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BRITISH FIGHTER UNITS WESTERN FRONT 1914-16

ALEX REVELL





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THE NEED TO ARM

At the outbreak of war in August 1914, the role of the aeroplane was seen purely as that of reconnaissance, undertaking tasks that made it little more than a natural extension of the cavalry. Opinions differed as to whether it was absolutely necessary to arm aeroplanes—indeed many people doubted that the flying machine would have any practical value in war at all. Although some thought was given to making the aircraft into a weapon in its own right, notably by the manufacturers Vickers, Sopwith, Avro and the Royal Aircraft Factory, with 'gunbus' designs, there was no real urgency to develop a fighting machine. Consequently, not one of the 64 aeroplanes which the Royal Flying Corps took to France on 13 August was armed or equipped for air fighting in any way. All were two-seaters, a variety of types equipping four squadrons: Nos. 2 and 4 Squadrons had B.E.2s, No. 3 Bleriot and Henri Farmans and No. 5, Farmans, Avros and B.E.8s. The entire RFC could only boast four single-seaters at that time and these, Sopwith Tabloids, were still in crates at the Aircraft Park at Amiens, France.

The first of a long line of Sopwith fighters, the Tabloid had a top speed of 93mph and had been ordered for the RFC as a high speed reconnaissance scout, the term 'scout' later becoming synonymous with any single-seater fighter. The Tabloids were unpacked and erected and a week later were flown on active service by Lts Norman Spratt and Gordon Bell, two Special Reserve officers attached to the Aircraft Park. Initially the Tabloids were unarmed, but Spratt experimented with various offensive weapons, including a revolver, flechettes—small pointed darts for dropping on enemy troops—and even a hand grenade on a long cable.

The first German aeroplane to be seen by the RFC appeared over Maubeuge aerodrome at about 2.30 pm in the afternoon of 22 August and was

chased by two B.E.s and a Henri Farman. For some time it looked as if Major Longcroft in one of the B.E.2s would be successful in intercepting the enemy aeroplane—the intention being to drop hand grenades on it—but the German pilot turned east and easily escaped. The Farman, from No. 5 Squadron, was unofficially armed with a Lewis gun, a fitting which so impaired its performance that 30 minutes after the German machine had departed, its pursuer was still laboriously climbing for height. Lt Louis Strange, the enterprising pilot, was ordered to remove the Lewis and replace it with the customary rifle.

On the morning of 23 August the RFC moved its headquarters from Maubeuge to Le Cateau. The retreat of the British Army from Mons had begun and for the next 12 days the HQ moved almost daily. The location of new aerodromes presented no problems—as early as 1911 Captain F. M. Sykes, later to become the Commanding Officer of the Military Wing on the formation of the Royal Flying Corps in 1912, had cycled through the countryside of northern France to select possible landing grounds. But the strain, so early imposed on the transport and servicing facilities of the Corps, the youngest in the British Army, was severe. That the air component came through with flying colours, even learnt valuable lessons from the enforced retreat, is testimony to the improvisational skills of both officers and men. Billets were found in farmhouses, barns and haystacks and even under the wings of the aeroplanes, which was better than nothing when the weather was kind. James McCudden, then a mechanic in No. 3 Squadron and later to become one of the most successful fighter pilots of the war, recorded that it very often wasn't:

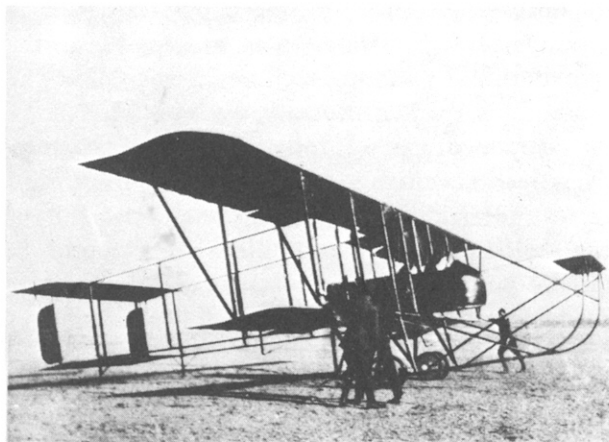
'It was raining very hard and as there was six inches of mud under the machine I decided not to

sleep under the wing that night, so I slept in the pilot's seat with a waterproof sheet over me.'

On 31 August the personnel of No. 3 Sqn were able to have their first bath since leaving England on the 13th. 'Several of us went down and bathed in the ornamental lake in the grounds of the convent. . . we spent a very pleasant afternoon there and we also found some very nice apples in the grounds as well. Food was short: apples, "scrumpted" from the wayside orchards, were augmented by blackberries—which the French peasants considered poisonous—and officers and men shared their provisions, one officer rising to an occasion by milking a cow in a nearby field to provide milk for tea.'

It was not until 25 August that an enemy aeroplane was brought down. Three machines of No. 2 Sqn flew over and around it, making feint attacks, until the German pilot lost his nerve and landed. Lt H. D. Harvey-Kelly, the pilot of one of the attacking machines, landed close by, but the enemy pilot and his observer ran off into a nearby wood and escaped capture. Their machine was burnt. Another enemy aircraft was captured during the day. Three days later Lt Spratt, flying his Tabloid and armed with flechettes, forced down a third German machine.

The British retreat ended when the German forces were finally halted in the battle of the Marne, the



1. The Maurice Farman S.7 Longhorn, the type on which many of the first fighter pilots of the Royal Flying Corps learned to fly.

successful conclusion of which brought the first mention of fighting in the air by Sir John French, in his despatch of 7 September. Throughout the autumn, during the battles of the Aisne and the first battle of Ypres, there were occasional aerial combats and each side began to give serious thought to arming both their reconnaissance machines and the faster single-seater scouts. In September, No. 4 Sqn was already fitting each of its Henri Farmans with a Lewis gun, and during the month two Bristol Scouts were issued to the RFC, one going to No. 3 Sqn, the other to No. 5. Also originally conceived as fast single-seater scouts, the Bristols were quickly armed. No synchronizing or interrupter gear, to enable a gun to fire through the propeller, was available at this time and No. 3 Sqn fitted two rifles, one on each side of the fuselage, angled outwards at approximately 45° to fire clear of the propeller. No. 5's Bristol had a rifle and a pistol as well as a quantity of rifle grenades. In October the single S.E.2 built by the Royal Aircraft Factory at Farnborough was allocated to No. 3 Sqn and armed in a similar fashion to the unit's Bristol Scout.

With the ending of the first battle of Ypres in November 1914, the war of movement stagnated to one of entrenched positions and the opposing forces faced each other from dug-outs which stretched from Switzerland to the Belgian coast. By the end of the year, after four and a half months of war, the RFC had seen a great deal of fighting: a pattern of operations was beginning to emerge from 'the fog of war' and 1915 was to see a rapid development in both equipment and tactics.

With the opening of the battle of Neuve Chapelle on the morning of 10 March 1915, the air war over the Western Front gained both momentum and pace. From what had been a mainly passive role, the RFC began to play a more directly effective part in operations: spotting for the artillery, working with the attacking troops and, for the first time on an organized scale, bombing railway junctions, stations and troop positions. The Corps still had only four single-seaters on charge: the single S.E.2 with No. 3 Sqn, two Martinsyde S.1s with No. 5 and another with No. 4. These scouts were all armed in various makeshift ways to act as escorts to the



2. At the end of the retreat from Mons, RFC Headquarters occupied the French aerodrome at Melun, where this picture was taken. The group enjoying tea and Crawford's biscuits includes Sgt William T. J. McCudden (foreground, wearing braces) at that time in charge of the transport of No. 3 Squadron. McCudden was the fourth NCO pilot in the RFC, having won his Royal Aero Club Certificate (No. 269) on 13 August 1912. He was killed in a flying accident in May 1915. (Gp Capt F. C. V. Laws)

reconnaissance and army co-operation aeroplanes of their respective units.

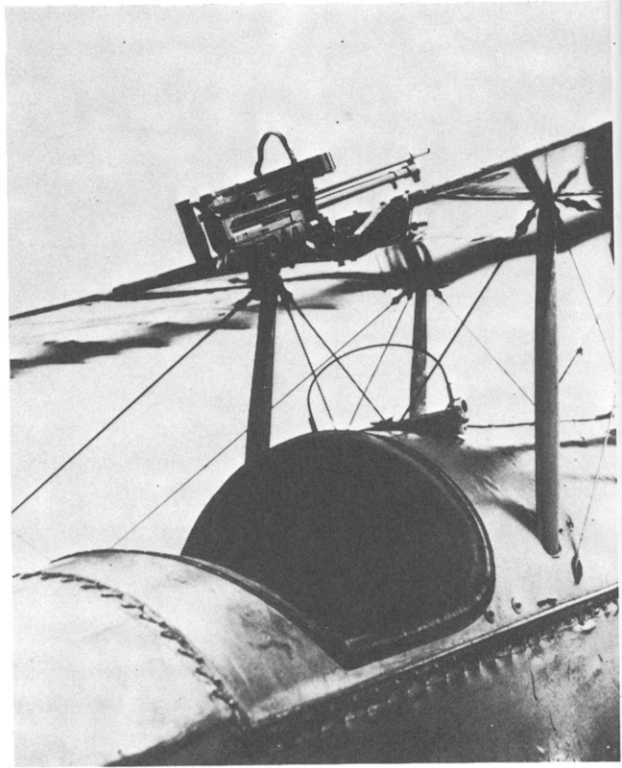
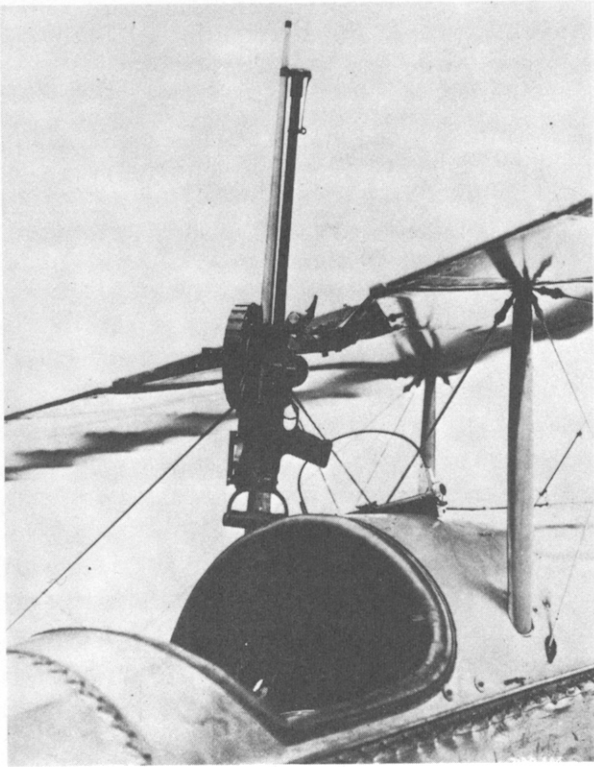
During the spring and early summer, clashes in the air became more frequent. Although certainly not typical of these early combats, that fought by Captain Louis Strange of No. 6 Sqn graphically illustrates one of the less-obvious hazards of air fighting in 1915. On 10 May, Strange took off to intercept a German Aviatik, flying the squadron's Martinsyde S.1 fitted with a Lewis gun mounted on the top wing to fire above the propeller arc. Over Menin both aeroplanes were near their respective ceilings and the German observer began to fire his Parabellum pistol at the pursuing Martinsyde. Strange later wrote:

'As some of his bullets came unpleasantly close I thought it high time to retaliate and gave him a drum from my Lewis gun, but without much effect. But when I wanted to take off the empty drum and replace it with a full one it seemed to jam, and as I was unable to remove it with one hand I wedged the stick between my knees and tugged at the obstinate thing with both hands.'

