keep track of events, he loses his SA. Much of the air combat folklore of World War I describes swarms of aircraft locked in mortal struggle, but the more common fights were less noteworthy because they were not really fights at all. One pilot with an almost total advantage in SA would roll in on another pilot who was unaware of his presence, getting close enough to fire a deadly burst. Richthofen, the "Red Baron," relied heavily on starting fights with massive

advantages in SA. He liked to hide high above a friendly fighter formation, then watch as it approached an enemy squadron and a dogfight developed. As soon as an enemy plane straggled away from the battle, the Red Baron swooped down with deadly advantage.

While World War I fighter pilots had a reputation for tempting fate, many of the most successful

■ One of the "million dollar" blazes. After the armistice hundreds of Allied aircraft were piled up and put to the torch.

ones picked their fights carefully. A dogfight typically took place in an aerial arena about 2500 feet across, with the airplanes able to turn at least 90 degrees in less than 300 feet. Consider such a relatively small area with 10, 20 or often 50 planes chasing each other around, and you see why Richthofen seldom entered such a fray. Pilots in huge dogfights spent more time trying not to collide with one another than they did zeroing in on an enemy. They were forced to sacrifice almost all of their SA, and that's an offense that has never been tolerated for long in air combat. British Lt. Heagerty discovered this one day in April



Courtesy National Air and Space Museum, Smithsonian Institution

of 1917, when he and his gunner, Cantle, unknowingly encountered Germany's Red Baron.

"With six or seven planes all mixed up and diving around, it took all my attention to avoid collisions," Heagerty later reported. "But I managed to rip out several bursts from the forward-firing Vickers.... Cantle's gun was rattling away, when suddenly he ceased firing, and at the same time the pressure on the joystick was suddenly released. It was useless. My controls had been shot away. They must have gone in the same burst that killed Cantle...." Heagerty was lucky to escape with a broken jaw. In an air war with no parachutes, such grievous failure to maintain SA was usually fatal.

Trench Stories

As the war dragged on, Kaiser Wilhelm II, the nominal German head of state, became less and less interested in the realities the war was driving home both inside Germany and at the front. Instead, he delighted in "Trench stories" which were related to him by visitors and advisors alike. The Trench stories were short anecdotes that glorified the German soldiers in the field. In 1918, to avoid revolution, the Kaiser was forced to abdicate and flee to neutral Holland.

THE FLYING DUTCHMAN

"My mood was to say yes to everyone and to sell to the first buyer who plunked down his money on the barrel head."

— Anthony Fokker

kept the machine gun from firing whenever a propeller blade passed before the muzzle. Ordered to demonstrate the effectiveness of his invention, Fokker took off in an Eindecker with a synchronizer and crept up on a French observation plane.

Anthony Fokker was both a talented pilot and a brilliant aircraft designer. His inventions did much to make air-to-air combat the deadly business it was by mid 1916. Originally from Holland, Fokker immigrated to Germany before the war began. As early as 1912 the Germans were helping him design airplanes. By 1913 he had his own flying school and manufacturing plant at Schwerin, 100-miles northwest of Berlin. Working from pilfered plans of a Morane-Saulnier Bullet, he built an improved version of the French design, with tubular steel framing instead of wood, and with a more efficient wing. It was the predecessor of the Eindecker. When war broke out, Fokker and his plant were put under control of the German military, and all of his aircraft taken for the army. In May 1915, the Germans brought him the deflector gear captured from Roland Garros' Morane and asked him to duplicate it.

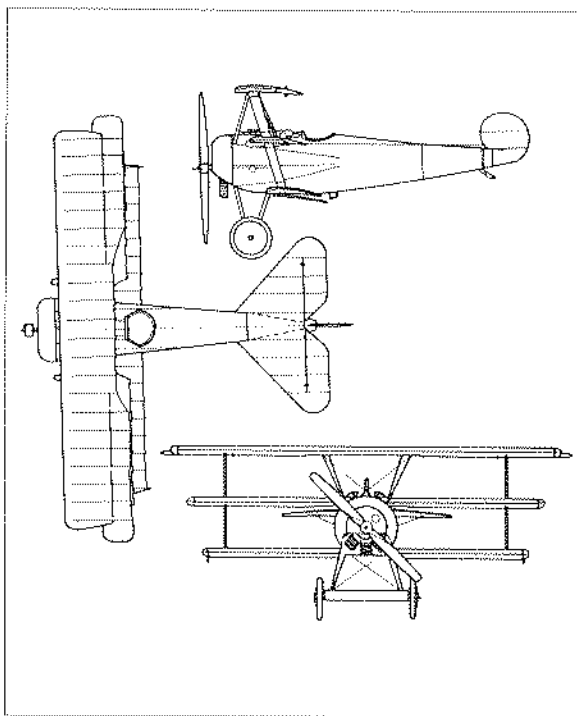
The deflector's crude design convinced him that he could develop something much better. He and his assistants developed a device in which a pushrod



Courtesy National Air and Space Museum, Smithsonian Institution

■ Anthony Fokker, was both a great pilot and designer. He was also an avid moving-picture photographer.

■ Three-view line drawing
of the Fokker Dr.I Triplane



"By this time I was near enough to open fire," he wrote, "and the French airmen were watching me curiously, wondering, no doubt, why I was flying up behind them. In another

instant it would be all over for them." Fokker had the will to produce the tools of war but not to use them. He did not have the heart to pull the trigger and kill the unarmed Frenchmen.

This synchronizing gear wreaked much havoc upon the Allied aviators. In terms of performance, the Eindecker was a mediocre aircraft. Yet Fokker's machines began to arrive at the front where pilots like Boelcke, Immelmann and Kurt Wintgens were more than willing to use the revolutionary machine.

Fokker continued to be a dominating design force throughout the war, but the Germans never really trusted him. Every time one of his products was bested by an Allied breakthrough, he was suspected of collaboration. He had to constantly prove himself as a designer, which drove him to design a long line of World War I classics, including the best fighter of the war, the D. VII.

The most famous Fokker was the Dr.I Triplane flown by Manfred von Richthofen. Twenty-four feet wide and 19-feet long, it had much less power than most of its opponents, yet could outmaneuver anything in the air. Richthofen's bright-red aircraft has been called the best-known single weapon of the war.

BOELCKE: THE FATHER OF FIGHTER TACTICS

"Well it is quite simple. I fly close to my man, aim well and then he falls down."

—Oswald Boelcke



Oswald Boelcke ranks as the most important early aviation pioneer. A natural pilot, he eventually became the mentor and instructor of the entire German Air Service.

■ Oswald Boelcke as he appeared after months of combat had taken its toll.

After initially flying two-seaters, Boelcke received one of the first Eindeckers to arrive on the front. He quickly ran-up a respectable tally of aerial victories. However, he wasn't satisfied with just fighting. In his spare time, he evolved a series of rules to govern fighter pilot actions in combat. His *Dicta Boelcke* is still considered the foundation of fighter tactics. His influence helped reorganize the German Air Service in the summer of 1916. It was clear to him that his country needed homogenous fighter units just like the British and French had recently created. Traditionally, the Eindeckers had been dispatched in twos and threes to the observation units. The top pilots in each unit were then assigned to fly the fighters as escorts for the reconnaissance planes. The Germans didn't use offensive combat patrols until after the reorganization.

Boelcke spent the summer touring all of the German fronts, choosing crack pilots for the unit he was to create. One of those, whom Boelcke found in Russia, was Manfred von Richthofen, later known as the "Red Baron."

In August 1916, the first few Jagdstaffeln were organized and sent to the Western Front. Jagdstaffel literally translates to "hunting group"—and were



Courtesy National Air and Space Museum, Smithsonian Institution

the first German offensive combat patrols. Boelcke's unit was called Jasta 2.

Throughout August and early September, Boelcke kept his men busy by training them to use his combat tactics. It took until mid September for his unit to get the requisite 12 planes to commence operational duty, so the unit had plenty of time to practice. It soon payed off.

Flying the new Albatros D.I and D.II scouts, Jasta 2 found no equals in the sky. On their first combat flight alone, Boelcke and his men downed 8 out of 14 British planes without loss. One of these planes was downed by von Richthofen, his first victory.

For the next two months, Jasta 2 cleared their



Courtesy National Air and Space Museum, Smithsonian Institution

airspace of Allied aircraft. Among the many aces the unit produced were Werner Voss (48 victories), Manfred von Richthofen (80), Erwin Boehme (24), and Fritz Rumey (45).

Boelcke died after achieving 40 kills, on October 26, 1916. Involved in a dogfight with Major Hawker's 24 Squadron, von Richthofen cut in front of Boelcke while chasing a D.H.2. He swerved upward to avoid Manfred but, in the process, brushed lightly against the lower wing of Erwin Boehme's Albatros. Boelcke's wing collapsed and he plunged to his death.

Later, a British plane flew over Jasta 2's aerodrome and dropped a wreath bearing the inscription, "To the Memory of Captain Boelcke, our Brave and Chivalrous Opponent."

■ A youthful-looking Boelcke photographed just a few months before the shot on the previous page.

A NEW BREED OF PILOT

Below: Mannock in his flight gear.
Right: The passionate, fanatical, Edward Mannock.

"The swines are better dead. No prisoners!"
— Mick Mannock



Courtesy National Air and Space Museum, Smithsonian Institution

As the war dragged on into 1917, the nature of the air war rapidly changed. In August of 1916, the German Air Service possessed one fighter unit. By January 1917, the Germans had organized another 32. The British and French deployed several times that many. As a result, more and more aircraft participated in dogfights. Sometimes 50 to 100 fighters would be swirling around over the front—all involved in the same scrap. Chivalry and mercy, which sometimes colored the nature of the air war, gradually disappeared as it became necessary to focus on destroying large numbers of the enemy. In

the midst of this transition on the Western front, Edward Mannock joined the RFC. He was destined to be Britain's "Ace of Aces."

In 1914, Mannock had been in Turkey working for a British telephone company. When the Turks joined the Central Powers, he was thrown in prison. After months of maltreatment and abuse, he was so emaciated and sickly that he was repatriated to England. After learning of the atrocities the Germans perpetrated upon Belgian civilians, his outrage led him to enlist. He joined the RFC in 1916. No one is sure how he passed the physical exam—he had an obvious cataract in one of his eyes.