Failing to move the drum, Strange stood up in his seat to get a better grip. At the critical moment his safety belt slipped down, his knees lost their grip on the joystick and the Martinsyde, already climbing

3. This Bristol Scout Type D, one of the third production batch, is armed with a synchronized Vickers gun firing through the propeller arc; note the chute on the port side of the gun to clear spent cartridges. (Aeromodeller)





4, 5. The Lewis gun mounting on the top wing of a Bristol Scout early in 1916. (J. M. Bruce/Stuart Leslie)

at its maximum angle, stalled and flicked over into a spin.

'As I was more than half out of the cockpit at the time, the spin threw me clear of the machine, but I still kept both my hands on the drum of the Lewis gun. Only a few seconds previously I had been cursing because I could not get that drum off, but now I prayed fervently that it would stay on for ever.'

The Martinsyde was now inverted and in a flat spin, and Strange, hanging from the top plane, knew that the drum might come loose at any moment. It was imperative that he gain a hold on a more permanent part of the machine.

'The first thing I thought of was the top of the centre section strut, which was behind and below the Lewis gun, but as the machine was now flying upside down, I had sufficient wits to realize that it was behind and above me, though where it was exactly I could not tell. Dare I let go the drum with

one hand and make a grab for it? Well, there was nothing else for it but to take the risk. I let go and found the strut all right; then I released my other hand and gripped the strut on the other side.'

Although in a more comfortable attitude, Strange was still in an extremely precarious position: his chin was jammed hard against the centre section of the top wing; his feet still kicked in space; and the propeller seemed dangerously close to his face. He realized that his only chance of survival was to somehow get his feet back into the cockpit.

'I kept on kicking upwards behind me until at last I got one foot and then the other hooked inside the cockpit. Somehow I got the stick between my legs again and jammed on full aileron and elevator; I do not know exactly what happened then, but somehow the trick was done. The machine came over the right way up and I fell off the top plane into my seat with a bump.'

But Strange's troubles were not yet over. When he tried to move the joystick he found it to be jammed. The force of his precipitate re-entry into the cockpit had smashed the wooden seat and he

was now sitting on the floor of the Martinsyde's cockpit, effectively locking the controls.

'Something had to be done quickly, as although the engine had stopped through lack of petrol when the machine was upside down, it was now roaring away merrily and taking me down in a dive which looked likely to end in a wood to the north of Menin. So I throttled back and braced my shoulders against the back of the cockpit; then I pulled out the broken bits of seat and freed the controls. Luckily I found them working all right so I was able to pull the machine's nose up and open the throttle again. I flattened out, clearing the trees on the Menin road with very little to spare.'

Strange flew back along the Menin road, ruefully surveying the smashed instruments, mute testimony of his frantic efforts to regain the controls with his feet.

'I went to bed early that night and slept for a good solid twelve hours, but oh! how stiff I was the next day.'

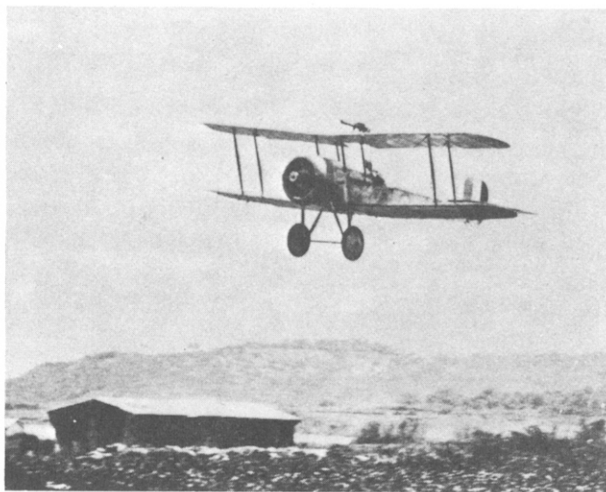
In July an air action resulted in the first award of a Victoria Cross for a combat between opposing aeroplanes. On the evening of 25 July, Captain Lanoe G. Hawker took off in No. 6 Squadron's Bristol Scout, No. 1611. The machine was armed with a Lewis gun which fired outwards at an angle to miss the propeller, a device which must have called for considerable skill on the part of the pilot—both in flying and marksmanship. Hawker first attacked an enemy two-seater over Passchendaele at 6.00 pm. He forced this machine down and 20 minutes later engaged another over Houthulst Forest. Hawker also sent this one down with a damaged engine, the enemy machine landing in its own lines. Hawker then climbed back to 11,000 feet and dived on another two-seater 10,000 feet over Hooge. Approaching from out of the evening sun, the British pilot fired a long burst from 100 yards range: 'The hostile machine burst into flames, turned upside down, and crashed east of Zillebeke.'

This action was the most successful yet fought by a single-seater scout of the RFC and Hawker's subsequent award was only the third VC to be won in the air. It pointed the way to the era of the true single-seater fighter which was then beginning. On

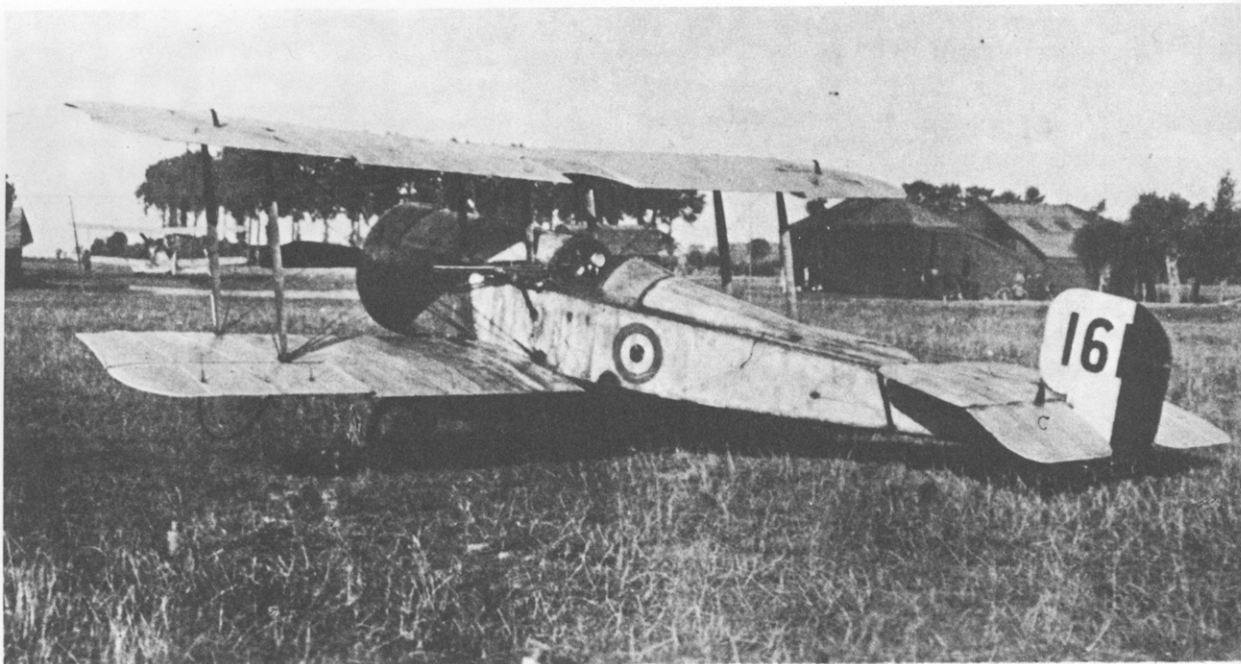
1 April 1915, Lt Roland Garros, a member of the French *Escadrille de Chassé M.S.12*, flying a Morane-Saulnier Type L, had shot down an Albatros two-seater. The Morane had had steel deflector plates fitted to the propeller blades, enabling Garros to fire through the propeller, aiming the aeroplane like a gun. Exploiting this initial success Garros shot down five enemy aeroplanes in the following 18 days. On 18 April, however, the Morane was hit in the engine by ground fire and Garros was forced to land behind the enemy lines. His attempts to burn the aeroplane were only partially successful and the Germans were quick to see the reason for the Frenchman's extraordinary successes—there was no doubting the potential of a fighter aeroplane which could fire guns through the propeller, along its line of flight. A first attempt to copy the deflection plate principle was unsuccessful and a Parabellum machine gun was given to Anthony Fokker, the Dutch aeroplane designer, so that he might experiment further.

FOKKER MENACE

Since the earliest realization that the aeroplane could have possible uses as an offensive weapon, and that the tractor type of machine was faster and



6. An in-flight view of a Bristol Scout Type C showing the Lewis gun mounting to advantage. (B. Liddle)

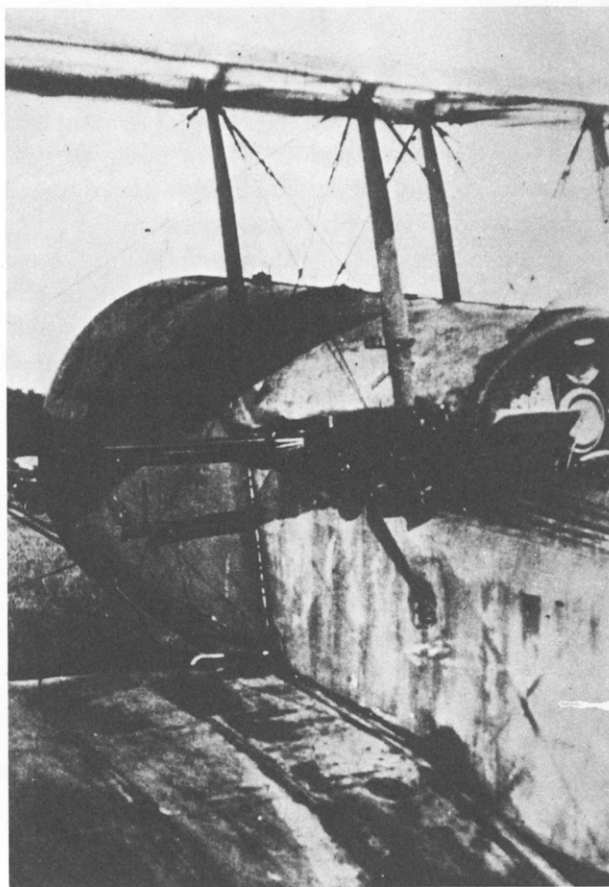


7. 'I have a beautiful little toy, a new Bristol Scout that goes at 80 and climbs at five or six hundred feet a minute', wrote Capt Lanoe Hawker on 7 June 1915. This was the machine, a Type C, No. 1611. (Lt Col T. M. Hawker, MC)

8. The ad hoc approach to air fighting in WWI was recorded by Hawker, who also wrote, 'I'm having a machine gun fitted to see how they like it.' The mounting was designed by him and fitted to Scout No. 1611 by Air Mechanic E. J. Elton. (Hawker)

more efficient than the pusher type, many people had tackled the design of a mechanism to enable a machine gun to be fired through a revolving airscrew. In Germany, Franz Schneider, a Swiss engineer, had patented such a device in July 1913 and there can be little doubt that Fokker's engineers knew of it. Decidedly superior to the crude deflection plates fitted to the propeller of Garros's Morane, Schneider's brainchild permitted the gun to be fired only when an airscrew blade was not in the line of fire. A short time after the provision of the Parabellum, Fokker was demonstrating a gun synchronization gear fitted to a Fokker M5K, a new tractor monoplane of his own design. Impressed, the *Feldflugchef* ordered the production of 50 machines fitted with the synchronization gear.