Courtesy National Air and Space Museum, Smithsonian Institution

In early 1917, he joined No. 40 squadron in France and soon was flying combat patrols. He flew his first few missions with extreme caution, which led to whispers of cowardice. He quickly dispelled these criticisms a few weeks later when he scored his first victory. By the end of the year, his log showed 23 victories.

Mannock despised Germans with such passion that toward the end of his career it became an obsession with him. He showed no mercy.

In fact, he often tried to flame the Germans he shot at, feeling it was the worst fate he could inflict on them. Not surprisingly, Mannock often suffered from nightmares in which he was burned alive in his Nieuport. He swore he would never burn alive, and carried a revolver with him in case this situation developed.

As Mannock's career continued, he found himself promoted and given more and more

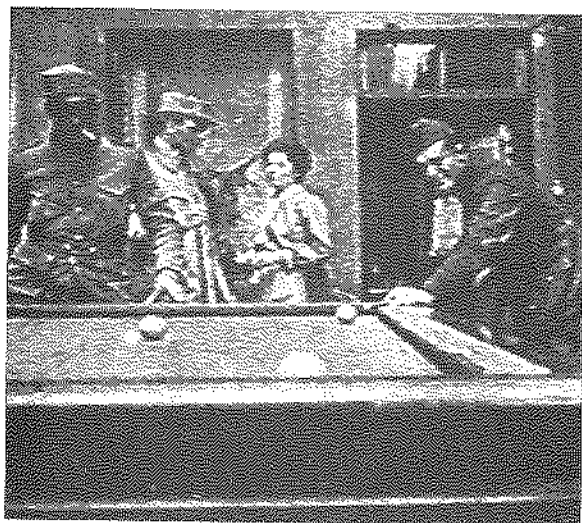
authority. His compassion for his men was incredible, and they loved him. On the ground, he organized parties and sport matches to keep morale up. Once, he and his men raided a nearby RFC unit and dropped 200 oranges on their mess kitchen. A few days later, the unit avenged this assault and bombarded Mannock and his men with several

hundred bananas. A truce was declared and consummated with a wild party later that night.

Such horseplay was nothing but a facade. At night, when he was alone, Mannock would mourn the loss of his compatriots for hours on end. Crying and moaning, he would repeat dead friends' names over and over. The strain took its toll, and the only real outlet Mannock had was shooting down more Germans. Every time a friend died, he vowed revenge.

He is considered the best flight leader of the war. In the air, his flights were never surprised by the Germans. However, attitude of revenge was his undoing. In July 1918, Mannock's close friend, James McCudden, died in a crash unrelated to combat. Mannock wanted revenge, even though the Germans had nothing to do with his death. A few weeks later, he followed one of his victims down to the deck to watch him crash, a dangerous pastime he had enjoyed in recent weeks. Ground fire struck his SESA and punctured the fuel tanks. His plane burst into flames and crashed in no man's land. No one knows if he used his revolver before the flames reached the cockpit. His body was never recovered.

With 73 kills, Mannock stands as the third-highest ace of the First World War behind Richthofen and Fonck.



Courtesy National Air and Space Museum, Smithsonian Institution

■ Allied pilots relax between missions.

Bloody April

4

BLOODY APRIL

"An English patrol of five machines was coming our way. We attacked them by a rush as if we were cavalry, and the hostile squadron lay destroyed on the ground. None of our men was even wounded."
— Manfred von Richthofen, April 1917

British fliers came to call the fourth month of 1917, "Bloody April." Over 130 British airplanes fell in those 30 days, making it one of the worst months ever for any air force in any war. At one point the British began to run out of fighter pilots, so they yanked new ones from their training classes and sent them to battle.

along with General Erich Ludendorf, were appointed in his place. In early 1917, Hindenburg ordered the German lines straightened on the Western Front. In a carefully staged withdrawal, the Germans pulled back to a series of fortified positions 20 miles behind their original positions. This move shortened the front by several miles, and released several divisions for duty elsewhere.

The spring of 1917 was probably the low-point for the Allied cause. As British and French aviators

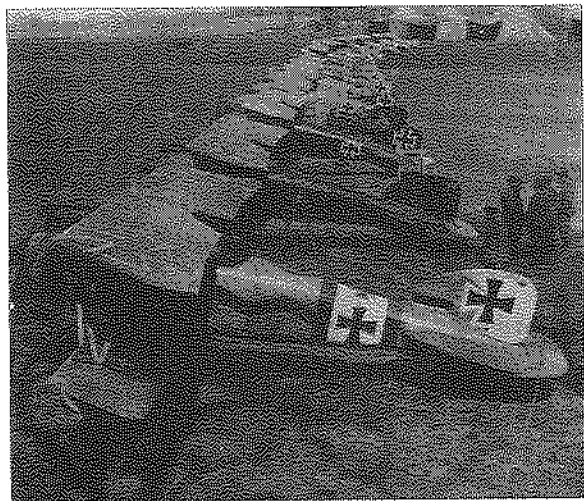
■ A Sopwith Triplane similar to the ones the Black Flight flew.

Ironically, the Germans' triumph in the sky came hard on the heels of their failure at Verdun. General von Falkenhayn lost his position as German commander after his offensive produced nothing but more casualties. Field Marshal Paul von Hindenburg,



© Royal Aeronautical Society, London

■ Richthofen's Geschwader lined up at their aerodrome. The planes are Albatros scouts.



suffered severely in the air, Robert Nivelle, the recently-appointed French Commander-in-Chief launched his ill-fated offensive. All through the winter, Nivelle had trumpeted his plans to anyone who would listen. Not surprisingly, the Germans learned the details of the attack, and strengthened their positions. Meanwhile, the French troops were promised an easy break-through and a quick end to the war. Morale soared after it had flagged in the months following Verdun.

On April 16, the French attacked a 40-mile front near the Chemin Des Dames. They failed dramatically and the morale of the French army collapsed. Mutinies

broke out in 68 of the 110 total divisions. At one point, several units stole a locomotive and tried to "march" on Paris in order to spark a revolution or peace settlement. Others mounted machine guns on their units' trucks and set forth to blow-up the

Schneider-Creusot armaments factory. They were stopped by loyal cavalry and either arrested or shot.

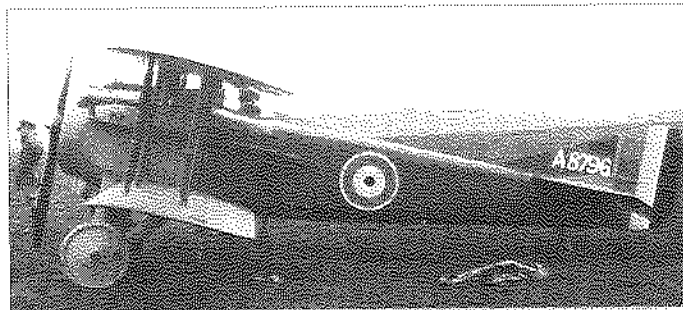
As the troops in the trenches refused to fight, the French home front tottered on the threshold of catastrophe. Inspired by the Russian Revolution, Socialists preached peace and printed antiestablishment fliers with the passive support of the minister of the interior. The people, exhausted by three years of seemingly pointless war and huge casualty lists, were eager for peace at nearly any price.

Marshall Petain and the famous statesman Georges "The Tiger" Clemenceau saved the day. Petain instituted a series of reforms that quelled the mutiny within the army, while Clemenceau reunited the home front and suppressed the Socialist presses. The crisis passed by late June, but it was clear that the nation could not last much longer should the war continue.

On the British sector of the front, the Germans were wreaking havoc among the RFC units. Flying the ancient B.E.2s, Pups and D.H.2s, the English aviators were sitting ducks for the new Albatros D.IIIs that the Jastas had received at the beginning of the year.

In June, the Germans started grouping their Jagdstaffeln into Jagdgeschwaders. The first, called JG1, was commanded by Richthofen and consisted

■ A French Spad 7 in British markings. No. 19 Squadron flew Spads until January, 1918.



© Royal Aeronautical Society, London

of Jasta 4, 6, 10 and 11. These were the elite units in the German Air Service, and probably the best squadrons of the war.

To counter the German bid for air superiority, the British deployed several new aircraft. Among them was the F.2b Bristol Fighter. Known as the "Brisfit," the F.2b was a two-seat fighter armed with three machine guns. At first, the Bristols suffered terrible casualties, but after the pilots changed their tactics, they became formidable opponents. The F.2b's rugged construction and speed were so good that the Brisfit remained in service until 1932.

The Cult of the Offensive

French military thought before the war stressed the great virtues and spirit, or elan, of the Gaulic soldier. Firepower and numbers could be overcome with this elan. The offensive became an obsession to the French officer corps. Nothing else mattered save the

Napoleonic charge culminating in a glorious bayonet assault on the enemy. This semi-mystical nonsense divorced itself even further from reality by stating, "In the offensive, imprudence is the best of assurances.... what the enemy does is of no consequence."

Only one soldier, Colonel Petain, disagreed. "Fire-power kills," was his philosophy. He later rose to command the French Army in 1917. After the war, the French became equally obsessed with a defensive doctrine, believing that the next war would be a repeat of

the last. Technology, however, in the form of the tank had restored mobility to the battlefield, making offensive operations far superior to static defenses. In essence, France went to war in 1914 and 1939 with the *wrong doctrine necessary for victory*.

"Bloody April" had at least one good affect on the Allied war effort. It spurred the British to get better fighters to the front and to reexamine tactics. Nevertheless, pilot skill mattered less and less as the battle of attrition continued. From now on, the capacity to produce large numbers of aircraft would determine the winner of the air war.

AN ENEMY TO ALL

"I shall never again fly through a thunderstorm unless the Fatherland should demand this."

— Manfred von Richthofen

Even today air forces lack a true all-weather fighter—one which performs superbly in any condition. In World War I there was nothing even close.

The open cockpit made even a modest squall a dangerous threat to a pilot's vision. The best flight suits couldn't ward off the cold at 15,000 feet above the Somme in February. Even a summer storm might swat the fiercest ace from the sky, as the Red Baron himself determined one day when he challenged a thunderstorm:

"The rain began falling," he wrote in his journal. "I had to throw away my goggles, otherwise I should not have seen anything....Very soon I knew no longer where I was. The gale seized my machine as if it were a piece of paper, and drove it along. My heart sank within me...."

"I was surrounded by an inky blackness. Beneath me the trees bent down in the gale....My flight became a jumping competition pure and simple. I had to

jump over trees, villages, spires and steeples, for I had to keep within five yards of the ground....The lightning was playing around me. At that time I did not know that lightning cannot touch flying machines. I felt certain of my death...."

Von Richthofen lived to conquer mortal foes, but the greatest fighter ace of the war never again tangled with a thunderstorm.



Courtesy National Air and Space Museum, Smithsonian Institution

■ A stern Manfred von Richthofen seated in the cockpit of his Albatros Scout.

AERIAL COMMUNICATION

"After seeing Bath wagging his wings to signify that enemy machines were near, the whole of the flight commenced to stunt and whirl about in a most disconcerting way."

— William MacLanachan, British pilot

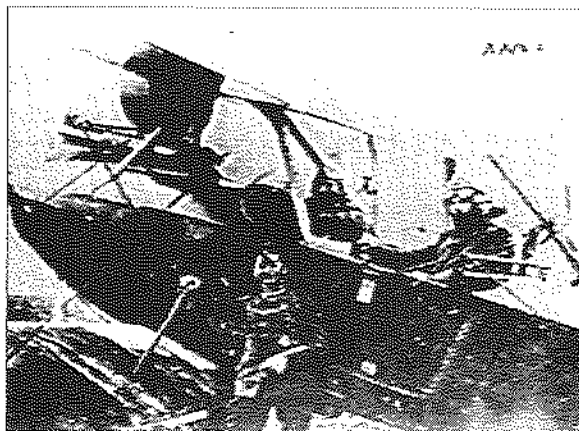
Below: A German two-seater with a Parabellum on a ring-mount in the gunner's cockpit.
Right: A British two-seater.

World War I pilots signaled one another in the air mainly by pointing, waving their arms and wagging their wings. While it was possible to communicate with the ground by wireless, the early radios weighed 75 pounds and could transmit only Morse code. Their very weight precluded their use in single-seat fighters, but artillery-spotting aircraft used them throughout the war.

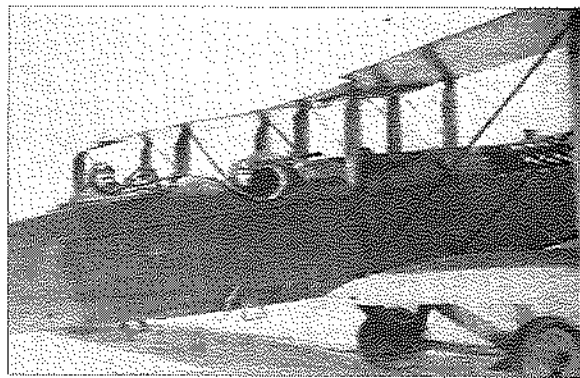
In those two-seaters, in which the pilot and gunners sat back-to-back, the crew used a series of shoulder and head taps to communicate over the engine noise. Reconnaissance pilots communicated with the forward

lines by scribbling their observations on paper and dropping them over the friendly position.

Usually messages were conveyed as they had been in the cavalry. A squadron leader's fist swung down from overhead, as if pointing a saber, meant "Attack!"



Courtesy National Air and Space Museum, Smithsonian Institution



Courtesy National Air and Space Museum, Smithsonian Institution

while his upraised hand waved back and forth meant to hold back.

In the thick of a fight, communication was impossible. No one had time to watch their leader's plane for hand signals while enemy aircraft were zooming about. Consequently, once the aviators found themselves in combat, they were on their own.

THE FRENCH ACES

"If one has not given everything, one has given nothing."

— Georges Guynemer, French ace

Braggart, show-off and superb pilot, René Paul Fonck was one of the few great aces to live through the war, dying at age 59 in 1953. Officially credited with 75 kills, the most of any Frenchman, he claimed to have shot down 127.

Fonck was famous for conserving his ammunition and using his natural flying skill to get so close to an enemy that he could make a killing shot on his first try.



Courtesy National Air and Space Museum, Smithsonian Institution

■ A highly decorated René Fonck poses before his Spad.

"I put my bullets into the target as if I placed them there by hand," he said. Twice he shot down six Germans in one day. Once he shot down three in ten seconds with three quick bursts.

If Fonck hadn't been so irritating, he would surely have been the most popular Allied ace. As it was, few people could stand to be around him. His best friend, Claude Haegelen, had this to say about him:

"He is a tiresome braggart and even a bore, but in the air, a slashing rapier, a steel blade tempered with unblemished courage and priceless skill.... But afterwards he can't forget how he rescued you nor let you forget it. He can almost make you wish he hadn't helped you in the first place."

The second-ranking French ace, Georges Guynemer, could hardly have been more different. Pale, skinny and frail, people often assumed he was dying of tuberculosis, which only increased his fame. He repeatedly attempted to enlist in the French army, but his sickly appearance betrayed his ambitions. Finally he cajoled his way into flight school, helped by family connections.

His ancestors had a tradition of knighthood going back almost 1000 years, to the Crusades. His father



Imperial War Museum, London

■ Two photos of France's greatest aerial hero, Georges Guynemer.

had graduated from the Ecole Militaire, the French West Point. Everyone had their doubts about young Georges, but once he got into the air, he silenced them.

In July 1915, with his gunner in a two-seat Morane-Saulnier, he scored his first victory:

"At the one hundred fifteenth shot fired by Guerder, I had, I will admit, a very sweet feeling at seeing the enemy slump to the floor of his cockpit, while the 'lookout' raised his arms in a gesture of despair and the Aviatik swirled down into the abyss in flames....I can vouch that I never felt a keener elation."

Guynemer was shot down six times, including once when his trusty Spad, "Vieux Charles," flew into a French artillery shell that had been lofted at the Germans. In the course of his career, he downed 53 German aircraft. He favored hunting alone, and prowled for hours above the lines. His sense of chivalry and honor made him the toast of the French populace. He often displayed mercy to his adversaries

if they appeared injured or out of ammunition. Ernst Udet once ran afoul of Guynemer, who outmaneuvered the German at every turn. Then Udet's guns jammed. Seeing this, the Frenchman pulled alongside the German, saluted and headed for home. Typical of Guynemer, perhaps, but a rare action at this point in the war.



Courtesy National Air and Space Museum, Smithsonian Institution

Georges Guynemer failed to return from a mission on September 11, 1917. His plane fell into a massive artillery bombardment and was obliterated.

The third-ranking French ace, Charles Nungesser, first flew an airplane in South America before the

Nungesser meets his C.O.

After he received his first Nieuport scout, Nungesser was so excited that he took to the air and dazzled his new unit, N. 65, with a wide array of aerobatics. When he landed, his new commanding officer berated him for such irresponsible behavior. He finished his tirade by suggesting that Nungesser go show-off over a German airfield if he wanted to impress anybody. This is exactly what Nungesser did. He flew to the nearest enemy aerodrome, strafed it on his first pass, then came around in a climbing turn and crossed the field below the top of the hangars *upside down!* When he returned to his base, his C.O. stormed over and demanded where he had gone. Nungesser simply replied, "It is done, mon Capitain." Furious that this new replacement took him seriously, the harried officer gave Nungesser eight days of house arrest.

war. Without any instruction, he took to the sky and quickly mastered the controls. His landing was rough, but he thoroughly impressed the plane's owner!

With the outbreak of the war, Nungesser joined the French cavalry and saw action at the Battle of the Marne. In one instance, during the retreat in 1914, he and a few men ambushed a German staff car behind enemy lines. After killing the occupants, one of whom was a very high-ranking officer, Nungesser drove the car through throngs of French

stragglers and German combat troops to reach the safety of the Allied lines. A French general awarded him the car and a transfer to the Air Service as a result.

Nungesser suffered more wounds than most would consider humanly possible after he started flying. Before

the war ended, he had lost most his teeth, had his jaw broken several times, received multiple concussions, and had each knee shattered. After a particularly hazardous crash, he was forced to walk with the aid of a cane. Convalescing in hospitals did not suit his aggressive nature, so he cut a deal with his doctor that allowed him to fly. Each day, his mechanic would take him from his hospital bed and carry him to his plane. After the mission was over, he would return to his hospital room to receive more treatment.



Courtesy National Air and Space Museum, Smithsonian Institution

When he was healthy, Nungesser was quite the *bon vivant*. He was known to fly the dawn patrol suffering from a hang-over, still dressed in a tuxedo. His affairs of the heart were numerous, and included the famous spy, Mata Hari.

Nungesser survived the war with 43 victories. He disappeared trying to cross the Atlantic in 1927 a few weeks before Lindberg succeeded.

■ The wild Charles Nungesser, who once flew inverted across a German airfield—at hangertop level!

The Red Knight of Germany



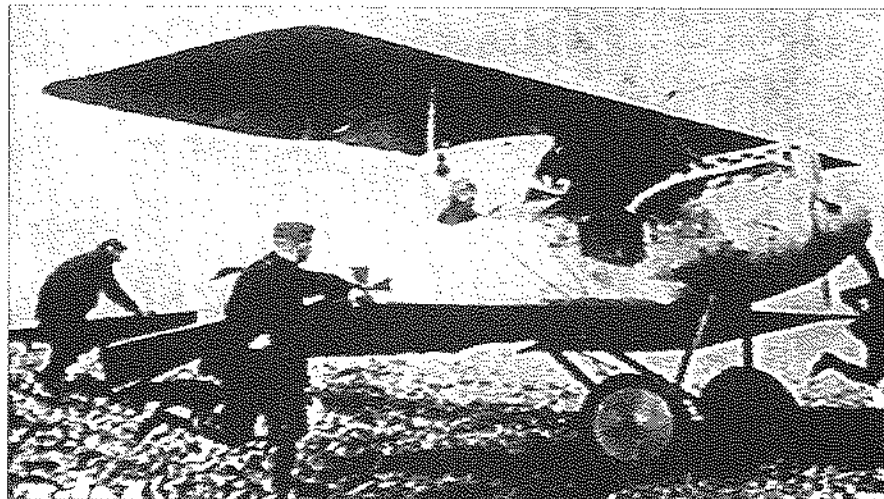
ACE OF ACES

"Had I known it was Richthofen, I probably would have fainted."