It was intended to issue single Fokkers to the *Feldflieger Abteilungen* units operating in the areas



where Allied aeroplanes had command of the air, and by July a small number of the new fighters were available. On 1 August *Ltn* Max Immelmann attacked a B.E.2c of No. 2 Sqn which was bombing Douai aerodrome, wounding the pilot and forcing him to land. The 'Fokker Scourge' had begun.

Despite its shortcomings as a fighter aeroplane, performance being generally poor, the Fokker monoplane fitted with the gun synchronizing gear was a highly effective weapon in the hands of the emerging German fighter pilots. It quickly became obvious that the slow, poorly armed and unmanoeuvrable reconnaissance aeroplanes of the RFC were no match for the agile monoplanes and by October the toll of British machines shot down by Fokkers had begun to mount. The air superiority enjoyed by the RFC during the late spring and early summer of 1915, and the almost complete domination of the Arras front by the Vickers F.B.5, had ended.

The Vickers F.B.5, known as the Vickers Gunbus, was a two-seat pusher, a development of the gunbus type which had been under steady improvement since the end of 1912, when the Vickers Company had been awarded an Admiralty contract for a fighting aeroplane armed with a machine gun. The first F.B.5 to reach France had been flown to No. 2 Sqn in February 1915, but it was not until 25 July, when No. 11 Sqn landed its Gunbuses on the aerodrome at Vert Galant, south of Doullens, that the first homogeneous British fighter squadron arrived at the front.

When No. 11 Sqn commenced operations over the 3rd Army front in July 1915, the Vickers Gunbus was the best fighting aeroplane operating with the RFC, but in the rapidly developing air war its heyday was to be short-lived and it was soon outclassed by the seemingly invincible German monoplanes.

At the end of the first year of war the British Expeditionary Force had been expanded from four divisions to 30; but only seven squadrons had been added to the strength of the RFC in France, with the complication that more diverse and additional duties had been added to the original role of reconnaissance. By the summer of 1915, it had



9. Vickers F.B.5 Gunbus No. 2874 which was on the strength of No. 5 Squadron in 1915 and flown by Lt G. S. Gilmour. Note the early application of the Union Jack below the serial number. (Bruce/Leslie)

become obvious that the ability of the RFC to meet the requirements of the army was dependent upon local air superiority—a lesson driven home even harder by the successes of the Fokkers. With these and other factors in mind, Major General Hugh Trenchard, who had taken command of the RFC in France on 19 August 1915, put forward a programme of expansion. It recommended the formation of a number of specialist single-seater fighter squadrons, but pending the arrival of such units, a change of tactics was urgently required to counteract the Fokker menace. In January 1916 the situation was so desperate that RFC HQ issued an order that effectively reduced the strength of the Corps:

'Until the Royal Flying Corps [is] in possession of a machine as good or better than the German Fokker it seems that a change in the tactics employed becomes necessary. It is hoped very shortly to obtain a machine which will be able to successfully engage the Fokkers at present in use by the Germans. In the meantime, it must be laid down as a hard and fast rule that a machine proceeding on reconnaissance must be escorted by at least three other fighting machines. These machines must fly in close formation and a reconnaissance should not be continued if any of the machines become detached. This should apply to both short and long reconnaissance. Aeroplanes proceeding on photographic duty any considerable distance east of the lines should be similarly escorted. From recent ex-



10. Vickers Gunbus No. 1621 in enemy hands. This machine was armed with a Vickers gun in place of the more usual Lewis and served with Nos. 2 and 16 Squadrons in February 1915 before being forced down intact in hostile territory. (Bruce/Leslie)

perience it seems that the Germans are now employing their aeroplanes in groups of three or four, and these numbers are frequently encountered by our aeroplanes. Flying in close formation must be practised by all pilots.'

But in the event the superiority of the Fokker was not to last; in 1916 the pendulum was once again to swing in favour of the RFC. On 23 January, No. 20 Sqn, the first to be completely equipped with the F.E.2b, arrived in France. A two-seater pusher fighter, the F.E.2b was to play no small part in combatting and finally subduing the Fokkers, but No. 20 Sqn was also called upon to carry out reconnaissance and escort duties. Therefore, it was not until 7 February, when No. 24 Sqn landed its D.H.2s at St Omer, that the RFC's first single-seater fighter squadron was on hand.

No. 24 Sqn had been formed at Hounslow on 1 September 1915, from a nucleus of No. 17 Sqn, and

on the 28th of that month, Captain Lanoe G. Hawker, VC, DSO, took command. At this time the squadron's aeroplanes were a rather motley collection of Avro, Martinsyde, Curtiss, Caudron and Farman types, with a single Bristol Scout. The first of the D.H.2s began to arrive on 10 January 1916 and by 7 February, when the squadron left for France, it had a total of 12.

The D.H.2 was Geoffrey de Havilland's second design for the Aircraft Manufacturing Company Ltd, which he had joined in June 1914. In the opening months of 1915 no efficient British design of gun synchronization gear was available, and an aeroplane of the pusher type seemed—and indeed was—a commonsense and practical solution to the problem of firing a machine gun along the line of flight.

The D.H.2 followed the conventional design layout of pusher aeroplanes: a nacelle accommodated the pilot, instruments, weapons and a rear-mounted 100hp Gnôme Monosoupape rotary engine with the tailplane and rudder carried by converging booms from the top and bottom mainplanes. The armament of the prototype D.H.2, No. 4732, was a

single Lewis gun mounted on an external bracket on the port side of the nacelle, the top portion of the nose being cut away to clear the gun. Spare ammunition drums were carried inside the cockpit.

The prototype D.H.2 was flown to France for evaluation trials in July 1915. At the end of the month it was on the strength of No. 5 Sqn, when Captain Maxwell-Pike attacked 'a very large Aviatik'. The little D.H.2 rapidly overhauled the enemy machine, but on trying to place a fresh drum on the Lewis gun, Maxwell-Pike found that the clip

11. Lt Hawker demonstrating how to keep warm in the air in the winter of 1914/15. Then a member of No. 6 Squadron, Hawker moved with his unit to the French aerodrome at Poperinghe in March 1915, sharing it with Escadrille MF 33. All the French pilots wore goatskin coats to keep out the bitter cold and their British counterparts quickly followed suit, retaining the very English balaclava helmet. Here, Hawker sports leather trousers and an unusual pattern in goggles. (Hawker)



had stuck. He lost sight of the Aviatik while trying to free the drum.

Maxwell-Pike seems to have had no other combats while flying the D.H.2 until 9 August, when he was reported missing, the Germans later dropping a note to say he had been shot down and had subsequently died of his wounds: 'He therefore met with a fine flying man's end and he was buried with full military honours in the churchyard at Linie.' The D.H.2 had not been badly damaged in the crash and the Germans had an early opportunity to examine and evaluate the type.

Despite the unpromising debut of the prototype, the D.H.2 was recognized as an excellent fighter and the first production order was for 100 aeroplanes,

12. 'A leader of men who combined modesty with courage, gentleness with a steely determination and unselfishness with a most human understanding.' Capt Lanoe G. Hawker, VC, DSO, Royal Engineers and RFC. (Hawker)





13. In June 1916 No. 60 Squadron used a number of Morane-Saulnier Type BB biplanes powered by 110hp Le Rhone engines. (Wg Cdr W. M. Fry)

serial numbers 5916–6015. The production D.H.2s were basically identical to the prototype, the only differences being the gun mounting and the addition of a gravity-fed petrol tank to supplement the main

14. One of the earliest Nieuport 16s to be transferred to the RFC by the RNAS was No. A.126, which served with No. 11 Squadron and was flown by Lt Albert Ball. (Bruce/Leslie)



tank. The position of the gravity tank varied: on some aeroplanes it was positioned on the underside of the port or starboard top wing; on others, centrally or to port on the top wing. The Lewis gun was mounted centrally in the nose of the nacelle. Provision was made to carry two extra Lewis gun drums in an external rack on the port or starboard side of the nacelle.

Single examples of the first production batch of D.H.2s went to France in January 1916 and were added to the strength of Nos. 5, 11 and 18 Sqns, but No. 24 Sqn was the first to be fully equipped with the type. Once in France, however, No. 24 found that the compact little pusher was not without faults. The Monosoupape engine, for example, had an unpleasant tendency to shed one or more of its cylinders. At best this caused excessive vibration until the engine could be switched off; at worst the rogue cylinder smashed or severed a tailboom, causing the aeroplane to break up in mid-air. No. 24 lost two promising pilots in this manner.

The other cause for complaint was the method now used to mount the Lewis gun. The swivel mount, which in theory would enable the pilot to fire the gun in a wide arc forward of the aeroplane,

or, by elevating it, to fire both forwards and upwards, was soon found to be impracticable. Quite apart from the difficulty of flying the aeroplane with one hand while aiming and firing with the other, when elevated, the gun fouled the control column. In addition the whole mounting was simply too moveable and the pilots of No. 24 Sqn soon nicknamed it 'the wobbly mounting'.

Lanoe Hawker, who had an enquiring and inventive mind, soon devised a clamp to hold the gun in a fixed position, but this was forbidden by higher authority. Hawker temporized by designing a spring clip, which although holding the gun down, enabled it to be released if necessary.

While at St Omer, No. 24 Sqn came under the orders of RFC Headquarters and its duty was a daily patrol between Bollezelle and Therouanne to prevent any enemy aeroplanes from approaching that hallowed establishment. In addition, two D.H.2s were in constant readiness to take off and intercept any intruder which had evaded the standing patrol. The squadron's first casualty was suffered the day after arriving in France, when E. A. C. Archer, the C Flight Commander, spun into the ground when returning from patrol. It was thought that Archer's legs had become too numb to control the D.H.2, which was a notoriously cold aeroplane, the pilot gaining no warmth from the engine mounted behind him. Hawker had foreseen that cold would be a problem in the exposed cockpits and he had designed special boots in an attempt to alleviate this. Fur-lined, reaching up the outside of the thighs and under the crotch, these boots became universally known in the RFC as 'fug boots' and later became standard issue.

On 9 February, No. 24 Sqn was transferred to 12th Wing, 3rd Brigade, and came under the orders of 3rd Army. The squadron's new aerodrome was Bertangles, north of Amiens, but it was not until the 20th of the month that all its aeroplanes arrived at the new base, ten days of appalling weather keeping them at St Omer.

War flying now commenced in earnest. On 2 April, Lts Tidmarsh and Sibley shot down an Albatros two-seater to score No. 24's first decisive victory, and on the morning of 25 April the pilots

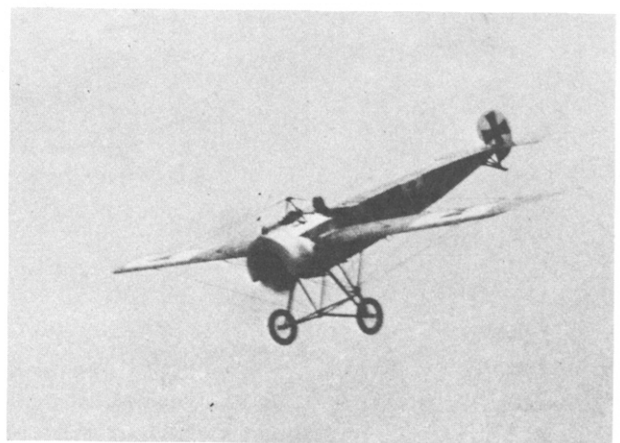
had their first combats with the Fokker monoplane. The day was fine and clear and five B.E.s from No. 15 Sqn set out on a reconnaissance, closely escorted by four D.H.2s. Over Bapaume the first Fokker was seen, the thin but menacing silhouette approaching rapidly.

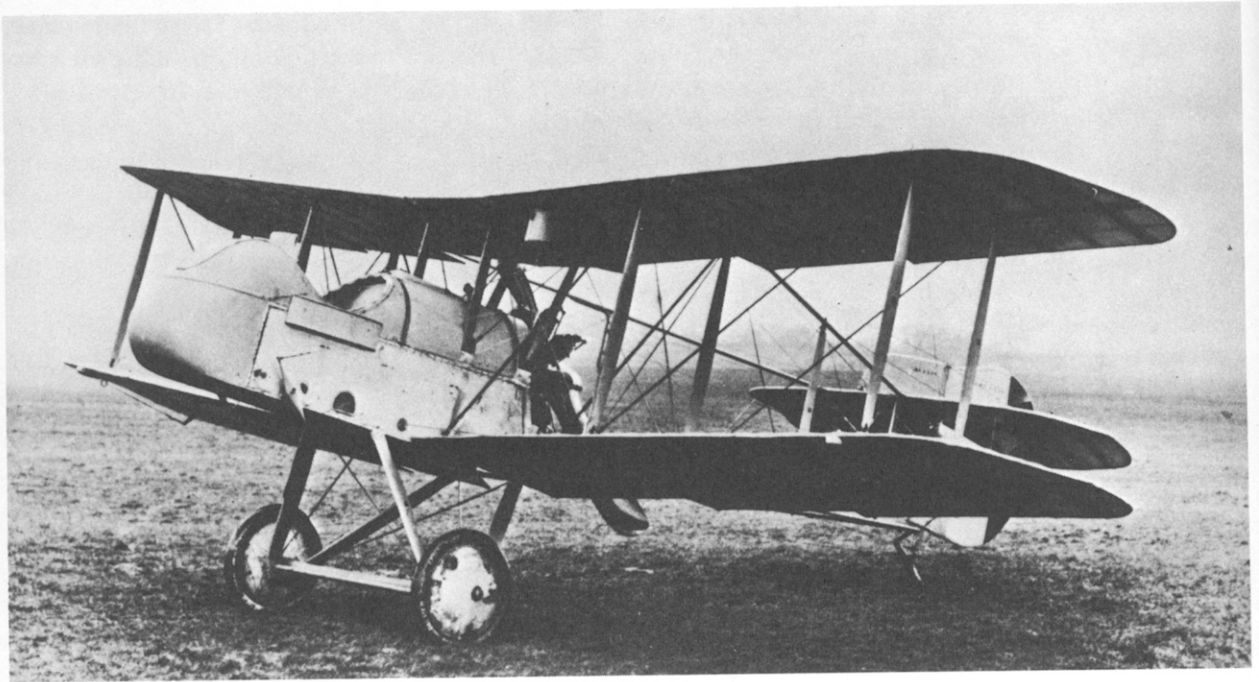
Captain Andrews attacked this Fokker and the German pilot dived away, quickly increasing the distance from the D.H.2. Andrews gave up the chase and returned to the B.E.s, but three more Fokkers came up over Bapaume at 10,000 feet and one turned its attention to a B.E. which was straggling behind its companions. Andrews attacked and drove it away, the enemy fighter again losing the D.H.2 in a dive.

Two Fokkers then set upon Andrews and Cowan from behind. Andrews turned to face his opponent and after circling for position turned inside the Fokker, got on its tail and fired half a Lewis drum into it. The enemy aircraft dived away and was attacked by another D.H.2.

Cowan outmanoeuvred his first adversary by an upward spiral and finding himself 100 feet below a second Fokker he elevated his Lewis gun and loosed off half a drum. Despite the badly missing engine of his machine, Cowan easily climbed to the Fokker's height and got on its tail, his nacelle only two lengths away from its 'comma'-shaped rudder.

15. A rare flying shot of the infamous Fokker monoplane, in this case an E III. The mount of the first German fighter pilots, the Fokker was, despite its technical shortcomings, an effective weapon in the hands of men such as Immelmann and Boelcke. (A. Imrie)





16. D.H.2 No. 5943 was one of the first production batch of this type built by the Aircraft Manufacturing Company Ltd, of Hendon. (W. C. Evans)

Cowan finished his drum and loaded a fresh one, but the D.H.2 was badly bumped about in the slipstream of the Fokker and he found it difficult to shoot accurately. The German pilot took violent evasive action, but was unable to shake the tenacious Cowan off his tail. He finally banked vertically, sideslipped, dived for 500 feet, then flattened out and flew east. Although he had no means of knowing the fact, Cowan had met and bested the redoubtable Max Immelmann, then the top-scoring Fokker pilot with 14 victories.

It was obvious during these actions that the Fokkers were no match for the agile D.H.2s and the handwritten comment on the bottom of the combat reports has a jubilant note: 'The deH seems well able to outmanoeuvre the Fokker.'

Five days later Lt Tidmarsh destroyed a Fokker over Bapaume. The German pilot circled west of the town with the intention of attacking the F.E.2bs which Tidmarsh was escorting, but the British pilot waited until the Fokker was 4,000 feet directly below him, then dived to the attack. The German pilot lost his nerve and dived steeply away, lost

control of his machine and crashed through the roof of a house in Bapaume. Tidmarsh had not fired a shot, never having been nearer than 500 yards.

No. 24 Sqn fought an increasing number of combats during May; Cowan forced down a two-seater on the 4th and had a narrow escape from capture when his thumb switch jammed, stopping the engine and forcing him to land in enemy territory. The jolt of landing, however, loosened the spring and he was able to take off and return, crossing the front lines at 500 feet under heavy fire.

On the 20th of the month Tidmarsh and Wilson joined Captain Summers of No. 22 Sqn, flying the squadron's Martinsyde, in an attack on an Albatros two-seater. All three pilots fired on the German aircraft, Tidmarsh finally sending it down in flames. Later in the same patrol Wilson shot down another enemy aeroplane, which fell like a torch into the British lines south of Maricourt. By 23 May Sir Henry Rawlinson, commanding 4th Army, was able to report that the reconnaissance machines, while escorted by the D.H.2s, were once again able to photograph the whole of the German trench system on 4th Army front:

'I cannot speak too highly of the work of these young pilots, most of whom have recently come out

from England, and the de Havilland machine has unquestionably proved itself superior to the Fokker in speed, manoeuvrability, climbing and general fighting efficiency.' The Fokker menace had been broken.

REINFORCEMENTS

During March two additional fighter squadrons, Nos. 27 and 29, had arrived on the Western Front: the former being equipped with the Martinsyde G.100. A large, somewhat unwieldy aeroplane, the G.100 was nicknamed 'Elephant'—and the squadron was later transferred to bombing, rather than fighter duties.

No. 29 Sqn was the second D.H.2 unit to enter hostilities. Formed at Fort Grange, Gosport, on 7 November 1915, it left England for France on 26 March 1916, but only two D.H.2s arrived safely at St Omer. Of the remaining ten, six were forced down en route for Dover—the take-off point for France—by high winds and snow showers, and two pilots were severely injured. Another D.H.2 was lost in crossing to France, the pilot ditching in the Channel, and by 14 April, when the squadron was up to its full operational strength of 12 machines, another 14 had been damaged or written off. Stationed at St Omer, No. 29 came under the orders of 3rd Brigade, 3rd Army, but on 15 April it moved to Abeele and joined 11th Wing, 2nd Brigade.

No. 29's first victory, an Aviatik C type forced to land near Theluvelt on 1 May, was gained by Lt H. O. D. Segrave.¹ But at this stage of the war the Ypres Salient was fairly quiet and there were relatively few combats. G. H. Bowman, who joined the squadron in July, recalled:

'Nothing much happened in 29 Sqn during 1916. We were in the Ypres Salient and all the Huns had gone down to the Somme.'

1. Later Sir Henry Segrave, holder of many post-war land and sea speed records.

In May two more single-seater fighter squadrons joined the Expeditionary Force. No. 32 Sqn commanded by Major Lionel Wilmot Brabazon Rees, and equipped with the D.H.2, was stationed at St Omer for five days before moving to St Auchel on 4 June, where it shared the aerodrome with No. 25 Sqn. On 7 June, No. 32 moved to Treizennes and came under the orders of 10th Wing, 1st Brigade.

No. 60 Sqn, which was to become one of the RFC's most successful fighter units, arrived in France on 28 May, having been formed at Gosport under the command of Major F. 'Ferdy' Waldron from No. 1 Reserve Aeroplane Squadron. At this time squadrons usually received their aeroplanes in England and flew them to France, but No. 60 was to be equipped with French Morane-Saulnier machines and the entire unit, including the pilots, crossed to France by sea and took up its quarters at St Omer.



17. One of the original 12 pilots who flew to France with No. 24 Squadron on 7 February 1916 was Lt J. O. Andrews. He had been especially recommended to Hawker for his splendid record with No. 5 Squadron in 1915. (J. O. Andrews)

After a few days the aircraft began to arrive, until the squadron had one Flight of nine Morane-Saulnier Type N monoplanes, one of four Type BB biplanes and a third Flight with three Type L and LA Parasols. The Parasols were soon replaced by more Type N monoplanes and when the squadron moved to Boisdingham on 31 May, A and C Flights had Morane Ns—known as 'Bullets'—with B Flight keeping its Morane biplanes.

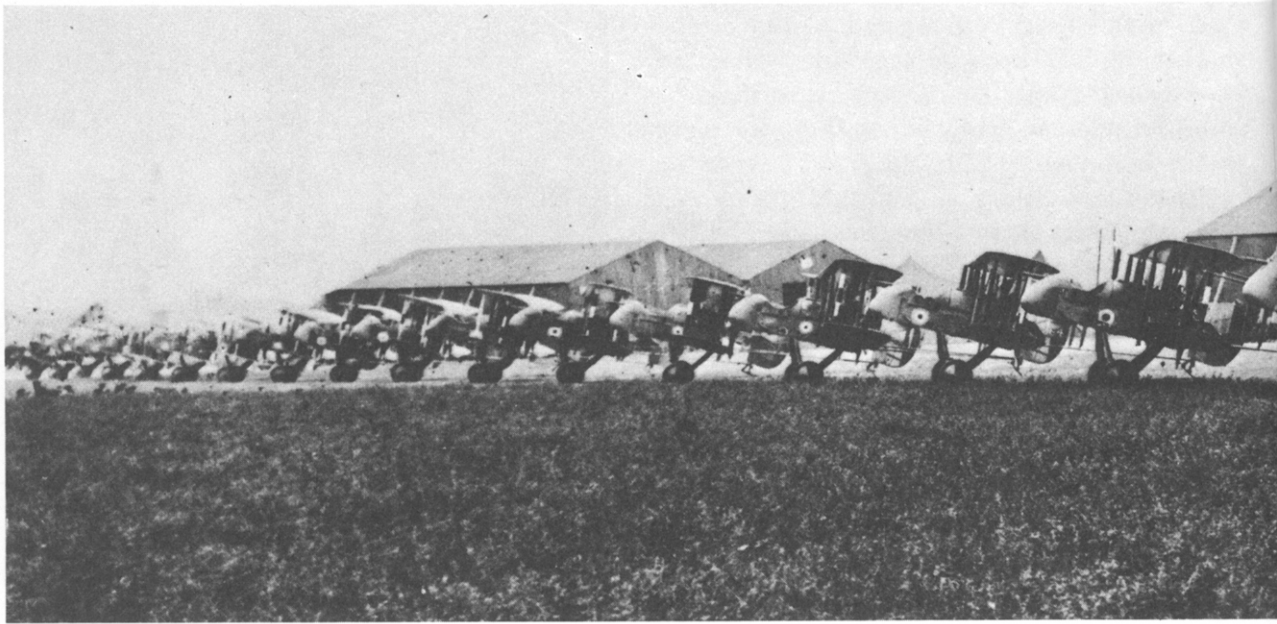
A monoplane with a monocoque type fuselage, the Bullet was powered by an 80hp Le Rhône 9C rotary engine and armed with a Lewis gun firing through the arc of the propeller, the blades of which were protected—hopefully—by metal deflector plates. The Bullet was an extremely difficult aeroplane to fly, due mainly to its high wing loading. It had, in the words of one pilot, 'the gliding angle of a brick' and above 10,000 feet it was difficult to turn sharply without stalling. Nevertheless, it had proved to be a match for the German Fokker, one of which had been captured intact on 8

18. The red and white strut markings used by No. 24 Squadron's D.H.2s at the beginning of the Somme battles of 1916 can be seen in this view, which includes a solitary Morane Bullet at the extreme right. Hawker's orders to his pilots on the eve of battle were succinct and direct. Under the official heading 'Tactical Orders O.C. 24 Squadron' Hawker wrote simply, 'Attack everything'. (B. J. Gray)

April and in an evaluation combat flown against a Bullet it was obvious that the Morane was the superior aeroplane.