— Canadian flier Wilford May

Above the Somme on November 23, 1916, the great British pilot Major Lanoe Hawker, flying a D.H.2 pusher, was chasing some lumbering German two-seaters when a formation of single-seat Albatros D.IIs came to their rescue. Hawker turned to face this threat, and engaged the German leader.

■ Guiding an Albatros D.II into position for takeoff.



Courtesy National Air and Space Museum, Smithsonian Institution

Winner of the Victoria Cross, and commander of the famous No. 24 Squadron, Hawker had taken off with five mates but was now alone behind German lines. His squadron had either aborted the mission because of engine troubles, or were preoccupied by the other Albatros pilots.

The pilot of the Albatros was a 24-year-old Prussian with 10 victories to his credit. Born to a family of rural aristocrats, he displayed a passion for hunting from a very young age. Manfred von Richthofen was about to make a name for himself.

Hawker made the first pass, missing with a burst from behind. The two pilots began chasing one another, the powerful Albatros versus the nimble D.H.2.

"Round and round we go in circles like two madmen, playing ring-around-a-rosie almost two miles above the earth," wrote Richthofen. "I knew at once that I was dealing with no beginner, because he didn't appear to dream of trying to break off the fight and get out of the circling."

The prevailing winds blew the dogfight deeper into German territory. Richthofen was surprised his foe didn't turn for home out of concern for his fuel supply.



Courtesy National Air and Space Museum,
Smithsonian Institution

Altitude slipped away as the planes maneuvered in 100-yard circles. Richthofen tried to stay above the D.H.2 but could not get a clear shot. At one point the Englishman gave a jaunty wave. Then, only a few yards above the trenches, Hawker broke for home.

"He knows I am behind him and close on his tail," Richthofen wrote. "He knows my gun barrel is trained on him. He starts to zigzag, making sudden darts right and left, right and left, confusing my aim and making it difficult to train my gun on him. But the moment is coming. I am 50 yards behind him. My machine gun is firing

incessantly....Now I am within 30 yards of him. He must fall."

Richthofen's bullets hit home. Hawker fell forward in the cockpit, dead from a head wound. His D.H.2 crashed into a water-filled shell crater just short of the British lines. A German infantry patrol rushed to the wreckage, where they dug the plane's Lewis gun from the mud. Richthofen sent it to his

mother. A decade after the war it still hung over the doorway to his boyhood bedroom.

When Hawker fell, Max Immelman had been dead for five months. Oswald Boelcke, Richthofen's mentor

Courtesy National Air and Space Museum, Smithsonian Institution



Two portraits of the illustrious Manfred von Richthofen.



Courtesy National Air and Space Museum, Smithsonian Institution

■ The Red Baron, center, with a few of his men and his dog. The dog once ran into a whirling propeller, losing part of his ear but was otherwise unhurt.

throughout the new units. Richthofen soon found himself the commander of Jasta 11. Since its inception, Jasta 11 had scored only one victory—and it was unconfirmed. It was quite a change from Jasta 2, and Richthofen was less than pleased with his new assignment.

"It was a beastly nuisance," he wrote of the assignment. "Besides, I should have preferred the Orden Pour le Merite."

Before the war Richthofen had been a national champion horseman, and had grown fond of trophies and ribbons. During the war he went so far as to award himself an

and Germany's greatest fighter tactician, had died in late October. By early January 1917, Richthofen was rapidly on his way to becoming Germany's greatest ace. Already he had 16 victories in only five months of combat.

Meanwhile, the German Air Service continued to expand. The German leaders decided to spread the experienced pilots

engraved silver cup for each Allied plane he downed. The Orden Pour le Merite was his nation's highest military honor, and two days after receiving his first command Richthofen learned that he would wear its blue and gold cross. Satisfied, he took firm charge of Jasta 11. On his first mission as leader he scored his seventeenth confirmed victory, the squadron's first.

The Richthofen Dynasty

The von Richthofen family produced several other fighter pilots who never received the acclaim they deserved since they lived in the shadows of the Red Baron's famous career. Lothar von Richthofen, Manfred's younger brother, scored 40 victories during the war. He was killed in the early 1920s in a flying accident. One of Manfred's cousins, Wolfram von Richthofen, became an ace in the closing days of the Great

War while serving in JG1. In the Second World War, he rose to the highest echelons of command inside Goering's Luftwaffe. In World War II, a Jagdgeschwader was named in Manfred's honor. It is still active today. The von Richthofen legacy is inseparably linked with the history and tradition of the German Air Force. Through two major wars, the Richthofen family served Germany in the highest capacities.

Richthofen's fame spread slowly. Then, whether to taunt his opponents or to make it easier for his inexperienced squadron-mates to locate him, he had his Albatros painted bright red. Almost instantly, French fliers spoke of "le Diable Rouge," the Red Devil. Others called him the Red Knight, or the Red Baron. Wild rumors sprang up about the red fighter, some even claimed that the plane was piloted by a woman. Morale soared in his unit, and before long Jasta 11 ruled the skies in their sector. Soon his men painted their planes red, although all but the Baron were required to display at least one other color.

The Baron's fighting policy was the same as his mentor, Boelcke: Always begin the encounter with an advantage, don't show-off, and shoot down the target as quickly as possible. Here is Richthofen's account of his twentieth victory, a typical one:

"While flying back from a

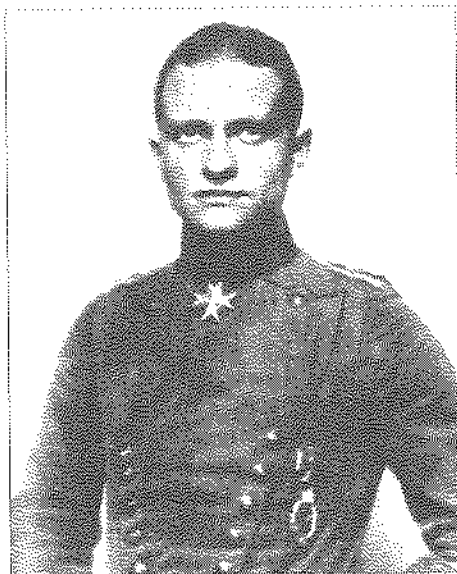
conference with the Boelcke squadron, I saw an enemy artillery flyer at a height of 6000 feet, west of Loos.

"I approached within 50 yards of him without his noticing me and attacked immediately. After several hundred shots, the plane dashed down, falling into our trenches."

Richthofen was not a naturally superb pilot. He crashed on his first solo, and his own writings contain numerous references to other self-induced mishaps. Once, after forcing a Vickers two-seater to crash-land in flames, his own Albatros began sputtering and he too had to land.

"The result was very comical," he wrote. "My enemy with his burning machine landed smoothly, while I, his conqueror, came down next to him in the barbed wire of our trenches and my machine overturned."

Luckily for Germany, Richthofen was not always so clumsy. By the end of "Bloody April" he had 52 kills and was called home to meet the Kaiser. Blond and handsome, he became his nation's idol. Women asked for his autograph



Courtesy National Air and Space Museum, Smithsonian Institution

■ Richthofen wearing the
Orden Pour le Merite.

Richthofen convalescing after receiving a head wound in July 1917. He was never the same after the injury.

At Imperial War Museum, London



and noblemen jostled one another to be next to him at state functions.

While Richthofen met with royalty and relaxed on the homefront, things were going poorly for his colleagues in the trenches. German leadership increasingly turned to pilots to supply the advantage, and Richthofen returned to battle in late June 1917, with a new command and a new strategy.

He would head the first Jagdgeschwader, a group of four Jastas, including Jasta 11. This group of 40 to 50 of Germany's best fighter planes and their crack pilots would become the famous "Flying Circus," known as Jagdgeschwader 1, or JG1. The unit lived in tents so they could move from base to base overnight. They would take to the air in massive V formations with the Red Baron at the point. The British would surely shrink back in fear.

At the same time, the Germans launched intense bomber and airship attacks against London, forcing the

British to recall some of their best planes and pilots to defend the home front. Less than a week after his return, Richthofen had four more kills to his credit.

On July 6, 1917, as German ground troops watched in horror, the famous red Albatros began to spin down from a dogfight, out of control. It briefly pulled up at about 500 feet, then dove for the ground and crash-landed.

Richthofen had been grazed in the skull by a British shot and spent nearly a month recovering. Many biographers believe that the wound left him with debilitating headaches and reduced his will to fight. He scored two victories in August, two in September and then only two more in the next six months.

In early September 1917, JG1's Albatros D.IIIs and D.Vs were replaced with the faster-climbing, more maneuverable Fokker Dr.I Triplane. Richthofen was a quieter, sterner man now, a taskmaster with his flyers.

"He who passes his judgment, he backs all the way," wrote one of his students, the ace Ernst Udet. "Whoever fails, he drops without batting an eyelash."

Throughout the winter of 1917-18, Germany prepared for its final, last-gasp offensive of the war. In December,

Right: A casual shot of the Baron seated at his aerodrome.
Below: A triplane on its takeoff roll.

Russian resistance collapsed and the new Bolshevik regime sued for peace. With all the troops from the Eastern Front freed for duty in France, Ludendorff and Hindenburg, the two German leaders, hoped to overwhelm the Allies before the Americans could arrive in large numbers. Richthofen and his men realized that their country's chances for victory were slipping away, but they steeled themselves for the grim fight that the spring would bring.

In March 1918, the Germans launched the first phase of their Ludendorff Offensive. Designed to drive a wedge between the French and British troops, the attack initially succeeded. French and British troops were thrown back.