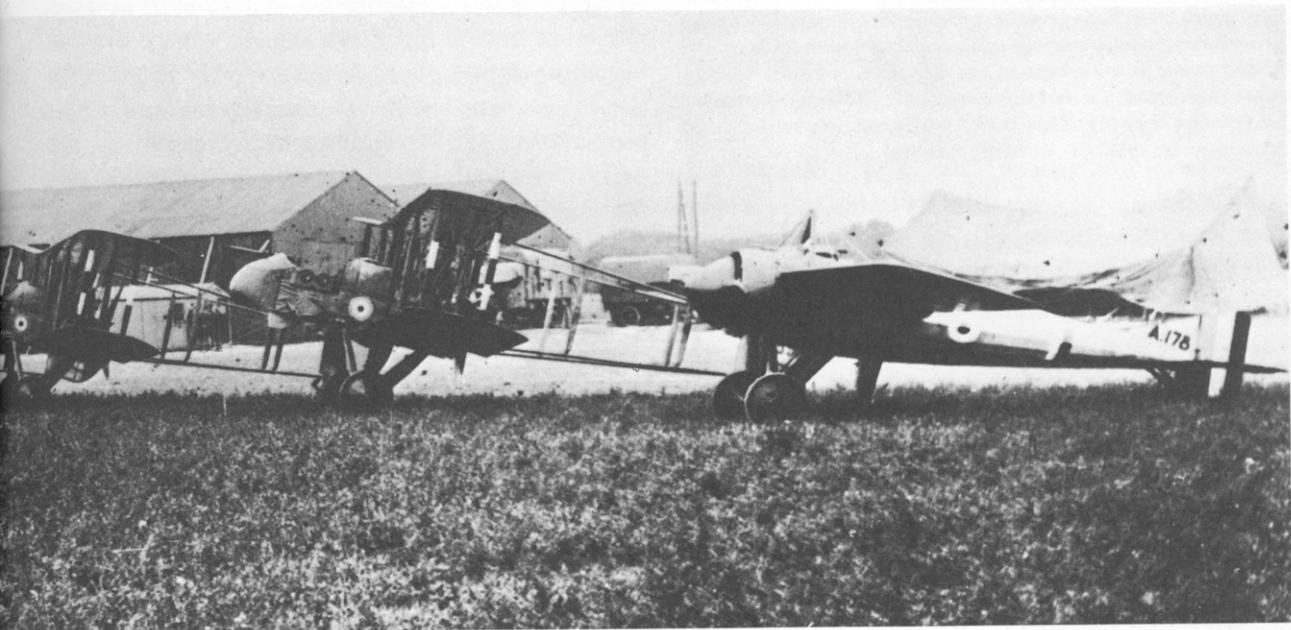
On 10 June 1916, No. 60 Sqn moved to Vert Galant and came under the orders of 13th Wing, 3rd Brigade, to start its duties of offensive patrols and reconnaissance. Later in the year, the unit undertook the landing of agents behind the German lines.

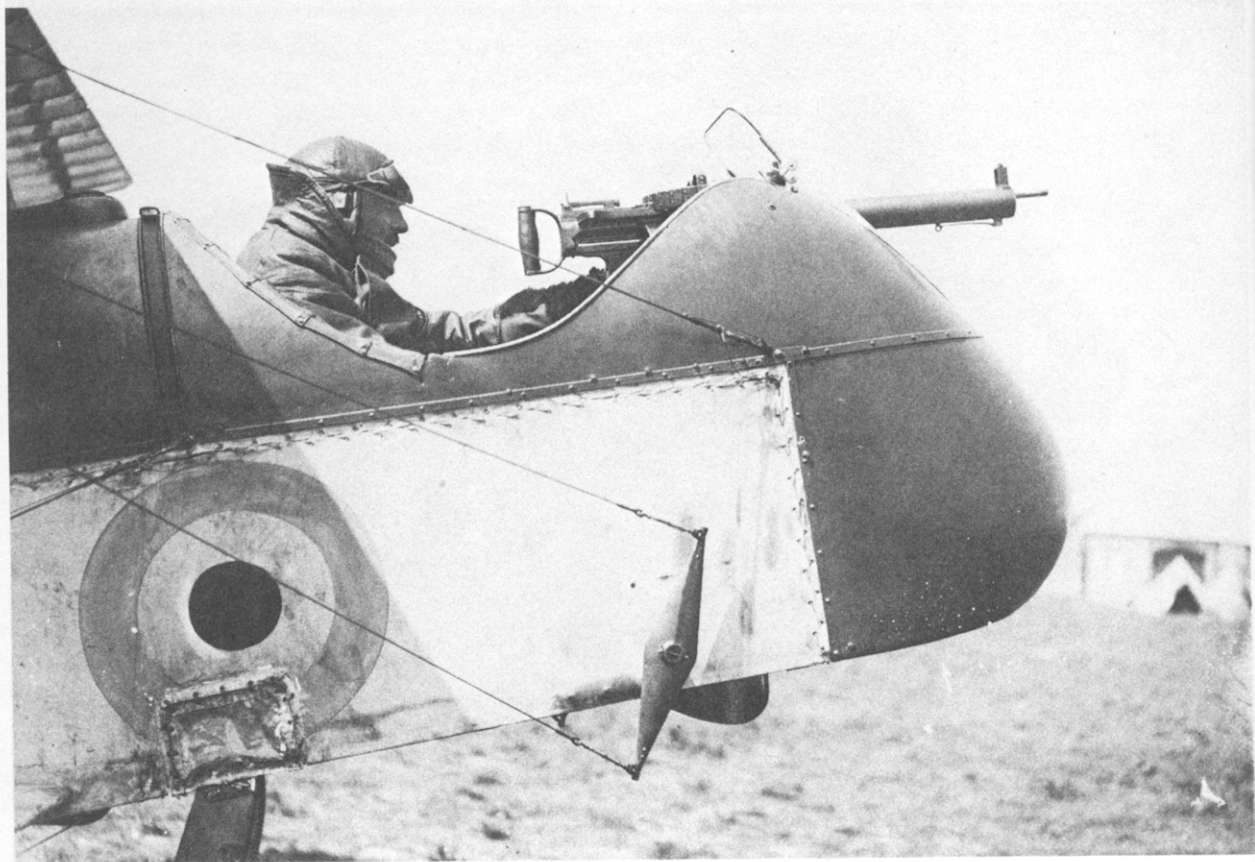
Contemporary to the early actions fought by the pilots of the first fighter squadrons proper, the RFC still had a number of single-seater fighters of various types attached to the reconnaissance squadrons for escort work and fighting, and these had also found an increasing number of combats in the early months of 1916. In January, with the rapid expansion of the RFC both actual and visualized, it had become necessary to reconstitute the Wings—themselves formed in October 1914—into Corps and Army Wings: the Corps Wings to work on the immediate front of the Army Corps; the Army Wings to carry out the deeper reconnaissance and bombing work ordered by the Army Commander. The nature of the work carried out by the Army Wings necessitated the employment of aeroplanes capable of fighting for their information, and possessing a superior performance to those used by the Corps squadrons.





19. K. H. Riversdale-Elliott, S. E. Cowan, S. J. Sibley and R. H. B. Ker of No. 24 Squadron examining a machine gun taken from an enemy two-seater shot down on 20 May 1916 by Lt D. Wilson. (Hawker)





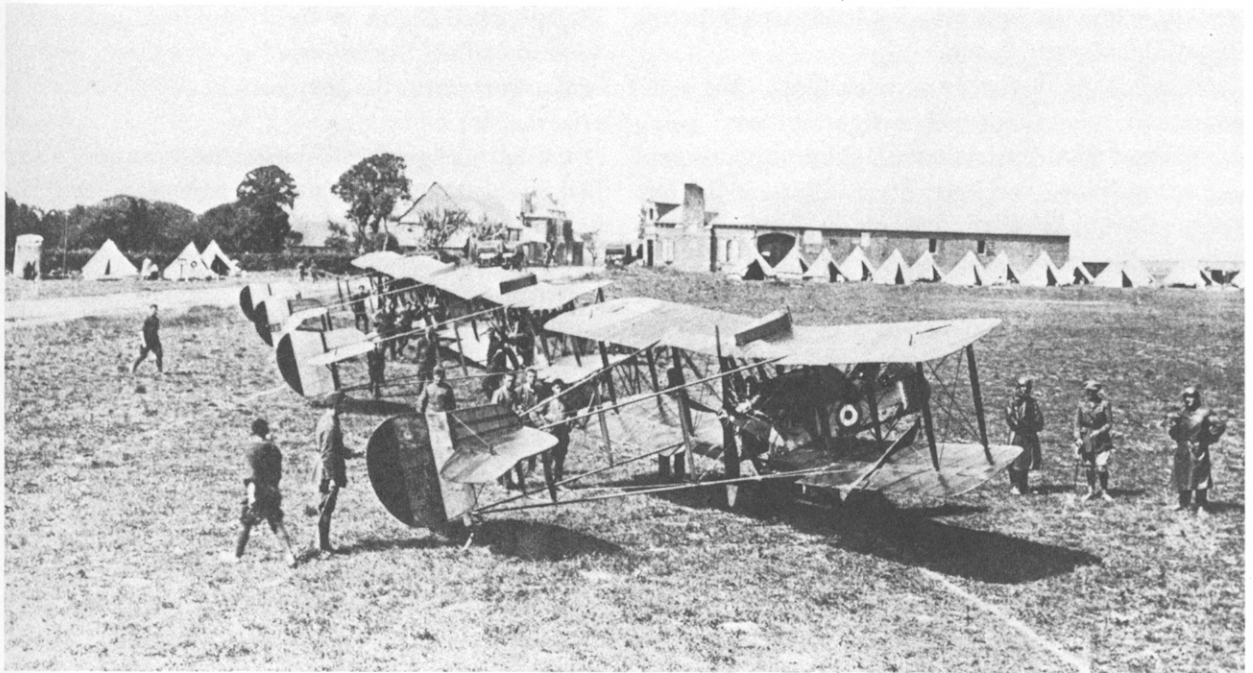
20. Unfairly overshadowed by the publicity given to their fellow countrymen who joined the French Air Service and flew with the Lafayette Escadrille were many young Americans (mostly posing as 'Canadians') who took up the Allied cause as members of the RFC before their country entered the war. One of them was Lt G. H. Bonnell, seated here in the cockpit of his D.H.2 while serving with No. 32 Squadron in 1916. (T. C. Miller/Reese)

After the start of the battle of Verdun in February 1916, the Germans found that the Fokkers—until that time attached to the *Feldflieger Abteilungen* in twos and threes, in similar fashion to the fighters attached to the reconnaissance squadrons of the RFC—became more effective when grouped together in fighting squadrons: *Kampfeinsitzer Kommandos*. In late April, Trenchard, profiting from this lesson, decided to concentrate into the Army Wings those single-seater fighters still attached to the Corps squadrons. This was gradually done, and by the middle of August, the Corps squadrons had no fighters on strength.¹

Those pilots in the Corps squadrons who flew the fighters—mainly voluntarily—were, both by temperament and ability, individuals most suited to becoming fighter pilots. In the early summer of 1916 these men and those of the fighter squadrons proper, were a tightly knit hierarchy within the RFC itself: a small elite band, all known to one another. One such was William M. Fry, who was posted from No. 12 Sqn on 20 July 1916, to fly No. 11 Sqn's Bristol Scout.

'I crashed the Bristol Scout on the same day. I returned to 12 Sqn almost at once, or within a day or two, to carry on until there was a serviceable Scout in 11 Sqn for me to fly. There was no question of

1. In April 1915, Sir David Henderson, then commanding the RFC, had held the view that fighter aeroplanes should be concentrated into fighter squadrons, but the Wing Commanders were strongly in favour of each Corps squadron having a leavening of fighter aeroplanes on its strength and Henderson bowed to their views.



being sent to 11 Sqn to *learn* to fly the Scout. If I had negotiated that first flight successfully I should have commenced flying operationally at once, probably the next day. That is how things went at that time. You were just dumped into the Scout Flight and had to pick it up as you went along. One thing about 11 Sqn at that time was that for Ball to be in a squadron commanded by Major Hubbard was an astonishing juxtaposition, almost as strange as for Major Hubbard to have in his squadron the RFC's first full Flight of tractor scouts. "Mother" Hubbard was by nature so gentle that, literally, he would not hurt a fly and it was inconceivable that he should be responsible for organizing the shooting down of German aeroplanes. On top of this, the Scout Flight Commander, Leslie Foot, was not what one would call an aggressive type. He was a beautiful pilot, and fought like a tiger, but one could not imagine him bearing any animosity towards his opponent or opponents, or, in fact, towards anyone at all. After a fight nothing would have given him more pleasure than to sit down with his opponents over a drink, or several drinks, and discuss the fight all over again. He was one of those to whom aerial fighting was in the nature of a sport, and he was a wonderful Flight Commander. Pilots like him were

21. D.H.2s of No. 32 Squadron at Vert Galant Farm in August/September 1916. (Miller/Reese)

of great value at this time of the great surge of air fighting as they taught inexperienced pilots, new to air fighting, the finer points of flying, and themselves, by practice and experiment in action, evaluated the capabilities and best way of fighting their machines. There was no one else and no text books or manuals.'

Albert Ball was a native son of Nottingham, born in 1896. He was destined to become the RFC's leading fighter pilot in 1916 and in one short year to capture the imagination of the British public. At the outbreak of war he had joined the Sherwood Foresters and in the summer of 1915, while serving with the North Midland Cyclist Corps, was stationed at Ealing in west London. The proximity of the camp to Hendon aerodrome was Ball's chance to learn to fly and he took it with that enthusiasm and single-mindedness that characterized everything he did. In January 1916, he was seconded to the RFC and on 15 February flew overseas to join No. 13 Sqn, then equipped with B.E.2cs for photo-reconnaissance and artillery co-operation. Ball's aggressive spirit was not dampened by such prosaic

activities and he began to fly lone patrols in the squadron's Bristol Scout.

In April, in accordance with Trenchard's instructions, the single-seater fighters were being transferred to the two-seater fighter squadrons of the Army Wings, and to fly these additional fighters those pilots of the Corps squadrons—such as Fry—who had shown suitable aptitude and fighting qualities were also attached to the Army squadrons. Typical of these transfers was the two Nieuports and a Bristol Scout received by No. 11 Sqn while stationed at Savy. No. 13 Sqn was also at Savy and Ball was one of the three pilots attached to No. 11 Sqn to fly the new fighters. Walking over to join his new unit on the evening of 7 May—exactly one year before his death—Ball carried a note from his CO stating that he had been flying No. 13 Sqn's Bristol Scout without breaking it; that he was keen, conscientious, and should do well. But although Ball

22. D.H.2 No. 6011 of No. 24 Squadron which was forced down by a two-seater of Kampfgeschwader 1 on 11 July 1916. The pilot, Lt L. T. C. Kerr, was taken prisoner. (Imrie)

made several flights in the Bristol, scoring his first victory—albeit unconfirmed—while doing so on 16 May, it was with the Nieuport 16 that he found his true metier.

French designed and built, the Nieuport was a fast, highly manoeuvrable little fighter, powered by a 110hp Le Rhône rotary engine. Armed with a Lewis gun, mounted on the top wing to fire above the propeller arc, it was superior in performance to any contemporary fighter at the front. The RFC received its first Nieuports in March/April 1916, a number of machines being reallocated from the Royal Naval Air Service. It was not the only time during the war that the RFC's sister service was unselfishly to come to the aid of the Corps with equipment that it had originally ordered for its own use.

Ball flew the Nieuport throughout May and June, and although he had yet to score an officially confirmed victory he had had a number of indecisive combats and was gradually evolving his tactics and ideas as a fighter pilot. Other pilots who also flew the Nieuports in No. 11 Sqn were Captains Pattison, Crook and Cooper. Cooper, being short,



found it difficult to reload the overhead Lewis gun, and in the squadron's workshops, Sergeant R. G. Foster designed the curved rail mounting which enabled the Nieuport's weapon to be pulled down and reloaded. This mounting was later officially designated the Foster mounting.

During June 1916 the tempo of the war in the air increased in preparation for the battle of the Somme, and when the weather permitted, the fighter and reconnaissance squadrons of the RFC were in daily combat. The fine evenings saw a great number of fights and on 18 June the *Luftstreitkräfte* suffered a severe blow when *Ltn* Max Immelmann, its leading Fokker pilot, whose score had risen to 17, was shot down and killed by Corporal J. Waller, the gunner of an F.E.2b of No. 25 Sqn. It was the unit's last flight of the day, a line patrol between La Bassee and Lens flown by two F.E.2bs, crewed by Lt G. R. McCubbin and his observer/gunner Corporal J. Waller in F.E.2b 6346 and 2nd Lt L. R. B. Savage with Air Mechanic Robinson in F.E.2b 4909. At 9.00 pm three Fokkers were seen climbing from Lens.¹ McCubbin subsequently recalled:

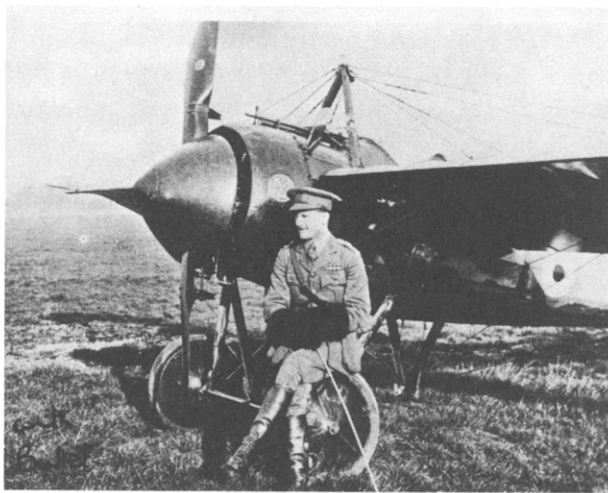
'Savage and I were quite a distance apart but we signalled to each other that we were going to engage these Fokkers. Savage, while proceeding towards them, suddenly signalled that he was returning. He was much nearer the Fokkers than I was, and they apparently noticed this as well and one dived on him immediately. I was flying much higher than they were and immediately dived on the one that by this time was on Savage's tail, but did not open fire. The other two got on to my tail, with the result that you had a string of machines, all diving down. Savage's machine suddenly got out of control, as the Fokker had been firing at it, and Savage's machine went down. By this time I was very close to the Fokker and he apparently realized we were on his tail and he immediately started to do what I expect was the beginning of a Immelmann turn. As he started the turn we opened fire and the Fokker immediately got out of control and went down to earth.

1. Five Fokkers were actually in the vicinity: *Ltn* von Moltzer, Prehn, Oesterreicher, Heinemann and Immelmann.

'I then turned to see what the other machines were doing, who had been firing at me, but found they had turned and were making back to their own lines, which to my mind rather proved they knew Immelmann was in the other machine. I went down fairly low to see what had happened to both Savage and the German machine, but as it was getting dark I could see nothing, and although I flew around for a considerable time I had to give up and go back to my aerodrome to report the encounter.'

Savage and his observer had both been wounded by Immelmann's fire and although Savage landed the F.E.2b near Lens he later died of his wounds, Robinson being taken prisoner. The Germans claimed that Immelmann's death was due to structural failure of the Fokker and although the truth was never firmly established, the 'Eagle of Lille' was dead. On 26 June Corporal Waller shot down another Fokker, but McCubbin was wounded in the arm.

During the last four days of June the weather was generally unfavourable for flying and air activity was slight, but the morning of 1 July dawned fine, with the promise of a perfect summer's day. It was to be the last few hours of life for nearly 20,000 British soldiers.



23. A popular officer in the RFC was Lt T. P. H. Bayetto, seen here with a Morane-Saulnier Type N. Bayetto's father was head chef at one of London's leading hotels and was always happy to give any RFC friends of his son a good meal free of charge. (Bruce/Leslie)

ABOVE THE SOMME

The main British objective in the battle of the Somme was a thrust towards the German positions around Bapaume, and 4th Army, under Sir Henry Rawlinson, bore the brunt of the attack. This newly formed army had been moved into the line in late February, taking up a position from Gommecourt to Curlu, and to serve its air needs a fresh brigade was formed from 3rd Wing and No. 1 Kite Balloon Squadron. This new brigade, the 4th, under the command of Brigadier-General E. B. Ashmore, had been formed on 1 April 1916 and comprised 3rd (Corps) Wing, 14th Army Wing and No. 1 Kite Balloon Squadron. In March 1916 it had been decided to increase the strength of each RFC squadron from 12 to 18 aeroplanes, and the units of 4th Brigade were the first to benefit, five being up to the new establishment by the middle of June and the sixth by the first week in July. In addition to the squadrons of 4th Brigade, 9th Headquarters Wing, which comprised Nos. 21, 27 and 60 Sqns, plus two Flights of No. 70 Sqn, was moved to Fienvillers and Vert Galant during June. These units were to carry out strategic reconnaissance for headquarters, the bombing of communication and supply lines, and general offensive operations against the German air force.

At the opening of the battle 4th Army therefore had a strength of 109 aeroplanes, plus 58 of 9th Wing, a total concentration of 167. In addition, the B.E.2cs of No. 8 Sqn were detailed to support a subsidiary attack on Gommecourt. The overall strength of the RFC at the start of the battle was 27 squadrons, consisting of 421 aeroplanes and four kite balloon squadrons. The fighter squadrons directly involved in the battle of the Somme were No. 22 (F.E.2b) and No. 24 (D.H.2, Morane and Bristol Scouts) of 14th Wing; and No. 27 (Martin-

syde G.100) and No. 60 (Morane Type N and Morane biplanes) of 9th Wing.

Opposing the RFC were the air squadrons of the German 2nd Army, which had had a total strength of 104 aeroplanes, only 16 of which were the fighters of the two *Kampfeinsitzer Kommandos* attached to 2nd Army. In addition to its numerical advantage, the RFC was also technically superior, a fact which forced the Fokker and Pfalz monoplanes away from the main battle front and enabled the Corps squadrons to work unmolested by enemy fighters. The task of the fighter units of the Army Wings was the protection of the Corps squadrons, working in support of the ground forces, and this was achieved by continuous line and offensive patrols and escort work.