In the air, Richthofen and JG1 flew missions in support of the ground troops. On April 20, the Baron scored victories 79 and 80.



Courtesy National Air and Space Museum, Smithsonian Institution

"That is really a decent number," he said at the end of the flight, unaware that there would be no more.



© Imperial War Museum, London

DEATH OF THE BARON

"I got a long burst into him, and he went down vertically and was observed to crash by Lieutenant Mellersh and Lieutenant May."

— Capt. Roy Brown

In April 21, 1918, above a German position at the Somme, a group of Fokker Triplanes jumped a pair of lumbering R.E.8 observation planes of the No. 3 Australian Squadron. Allied anti-aircraft gunners tried to help the scouts with a quick barrage.

The puffs of white smoke drew the attention of Capt. Roy Brown, who led a flight of eight Sopwith Camels far above the mismatch. Wagging his wings for his fellows to follow, Brown dived into the fray. Soon some Albatros Scouts joined in, as did a new group of Fokkers. Among them was an all-red Triplane.

A young Canadian, Wilford May, was flying his first

combat patrol. Brown had told him to stay above any fight, should one develop. May did, but after a couple of Albatros D.Vs swooped by him, he couldn't resist the temptation to join the battle. He quickly became overwhelmed in the tangle of 30 or more planes, and broke away, flying a dangerously straight line away from the fight. Richthofen, flying above the scrap, noticed this sign of weakness and gave chase.

May began evasive maneuvers after the Baron's initial burst. He and his German pursuer screamed along just above the ground, the Triplane steadily gaining.

Brown was still involved in the dogfight above when he noticed May's plight. He knew that unless he distracted the Triplane pilot, his boyhood friend May was doomed. Diving at full speed, he swept in behind the Fokker and fired a distant, desperate burst before May and the German disappeared behind a stand of trees.



Courtesy National Air and Space Museum, Smithsonian Institution

■ Captain Roy Brown, the man credited with downing the Red Baron. He died in 1944.



Courtesy National Air and Space Museum, Smithsonian Institution

It took Brown a few seconds to find the two airplanes again, but when he did he closed on them quickly, since they were zigzagging wildly. All of a sudden the Triplane swerved away from the chase and descended, snapping off its landing gear as it touched down. May escaped; Brown turned back to the main dogfight.

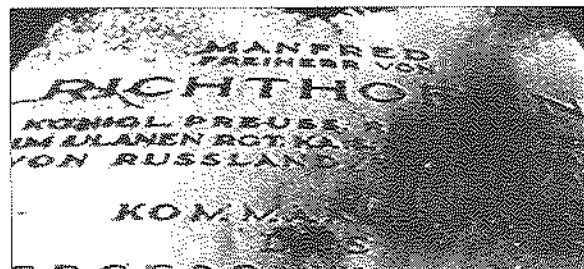
Australian ground troops had also fired at the Fokker as it came by, and they saw it crash-land in no man's land. When its pilot did not move, several of the Australians rushed out, took hold of the plane and dragged it to a safe place.

At first they could not see why the Triplane had come down. It was unscathed except for the damaged gear. Then one of them noticed a bloodstain on the pilot's jacket, and saw that one bullet had pierced his chest. Examining the dead man's papers, the soldiers were awed to see that he was Manfred von Richthofen. Historians still argue over who fired the single bullet that killed the Red Baron. The Australian gunners tried to claim the kill, but credit is generally given to Brown.

Von Richthofen was buried the next day in the small village of Bertangles. British and Australian troops gave him full military honors, and a British pilot

dropped a note in German territory containing the news. Germany went into deep mourning. Richthofen was eulogized throughout the flying world, including this tribute in a British flying journal:

"All airmen will be pleased to hear that he has been put out of action, but there will be no one amongst



Courtesy National Air and Space Museum, Smithsonian Institution

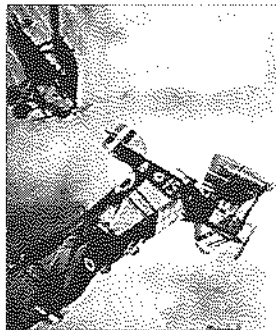
them who will not regret the death of such a courageous nobleman....Anybody would have been proud to have killed Richthofen in action, but every member of the Royal Flying Corps would also have been proud to shake his hand had he fallen into captivity."

In 1925, Manfred von Richthofen's younger brother Bolko recovered his body and took it from Bertangles to Berlin. Manfred had the largest funeral ever seen in that city.

■ Above: The last photo of Manfred von Richthofen, taken after he was killed. Right: His final resting place.

THE LUCKY FEW

Although Manfred von Richthofen was the deadliest pilot of the war, he was not particularly bloodthirsty. He occasionally passed up the chance to finish off an enemy as long as he was sure that the airplane was going to crash. Consequently, many pilots and observers who are among his "kills" actually lived to tell about it. Here are three such accounts:



Courtesy National Air and Space Museum, Smithsonian Institution.

■ Point-blank fighting was the rule, not the exception.

• F.J. Kirkham, observer-gunner, British B.E.2c, April 28, 1917:

"I was watching the ground for the arrivals of our shells when a burst of machine fire came to my attention directly behind me. I turned quickly and stood up to man the rear gun. I was too late. The red Albatros had continued its dive downward just in back of our tail and was way out of range. He must have been doing 150 miles an hour. He was away in the flash of an eye."

• H.J. Sparks, gunner, Bristol Fighter, March 12, 1918:
"No sooner had the action signal been given than we were pounced on from above by various types of Hun machines numbering about 20. I could tell from the red undercarriages that they were members of Richthofen's Circus...."

"I was just getting into position to try my luck with the all-red machine which I presume was Richthofen's,

but the Baron got me before I got him. His first stream of lead went through my left shoulder and arm, rendering me entirely useless. The shock knocked me down into the cockpit." Sparks was captured and the Germans hospitalized him.

"During my second day in the hospital, a German flying officer came in and said he had been sent to see me by Baron von Richthofen, who wished me to accept half a dozen cigars with his compliments. I did, with thanks."

• D.E. Lewis, pilot, Sopwith Camel, April 20, 1918:
"I was attacking a bright-blue machine, which was on a level with me, and was just about to finish my adversary off when I heard the rat-tat-tat of machine guns coming from behind me and saw the splintering of struts just above my head."

"I left my man and wheeled quickly to find that I was face to face with the renowned Richthofen...."

"I twisted and turned in the endeavor to avoid his line of fire, but he was too experienced a fighter, and only once did I manage to have him at a disadvantage...and thought I would have the honor of bringing him down, but in a trice the positions were reversed and he set my emergency petrol tank alight, and I was hurtling earthward in flames."

THREE VICTORIES



Richthofen's official accounts of his victories were terse, as dictated by military tradition.

- March 25, 1917:

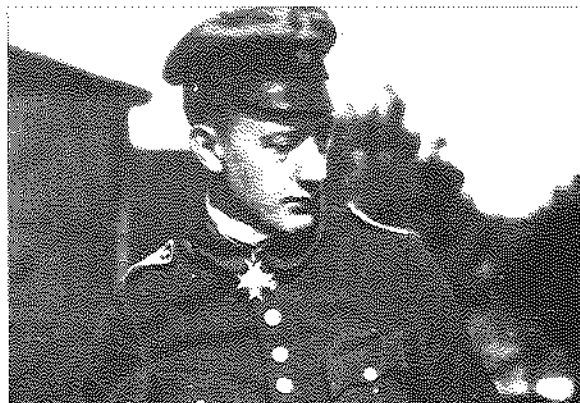
"An enemy squadron had passed our lines. I went up and overtook their last machine. After only a few shots, the enemy's propeller stopped running. The adversary landed near Tilley, thereby upsetting his plane. I observed that, some moments later, it began to burn."

- April 2, 1917:

"Together with Lieutenants Voss and Lothar von Richthofen I attacked an enemy squadron of eight Sopwiths above a closed cover of clouds on the enemy's side of the lines.

"The plane I had singled out was driven away from its formation and tried to escape me by hiding in the clouds after I had put holes in its gasoline tanks.

"Below the clouds, I immediately attacked him again, thereby forcing him to land 300 yards east of Givenchy. But as yet my adversary would not surrender, and even as his machine was on the ground, he kept shooting at me, thereby hitting my machine very severely when I was only five yards off the ground.



Imperial War Museum, London

"Consequently, I attacked him already on the ground and killed one of the occupants."

- March 25, 1918:

"With five planes of Staffel II, I attacked several English one-seaters northeast of Albert.

"I approached to within 50 yards of one of the machines and shot it to flames.

"The burning machine fell between Contalmaison and Albert and burned on the ground. Bombs that had apparently been in the plane exploded several minutes later."

■ The enigmatic Voss whose main passion was his aircraft. He tinkered for hours on it.

THE BLACK FLIGHT

Raymond Collishaw never received the publicity of Ball, Boelcke or Guynemer, yet he stands as one of the best Allied fighter pilots of the war. With 60 kills, he ranks as Britain's third-highest ace. Only Mannock and Bishop scored more. It has been suggested that he did not receive the attention he deserved since he was a pilot in the Royal Naval Air Service (RNAS), a somewhat neglected sister of the RFC.

In April 1917, he joined No. 10 Naval Squadron as the "B" Flight commander. He and his four pilots painted their Sopwith Triplanes black, and painted macabre names on the



Courtesy National Air and Space Museum, Smithsonian Institution

fuselage sides such as Black Maria and Black Prince. In just a few short months, his flights claimed 87 German aircraft with the loss of only one pilot. Such a low loss rate in an Allied fighter outfit was unheard of during 1917. Without doubt, the Black Flight was one of the most effective units of the war.

Collishaw was sent back to his native Canada for several months in the late summer of 1917. He returned to command his own fighter squadron during the height of the Ludendorff Offensive. Despite an incredible career, he was never awarded the Victoria Cross.

Below: Collishaw with his own command in 1918. He's at the center wearing a white cap. Right: Collishaw in a Sopwith Camel. An all but forgotten ace, he scored sixteen more kills than Albert Ball but never received acclaim since he flew with the RNAS.

Courtesy National Air and Space Museum, Smithsonian Institution



OTHER GERMAN PILOTS

While Manfred von Richthofen was a disciplined fighter, his brother Lothar was something of a wild man in the air, stunting about, firing at virtually anything. He had come to the front in early 1917, assigned to Manfred's Jasta 11. Manfred ordered him to stay behind his red Albatros on the first few missions, but Lothar peeled away on his third flight and scored his first kill.

Although Lothar's exploits certainly lent power to the Richthofen name, he was never as famous or respected as his brother. He survived the war with 40 kills, only to die in an airplane crash in 1922.

The position of second-ranking German ace of the war fell to Ernst Udet, who survived the war with 62 victories. Born in Munich in 1896, he used to jump off his porch roof with an umbrella to see if

he could fly. He entered the war in 1914 as a motorcycle courier, but transferred to the Air Service and became a two-seater pilot.

He scored his first kill in a Fokker Eindecker in March 1916. He rose through the ranks to command Jasta 37 by August 1917. His record impressed Manfred von Richthofen, who invited him to join JG1. In six months Udet scored 42 kills.

■ The adventurous Ernst Udet. He survived the war and flew all over the world in the '20s and '30s only to be driven to suicide by his former squadron mate, Hermann Goering.



■ Bound for infamy—Hermann Goering. After a wound he received in the '20s he became a morphine addict. It is believed he originated the idea of the "Final Solution."

Udet Goes to Jail

Early in the war, Ernst Udet served in a reconnaissance unit and flew lumbering two-seat Albatros and Aviatik observation planes. One day, just after taking off, Udet attempted to make a shallow turn. The plane twisted into a stall and the machine piled up on the airstrip, a complete wreck. After returning from the hospital, Udet was greeted by his Captain who announced: "This is the dumbhead who, through careless flying, has cost the Fatherland a valuable machine and seriously jeopardized his observer's life." Udet was thrown in the base stockade for seven days, where he received dozens of bedbug bites. Just after he was released, he flew an unauthorized bombing mission. Exasperated, his commanding officer transferred him to a Fokker Eindecker outfit.

Udet was a combination of superb aerobatic pilot and deadly tactician, which may explain why he survived. He has the distinction of being one of the few aces of World War I to escape a crippled airplane via parachute.

After the war he became a famous stunt flyer, and was inspector-general of the Luftwaffe during the first two years of World War II.

The man who commanded Richthofen's Geschwader from July 1918 until the armistice was the infamous Herman Goering. Goering entered World War I as an infantryman but was soon hospitalized with rheumatoid arthritis. He escaped from the hospital and, with a friend, pilot Bruno Loerzer, faked his way into duty as an observation man in a two-seater. He was soon trained as a pilot



Courtesy National Air and Space Museum, Smithsonian Institution

himself, first in two-seaters, then in single-seat fighters. Only a fair pilot, Goering flew intelligently in combat. He was neither famous nor infamous, and finished the war with 22 kills.

After the Great War, he became one of Hitler's most trusted subordinates. In World War II, he commanded the Luftwaffe. It was largely through his mistakes that the Germans lost the Battle of Britain. It is also suspected that he conceived the "Final Solution," the

systematic extermination of Europe's Jewish population.

At the end of the war, he stood trial for war crimes and was sentenced to death. A few hours before his execution, he cheated the hangman and killed himself.

Voss: The Teenage Ace

Werner Voss originally served at the front as a two-seater pilot. It was clear from the first days of his flight training that he possessed natural flying skills. In November 1916, he transferred to Jasta 2 for temporary duty. His fellow fliers, as well as his commanding officer were thoroughly impressed with his abilities, and in January they made his transfer permanent. At age nineteen, Voss quickly rose to be one of Germany's premier aces. Having been an obser-

vation pilot, the young ace from the outskirts of Dusseldorf sympathized with his two-seater victims. He used his excellent marksmanship to spare the aircrew by aiming for the reconnaissance plane's engine. This at least gave the Allied pilot a chance to crash-land and survive.

Once, after downing an Allied plane, Voss discovered that there were no German ground units in the area, which meant his victory couldn't be confirmed. Determined

to get credit for this score, Voss landed in the middle of no-man's-land, and dodged around shell holes and barbed wire to reach the wreck of the Allied plane. He jumped from his Albatros, and pulled a Lewis gun from his victims rear seat, set the plane on fire, then took to the air with machine gun bullets and mortar shells raining down around him. He got confirmation from an impressed C.O.!

Later in 1917, Voss was given command of his

own Jasta. Unfortunately, his individualism as well as his youthful nature conspired to make him unfit for command. He was at his best in the air when he hunted alone over the front.

On the ground, Voss could be seen constantly tinkering with his scout, dressed in a musty gray sweater. In combat, he adorned himself in the finest silk shirts. He wanted to look dashing for the "pretty girls" if he should be forced down in Allied territory!

In September 1917, Voss was flying alone in his Fokker Triplane, when a flight from No. 56 Squadron bounced him. In an epic dogfight, Voss held his own against six S.E.5's led by James McCudden. All six of the British pilots were aces, yet Voss outflew them and filled every S.E.5 with lead. Finally, the German received a telling blow from Lt. Rhys-Davids, and the Fokker fell to the ground and exploded. Voss died before he could celebrate his twenty-first birthday.

An End to the Great War

THE BEGINNING OF THE END

"Just think what it will be in the future when we attack with one, two or three thousand airplanes at one time. The effect will be decisive."

— American Gen. Billy Mitchell



National Archives #111-SC-22484

■ Above: Allied troops on the march.
Above right: Over the top!
Right: One of the best scouts of the war—the S.E.5a.

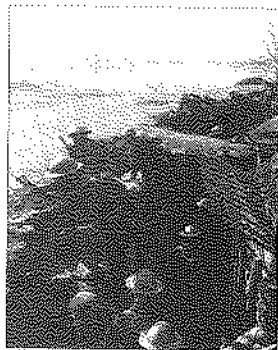
The German Spring Offensive slowly ground to a halt after amazing initial gains. The Allies, especially the French, were exhausted, and could not stop the Germans. Seventy divisions pressed forward, seeking to force the British to retreat to the coast, while the French fell back to defend Paris. They nearly succeeded.

The American Expeditionary Force arrived just in time to save the Allies. Their presence served to give heart not only to the British and French troops, but to the French people as well. Fresh and full of enthusiasm, though inexperienced, the Americans were thrown into the lines and helped blunt the German Offensive at Chateau-Thierry in June 1918.

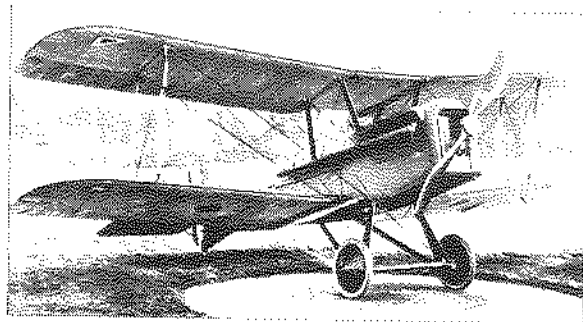
By August, the Allies had drained the German's last reserves. Their last desperate assault failed. On their home front, revolution was brewing. Worse, their

army started to crack after years of warfare. On August 8, the Allies launched a massive counterattack that cracked the German lines on the British sector of the front. It was known as the "Black Day" in the German army.

In the air, the Allies overwhelmed their opponents with sheer numbers. Although the German pilots fought valiantly until the end, their skill could not overcome their numerical inferiority.

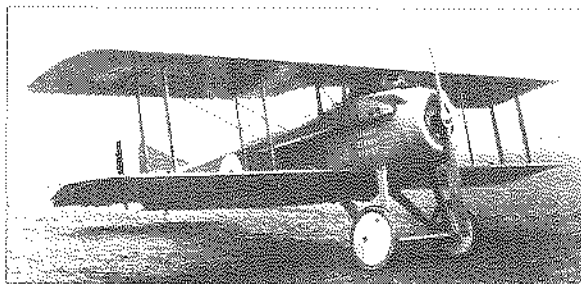


The Keystone View Company



National Archives #111-SC-22484

■ A SPAD 7, one of France's best aircraft. It could out-dive every German plane in its time.



Imperial War Museum, London

William "Billy" Mitchell

Billy Mitchell was never one to mince words. Throughout his illustrious career he constantly found himself in hot water with his superiors for the comments he made in public. In World War I, Mitchell was given command of a huge Allied aerial armada which he used in both infantry support and strategic bombing roles. He helped lay the foundations for the American Air Service as well. After the war, he proved to the world that surface ships, including battleships, could be destroyed by aircraft. He did this by sinking several German ships in experiments undertaken in the early 1920s. When he and his men sank the German battleship *Ostfreisland* before hundreds

of international observers, almost everyone witnessing the test agreed that an era had passed. American naval officers, however, were unimpressed and declared the tests invalid. Nevertheless, Mitchell had decisively revealed the vulnerability of surface ships to aerial attack.

In the late 1920s, Mitchell called the Navy and War Departments "criminally negligent" after the dirigible U.S.S. *Shenandoah* crashed in a storm. The Army reacted quickly and court-martialed Mitchell. He was found guilty of insubordination. Soon after, Mitchell retired and faded into obscurity. He died in 1936 a forgotten man.

While they lost general air supremacy, they did win local dominance wherever they focused their efforts. By concentrating their attacks on one section of the front, the Germans inflicted tremendous casualties upon the French, British and American aviators. It was not enough.

The Allies used their numerical superiority to advantage, roaming freely over the lines in areas the Germans could not defend, strafing troop concentrations, artillery pieces

and trains. Some of the inexperienced pilots quickly gained skill and proved themselves equal to Germany's best. Veterans such as Mannock and Collishaw, who had survived a year or two in combat, scored victories as impressive as the enemy's victories.