The first offensive patrol by No. 24 Sqn on the morning of 1 July left the ground at 6.45 am to cover a line from Peronne, through Pys, to Gommecourt. Patrols were continued at intervals throughout the day, the last leaving the front line area only at nightfall. Lt Cowan had three combats during the



24. R. H. B. Ker and D. M. Tidmarsh of No. 24 Squadron. The latter had a narrow escape when an anti-aircraft shell passed right through the nacelle of the machine seen in the background. The aircraft was on patrol at 10,000 feet at the time and the shell, which failed to explode, narrowly missed Tidmarsh's shins. (Gray)

day, and Lt Bayetto, flying one of the two Morane Bullets attached to No. 24 Sqn, attacked a formation of three enemy machines, forcing one to land.

The F.E.2bs of No. 22 Sqn patrolled continuously, flying in pairs over a line, from Douchy to Miraumont and from Longueval to Cléry. Although their duty was detailed as fighting, the observers reported any troop movements and each machine carried two 20lb bombs. No. 22 Sqn, which had arrived in France on 1 April, suffered its first casualties during these patrols, losing two machines behind the enemy lines and another which landed between the trenches, the pilot and observer escaping into the British lines. The squadron's historian, W. F. J. Harvey, wrote:

'There was constraint in the flight messes that evening. The first losses of friends, the jagged tears from shell fragments in the wings, those long lines of silent figures in the grass below, and the monstrous fury of the guns had brought flying crews face to face with the ugly visage of war.'¹

On 3 July, No. 60 Sqn suffered a severe blow when its CO, Major 'Ferdy' Waldron, became the first of its pilots to be killed in action. The weather that day was perfect as Waldron led A Flight across the lines on an offensive patrol. Two of the Bullets fell out with engine trouble, but Waldron and Lt Balfour and Captain Smith-Barry proceeded along the Arras road towards Cambrai. Just before reaching the town, the Bullets sighted an enemy formation of 12 machines; two-seaters led by a single Fokker E III and followed by two more Fokkers. Balfour wrote:

'I'm sure they were not contemplating war at all, but Ferdy pointed us towards them and led us straight in. My next impressions were rather mixed. I seemed to be surrounded by Huns in two-seaters.'²

In the ensuing fight Waldron was shot down. He landed safely but later died of his wounds. Balfour and Smith-Barry returned unharmed, having dispersed the enemy formation.

During the first four days of the bitter struggle on

the Somme the RFC fought continuously above the ground fighting, the occasional bad weather bringing the only respite. On 9 July there was an increase in enemy air activity along the entire front and 24 combats were fought, with some enemy machines penetrating up to ten miles into the British back areas on 1st Army front.

By 17 July the first phase of the battle was over. The role played by the RFC had been of considerable value to the army and air superiority had been complete; but reinforcements had been arriving for the German 2nd Army and on 19 July two new *Kampfeinsatz Staffeln* had been formed. From this date the *Luftstreitkräfte* was constantly reinforced and combat with enemy fighters became frequent.

Despite its rapid rate of expansion, the RFC was still a delightfully informal organization, as shown in the following account of a young pilot's first posting to France. His casual, almost offhand acceptance into a squadron on active service during the battle of the Somme is revealing:

'The Crossley tender was bumping and banging along a vile road under the afternoon sun, raising a cloud of white dust which eddied and swirled back inside, and vied with the fumes of the exhaust in choking the solitary occupant, who sat looking at his valise on the seat opposite. He cared nothing for



25. D.H.2 No. 7849 photographed at Abeele while on the strength of No. 29 Squadron in 1916. Standing by the nacelle are Lt A. C. Bolton (left) and Lt N. Brearley. Both men were shot down on 9 November 1916, Bolton being taken prisoner. Although shot through both lungs Brearley managed to land his badly-damaged machine in no man's land, where he lay in a shell hole for nearly five hours before being rescued by British troops under cover of darkness. (Maj. C. H. B. Readman)

1. 'Pi In The Sky' by W. F. J. Harvey, MBE, DFC, TD.

2. Now Lord Balfour of Inchrye.

the jolting and suffocation, for he was thinking of the squadron he was on his way to join—a scout squadron, the summit of his ambition. For months he had lived through this moment in anticipation, but now that it had arrived he found himself unable to realize it. His mind was filled with a strange blend of curiosity and apprehension.

'The tender stopped and he jumped out. The driver pulled out his valise. There was the aerodrome. He saw a lot of little huts in a wood—no doubt these were the officers' quarters. Now that the tender had stopped he could hear the rumble of the guns. He saw the Squadron office and, suddenly, all confidence deserted him. He walked up to the office feeling nervous and self-conscious. The

26. Embryo fighter pilot: Albert Ball at Hendon on the day that he gained his Royal Aero Club certificate. (F. N. Birkett)



Recording Officer was there, very busy with his maps and papers, and he tried diffidently to attract his attention. The Recording Officer looked up. "Oh", he said. "You are Smith! Come along to the Mess and have some tea. We can fill up the forms afterwards." And down they walked together to the Mess.

'Almost before Smith realized what was happening he was being introduced to the CO. He was surprised to see how young he looked and how full of energy and enthusiasm. He could hardly wait for any tea in his eagerness to go up to the aerodrome and watch the flying. As soon as he could he walked up to the sheds. Aeroplanes were dropping into the aerodrome straight from the battle itself. Somehow this seemed odd. Others were taking off, the pilots with unconcerned faces and methodical, orderly manner. A message arrived telling him to report to the OC A Flight. He reported, and was given a machine, D.H.2 No. 5967.

'A Flight had red wheels and red outer struts with white bands on them that denoted the individual machine. Smith noticed his number was four. He was almost painfully anxious to know his fitter, his rigger, and his machine. He spent an hour or more in conversation with the men, or sitting in the machine, trying the controls and gun trigger. He had never before seen a gun fitted to a D.H.2. He knew soon, perhaps this very evening, he would have to make a trial flight, under the critical eye of the Flight Commander or even the CO. He was quite determined to put up a good show. With this idea in his mind he walked around the aerodrome, noting the bad patches and making up his mind where he would try to land. But the summons did not come that evening.

'After dinner, he went to bed early. But not to sleep. What a plague of insects! His hut was of the Armstrong type and he shared it with another pilot, who had a mosquito net and had made other elaborate precautions. Just when he had counted his 276th earwig, Smith fell asleep.

'He was awakened in the morning by a stunning roar. He sat up in the creaking camp bed. The early morning patrol was taking off and the first machine off the ground had just skimmed over the top of his

hut. He heard them come off one after the other, one, two, three, four of them. The air was full of the throbbing of four Mono engines. A deeper roar broke out as the F.E.2bs on the aerodrome on the other side of the railway burst into life. The whole morning sky was rent and torn with the sound of roaring engines. Engine after engine being tested on the ground. Presently and gradually the noise died down, until only the distant humming of the patrol could be heard. Even that died away, and he heard only the bell of the village church proclaiming early Mass.

'What a strange life was this that he was entering upon. So full of delightful novelties. He had forgotten for the moment that this was war. He had still to make his first flight and do that first patrol. But no one could be other than optimistic on such a beautiful morning. Smith got up and looked at his watch—5.30 am. Well, he might as well get up and see what was doing. He got out of bed and poured some cold water into a canvas basin. The noise awoke his companion, though the aeroplanes did not. He glanced at Smith with mild astonishment, and fell asleep again.

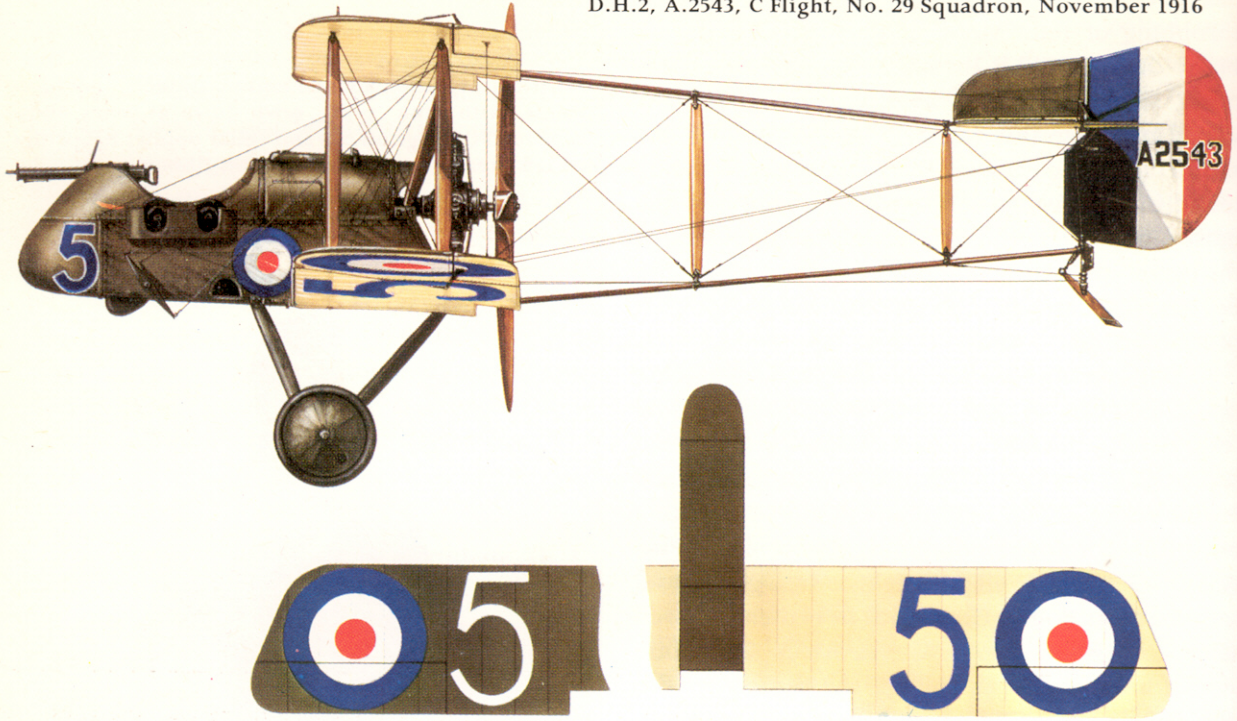
'Smith got up quietly, shaved in cold water and dressed in his aerodrome everyday kit. While he is thus engaged I will tell you something about him. He was twenty and a half years of age, fairly normal, a Territorial infantry officer of eighteen months' service, very keen on flying, a little nervous, rather imaginative, and of average intelligence. He was a good pilot, though he did not know it then. He knew he had never crashed, but put that down to luck, in which he was, no doubt, very nearly right.