James McCudden was one of the veterans. He had been an observer in unarmed Moranes during the Fokker Scourge of 1915, and in early 1918, he won the Victoria Cross



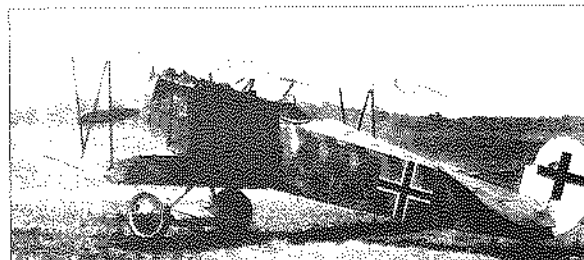
Imperial War Museum, London

■ Above: The cautious and patient James McCudden, who would stalk high altitude two-seaters for hours.
Above right: The plane that inspired fear in every Allied pilot—the Fokker D.VII.

and became Britain's fourth-ranking ace by repeatedly knocking German two-seaters from the sky. He often scored two or three victories per day. On January 31, 1918, he shot down two Germans in one pass through a formation of five Pfalz and Albatros single-seaters. He died when his S.E.5a stalled on take-off and crashed into a forest. He had 57 victories.

In April, the new Fokker D.VIIs arrived on the German front. Arguably the best fighter of the war, the Fokker could climb vertically for short distances. Equipped with high-compression BMW and Mercedes engines, its high-altitude performance could not be rivaled by any Allied fighter. They wrought havoc on their inferior adversaries. In June alone, the German Air Service downed 487 aircraft while losing only 150. This figure can be attributed to the quality of German pilots and the superiority of the Fokker D.VII.

Meanwhile, on the ground, the war was rapidly coming to a conclusion. One of the last German strongholds on the Western Front was St. Mihiel, southeast of Verdun. The St. Mihiel assault was to be the first American offensive of the war. General Billy Mitchell, America's foremost airpower advocate, was given command of 600 American, French and British aircraft. They streamed over the lines on September 12, against 295 German planes.



Imperial War Museum, London

Nothing could counter those odds, and the air and ground battle ended quickly in a German defeat. About 15,000 German soldiers surrendered, while the Americans suffered 7000 casualties. Despite heavy losses, the German Air Service continued to fight fiercely.

On September 26, American troops led the final assault of the war, at Meuse-Argonne. Against hundreds of Allied planes, German pilots continued to win many dogfights, but they were vastly outnumbered and were often grounded for lack of fuel or parts. In fact, the supply situation was so desperate that the Germans routinely cannibalized Allied wrecks for brass fittings and other unattainable items. It was a sure sign that the German home front was running out of raw materials. The pilots knew the war was lost. However, they never wavered in their duties and fought until the end.

THE LAST DOGFIGHTS

By October 1918, the German war effort began to collapse. Allied troops pushed the enemy farther each day. The Americans had mobilized four million fresh soldiers and were producing hundreds of British- and French-designed aircraft, such as the two-seat D.H.4 fighter-bomber.

Right: Street fighting in a French village. Much of northern France was devastated this way. Below: French Poilus slogging through the trenches. By 1918 French morale could not withstand the strains of major offensives as it had in 1915-16.

At home, the German Navy mutinied after sitting idle in North Sea ports since 1916. Class tensions, always a major stress in German politics, erupted into violent street battles. Food had been scarce in Germany since the British began a naval blockade in 1914, but by 1918, it was nearly unattainable. Food

riots broke-out as starvation became a serious threat. People survived on turnips or bread mixed with grotesque ingredients such as sawdust.

As the German navy mutinies spread, they prompted the German Socialists to take to the streets. In dozens of industrial cities Worker-Councils, much like the



National Archives 1165-66-8522

ones created in Bolshevik Russia, usurped authority and claimed the reins of power. Germany tottered on the brink of revolution, and its leaders were forced to sue for peace.

Recognizing that the Germans were running out of fighters, fuel and parts, Allied generals predicted that Germany would soon be defenseless in the air. They planned massive bombing raids on Berlin for early 1919. The raids would not be needed. Beaten on the ground, with revolution brewing at home, the Kaiser abdicated and fled to Holland. Democracy was proclaimed and the new government agreed to Allied terms for an armistice.



©The Keystone View Company



National Archives #111-SC-31464

■ Above: Foch's railcar, where the cease-fire was signed at Compiegne. Right: Victory celebrations broke out all over France, Britain and the U.S.

At 5 a.m. on November 11, 1918, in a rail carriage in the Forest of Compiegne, Germany surrendered. Six hours later came the official cease-fire in a war that left 8.5 million combatants dead. In the French Army alone, over 60 percent of their army was killed or wounded during the course of the war. Twenty-one million soldiers were left maimed, and some 8.6 million civilians were killed. Many of these civilian deaths were caused by starvation and diseases such as the great influenza epidemic in 1918-19.

Spontaneous celebrations broke-out in every major Allied city. People openly wept with joy; church bells tolled the victory. Thousands of people danced in the streets of Chicago, New York, Paris and London, overcome with relief that the conflagration had finally ended.

While Allied airmen celebrated with bonfires and parties, Herman Goering led the old Richthofen Circus from the front to Darmstadt, Germany, where rioting civilians and soldiers began to strip the planes. Goering threatened to strafe and bomb the town if more planes were damaged then flew with his men

National Archives #111-SC-50094





National Archives 111-1-5C-33075

to Aschaffenburg. There, in a moment heavy with emotion, the men who carried the legacy of the Red Baron disbanded their squadrons and went home. They told each other they could take pride in the fact that, although they had been outnumbered and their nation had been defeated, they had proven themselves as fighter pilots until the very end.

The Treaty of Versailles

Although Woodrow Wilson wanted peace without any punishment doled out to the defeated powers, the French, British, and Italians needed to convince their people that the war was not fought for nothing. As a result, German and Austrian territory was carved up and given to the various Allied powers. France, Britain and Japan received all of Germany's overseas possessions, and Italy received the Austrian port of Trieste. Further, the Allies imposed huge war reparations payments on the Germans. These payments devastated the German financial structure in the early '20s and contributed significantly to

the Great Depression. Various clauses in the treaty outlawed the production of aircraft, relegated the German Navy to a coastal defense force, and allowed Germany only a 100,000-man army without tanks or machine guns. Nationalists inside Germany were appalled at the conditions of the Treaty and vowed revenge. Their primary spokesperson became Adolph Hitler. Soon after he took power, he defied the Versailles Treaty and rearmed Germany. Less than five years later, the Second World War broke out. Many historians call the years between the two World Wars the "long armistice."

THE AMERICANS

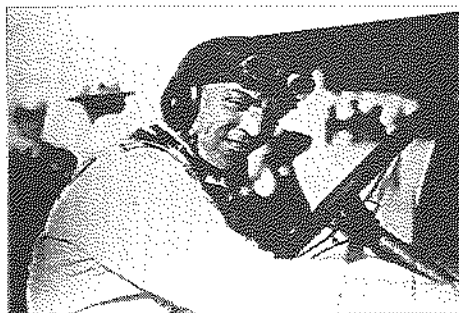
"Whenever you're over the lines you have to keep twisting your neck in all directions every minute, or you're sure to be surprised...."

— Eddie Rickenbacker

The United States came late to World War I, but not too late to begin its own air combat traditions.

The nation where the airplane was invented had no combat airplanes when it declared war on Germany on April 6, 1917. Some American pilots had been fighting for France since the beginning of the war in the Foreign Legion. Eventually, many transferred to the French Air Service, where they were incorporated into an all-American fighter squadron.

Originally named the Escadrille American, the French later renamed the unit the Lafayette Escadrille in honor of the famous Frenchman who helped the Americans win the Revolutionary War. The Lafayette was a motley collection of American volunteers. When America joined



Courtesy National Air and Space Museum, Smithsonian Institution

the war, many of the American pilots transferred to their country's air service. They formed the nucleus of the fledgling air arm in 1918.

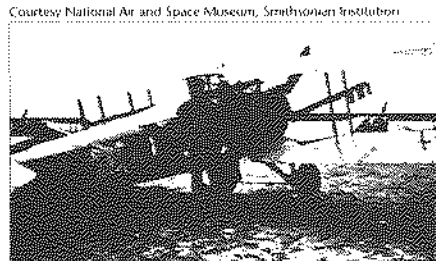
Eddie Rickenbacker, a former race-car driver, became America's "Ace of Aces" with 26 victories

to his credit. When the U.S. declared war, he had quickly signed up, hoping to become a flyer. Instead he found himself chauffeur to the American commander General "Blackjack" Pershing, who took pleasure in having a famous racer as his driver.

Rickenbacker scoffed at the duty, but Pershing wouldn't budge. Finally General Billy Mitchell, commander of the U.S. flying corps, convinced Pershing that Rickenbacker could better serve his country in an airplane. Pershing was right. Rickenbacker soon became a superb pilot and skillful tactician. On September 25, 1918, he was given command of the 94th Pursuit, the "Hat-in-Ring Squadron."

That day, flying alone in a Spad 13, Rickenbacker spotted two Halberstadt two-seaters escorted by five

Above right: Eddie Rickenbacker in the seat of his pre-war race car. He was nationally known for his driving skills. Below: A Lafayette Spad sporting the unit's famous Indian head marking.



Courtesy National Air and Space Museum, Smithsonian Institution

Fokker D.VIIs. A brave but not foolish pilot, Rickenbacker patiently worked himself into position high above the formation, with the sun at his back. He planned to dive quickly, get off one burst and then trade his airspeed for altitude, climbing to safety before the Fokkers could react.

When his initial burst killed the pilot of the trailing D.VII, the other Fokkers scattered and left the Halberstadts to fend for themselves. Under heavy fire, Rickenbacker made a sidelong pass and flamed one of the two-seaters. He then turned for home, and by the time the Fokkers regrouped and returned to the scene, he was nowhere to be found. His double victory earned him a Congressional Medal of Honor.

Rickenbacker ended the war with 26 victories.

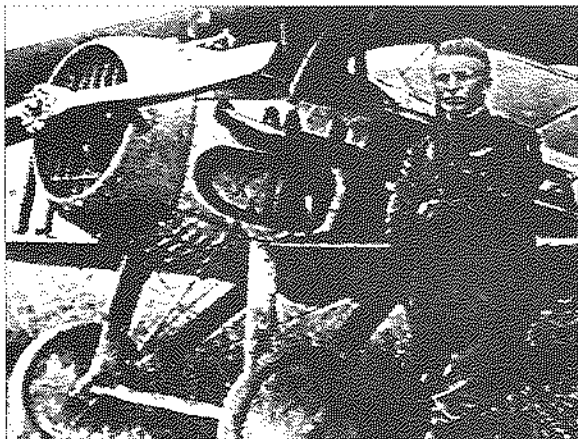
He also served in World War II. After World War II ended he visited a cemetery in Berlin to pay his respects to Boelcke, Richthofen and Udet.

America's second-ranked ace was Frank Luke, the "Arizona balloon-buster." Aggressive to the point of suicide in the air, Luke's specialty was threading his Spad through the formidable anti-aircraft fire around observation balloons to shoot them down. He scored his first victory on September 12, and was killed 17 days later. Luke is credited with 21 kills.

Luke was much more aggressive than most of his squadron mates, who called him "Bad-luck Luke" because they didn't like to fly alongside him. After going AWOL several times, his commander grounded him. Disregarding this, Luke took off without permission on September 29, and quickly destroyed three balloons. He was attacked by some Fokkers and soon had so much battle damage that he had to land.

He landed in the German-held village of Murvaux, strafing German infantry as he approached. Wounded in the shoulder, he was leaning against his aircraft as an entire platoon of 40 German soldiers approached to accept his surrender. As they got within range, Luke unholstered his two revolvers and shot seven of the Germans before he was killed. He earned a posthumous Congressional Medal of Honor for this a year later. In memory of this great air fighter, Luke Air Force Base in Arizona was named after him.

■ Frank Luke, unpopular with his squadron mates, always seemed to have a chip on his shoulder.



Courtesy National Air and Space Museum, Smithsonian Institution

The Bizarre Case of Courtney Campbell:

When Courtney Campbell joined the Lafayette Escadrille, no one knew much about his past. Rumor had it that he had been a dance instructor in Illinois and had gotten himself in some sort of trouble which forced him to flee the country. He quickly proved himself to be quite a wild and adventurous person whose slick-talking usually spared him from disciplinary actions after he pulled-off some prank or caper. In the air, he loved to torment his flight leader by flying as close as he could to him. Once, while doing this, he

misjudged the distance between his and Captain Maison-Rouge's Nieuport. His landing gear went straight through the top wing of the Frenchman's aircraft. For several minutes, the two airplanes circled the field locked together by Campbell's undercarriage. Finally, the American hauled back on the stick and pulled his scout free. Maison-Rouge landed at once, but Campbell treated everyone to an astounding aerobatics display.

In combat several months later near Soissons, Campbell disappeared. No

one ever saw him again and he was listed as "killed in action."

In September 1932, a man claiming to be Courtney Campbell wrote to the American Consulate General in Paris asking for his wartime service record, which he wanted to give to his fiancée. The man claimed that after he was shot down, he spent three years in a German hospital suffering from a spinal injury and amnesia. After the war, he returned to North Carolina so traumatized by his experience that he

remained silent for a decade. The love of his fiancée, according to his story, was what convinced him to try and regain his memory. His story was investigated thoroughly, but the results were inconclusive. A few months later, the whole affair dropped from the public eye and the man claiming to be Courtney Campbell faded back into anonymity. Was he really Campbell? No one will ever really know.

THE MONSTERS



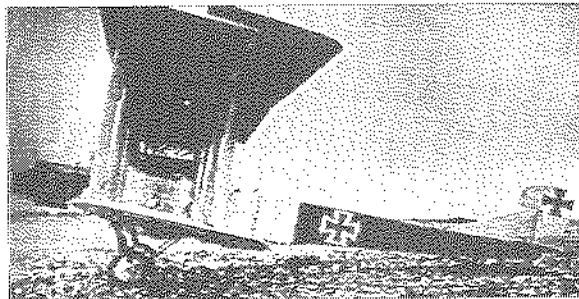
On June 13, 1917, in broad daylight high above London, a flight of 14 Gotha bombers circled with impunity until they had dropped nearly 100 bombs, killing 162 people and wounding 438. Ninety-two fighters took off from all over England to give chase, but the bombers were long gone by the time the smaller aircraft reached fighting altitude.

With a 77-foot wingspan and two 260-horsepower engines, the Gothas could carry 1000 pounds of

from France to protect England's capital. Two squadrons, including the vaunted No. 56, were called home, reducing British strength on the Western Front.

New antiaircraft guns were put into service from London to the coast and, along with the reinforced fighter defenses, brought down so many bombers that the Germans started flying only at night. Soon the Germans deployed even larger bombers, including the Zeppelin Staaken "Giant," which could carry a 2200-pound bomb, the largest of the war. But the massive planes could not maneuver; they had many accidents and were easy prey for night-fighters and antiaircraft fire.

■ A Gotha bomber in the daylight with a green and white paint scheme.



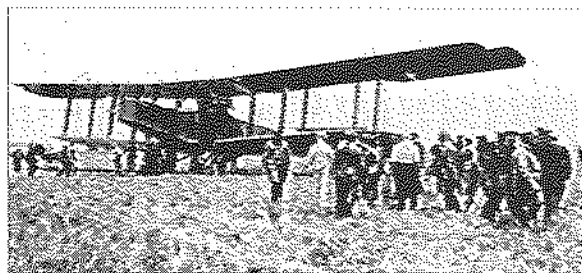
Courtesy National Air and Space Museum, Smithsonian Institution

bombs above 20,000 feet. While their appearance over London was not a serious threat in strict military sense, it had a huge impact on the war effort.

Reacting to the bombing raids, Parliament demanded that crack fighter pilots and the latest planes be withdrawn

In 27 raids on England between May 1917 and May 1918, the German bomber squadrons dropped 130 tons of bombs and killed 835 Britons. They lost 60 bombers, including 36 to accidents. Historians say that the main effect of this campaign was to psychologically prepare England for World War II's Battle of Britain.

The British copied the German strategy with their own heavy bomber, the Handley-Page O/100 and later the O/400. Built in absolute secrecy, the first four Handley-Pages were intended as a nasty surprise for the German home front. Alas, on their first flight



Courtesy National Air and Space Museum, Smithsonian Institution

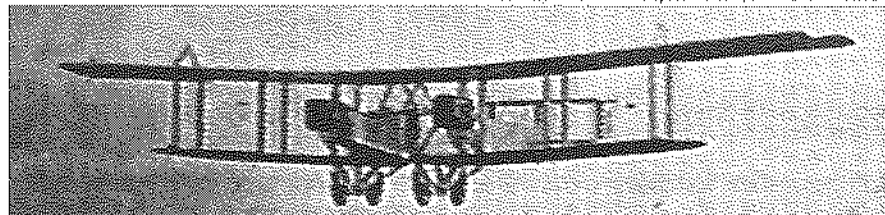
over the English Channel, one British pilot errantly landed at a German airfield, giving the enemy a spanking-new model for study.

The Handley-Page had two 250-horsepower engines and a 2000-

pound payload but a ceiling of only 7000 feet. The latter made it easy fodder for German fighters and anti-aircraft guns. So, like the Gothas, the British heavy bombers were used mainly at night. They concentrated on U-boat bases, railyards and other strategic targets.

Smart fighter pilots from both sides jumped a bomber with care, for most types bristled with machine guns. However, all the big planes were clumsy, and seldom survived an attack by a competent pilot.

Courtesy National Air and Space Museum, Smithsonian Institution



Welcome Home:

When Rudolf Berthold returned home to Germany after the war, he witnessed a nation literally unraveling itself. Chaos reigned in the cities, with armed mobs clashing in the streets. Having been a decorated and respected scout pilot, Berthold was disgusted with the situation. Throughout 1919, he helped battle Communist street gangs with other former military men. In December of that year, Berthold's men were forced to lay down their arms to a local Communist group in the city of Harburg. After negotiating with the Communist leader, Berthold turned around

and began to walk back to his men. Someone hit him over the head and strangled him—with the ribbon of his Orden Pour Le Merite.

Another pilot, Ernst Udet nearly started a riot on the platform of a train station when some young revolutionary attempted to tear his Blue Max from his throat.

Incidents such as these were all-too common when the troops returned home to Germany. The war had caused so much dislocation and hardship that anyone in a uniform was seen as responsible for the problems the country faced.

EPILOGUE

The Great War profoundly influenced the course aviation history would take for at least 20 years after the armistice. The groundwork for the great air campaigns of World War II was laid by the early pioneers flying their unreliable and clumsy machines. The Zeppelin raids of 1915-16 were the inspiration behind the London Blitz, Dresden and Hamburg, even Hiroshima and Nagasaki. Forward-thinking theorists such as Trenchard, Mitchell and the Italian Giulio Douhet concluded that wars would no longer be won on the ground. The airplane, they reasoned, was the key to success. Destroying the enemy's means of production and terrorizing their population were the only means to ensure victory. A brutal concept, but one that has shaped military strategy ever since.

Today, although the weaponry is far more sophisticated, the basic axioms of air combat developed in World War I remain inviolable. Boelcke's *Dicta*, for example, is still taught to fledgling fighter pilots around the world.

Though their lives were filled with frustration, fear and failure, the aviators of the Great War forged a path which others have followed throughout the years. Today their accomplishments are overshadowed by the other cataclysmic events of

this century, yet they still serve as a testament of man's ability to improvise and adapt in an environment both foreign and deadly.

Who Started the Great War?

The irony of the Great War lies behind the question of who started it. At first glance it appears obvious that the Germans and Austrians started it, but deeper investigation reveals a much more murky situation. For decades, historians have argued over who bears the responsibility for the war. In the early 1960s, Fritz Fischer, a German historian, published a book entitled *Germany's War Aims in the First World*

War in which he tried to prove that Germany diabolically plotted the outbreak of the war in order to subjugate most of Europe. This touched off an incredible debate that has lasted to this day. Most historians, however, believe that the war was started because of a series of diplomatic blunders and miscalculations. If this is true, it is sobering to realize that so many people had to pay the price for their mistakes.