'He left the hut and walked up to the aerodrome. No one seemed to be about. He walked into A Flight sheds. All the machines were there, so it was not A Flight that was out. He went and looked at his aeroplane again, examined turnbuckles, controls, pulleys, everything. He looked with awe at the Flight Commander's machine, with its coloured streamers on the outer struts. He examined it closely. Its planes, he noticed with a thrill, were covered with patches of fabric, repairing bullet holes. He wondered if he would ever rise to lead a Flight in the air. Somehow he felt sure he would, but

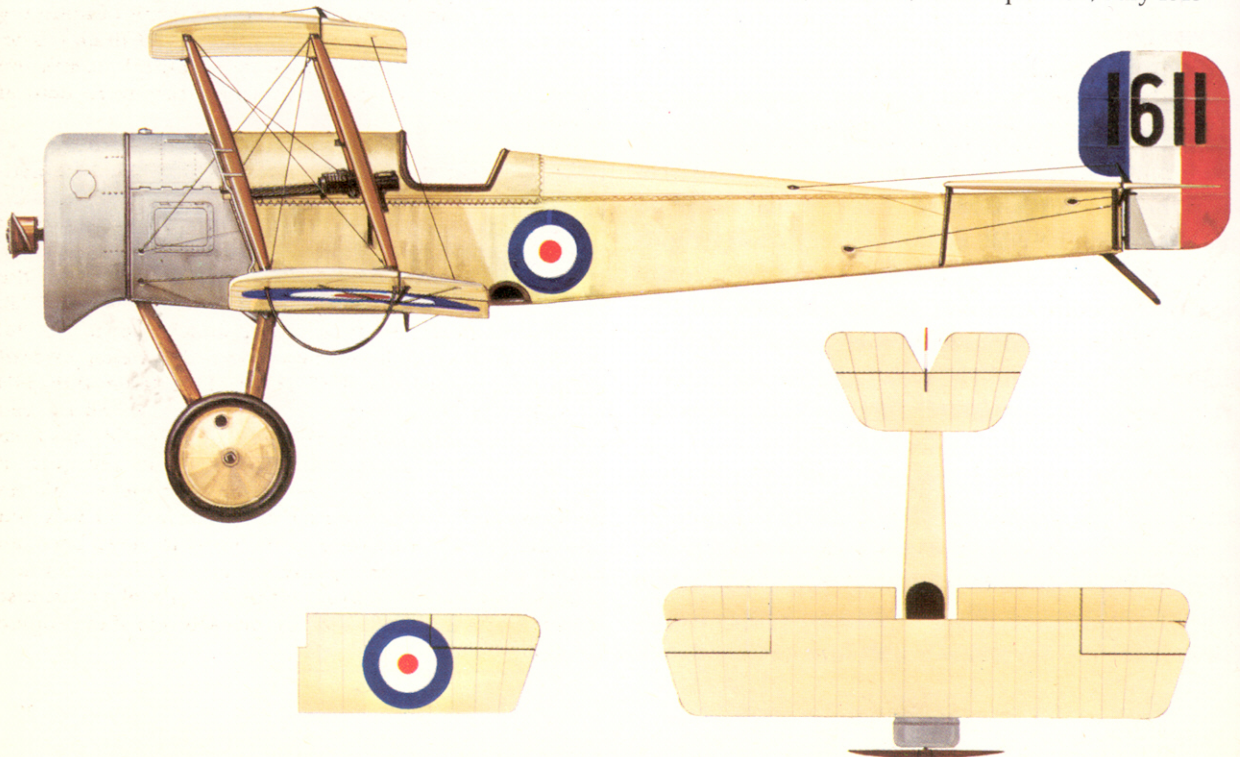
RFC lieutenant pilot, 1915–16, in RFC 'maternity jacket' and sidecap. Legwear varied in shade but this combination is typical. Note all buttons hidden; shoulderstraps, with rank 'pips', sewn down at inner ends. Bronze RFC badge on cap and collar points; RFC wings on left breast above Military Cross ribbon.



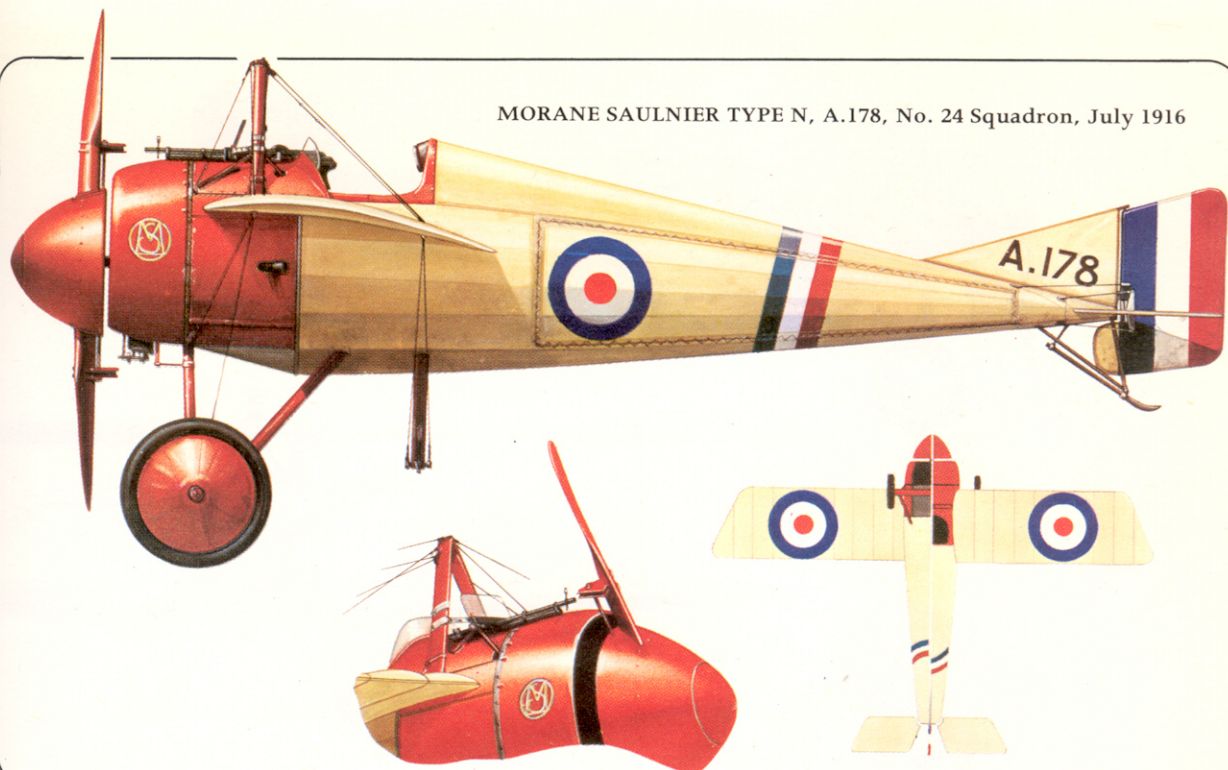
D.H.2, A.2543, C Flight, No. 29 Squadron, November 1916



BRISTOL SCOUT TYPE C, No. 1611, No. 6 Squadron, July 1915



MORANE SAULNIER TYPE N, A.178, No. 24 Squadron, July 1916

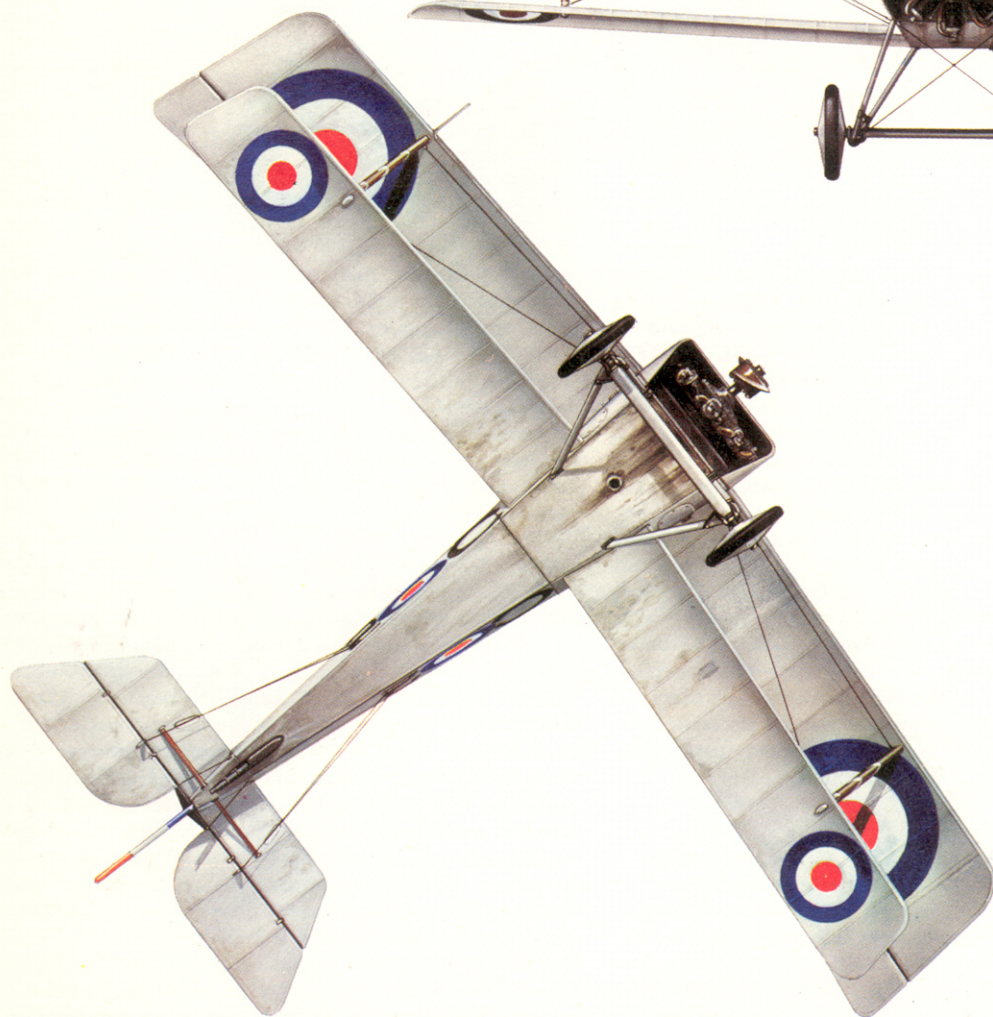
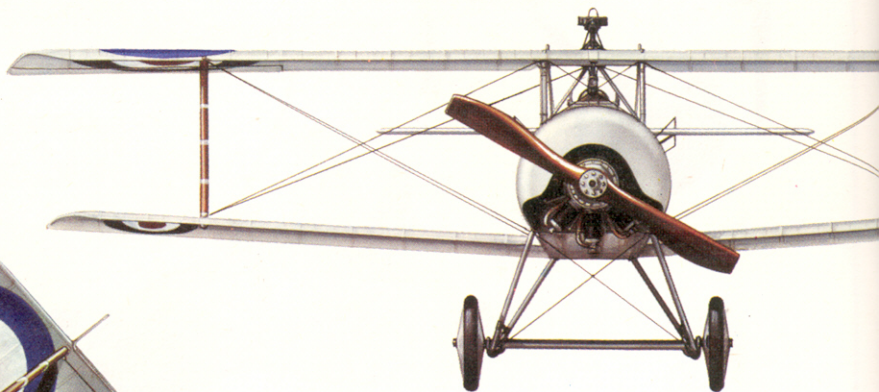
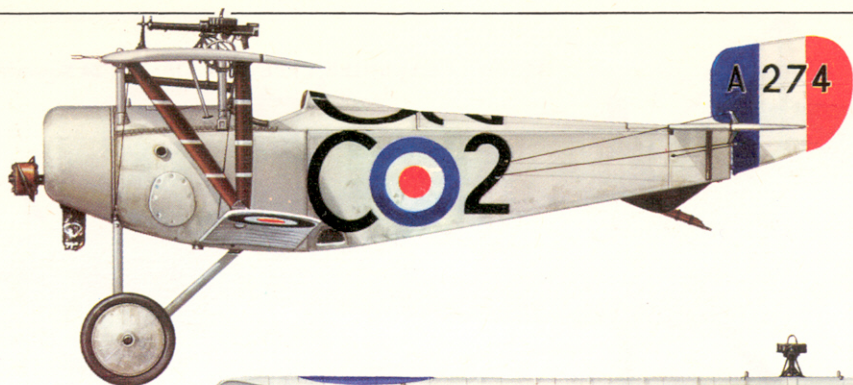


OPPOSITE TOP: D.H.2, A.2543, C Flight No. 29 Squadron, November 1916. This particular machine was shot down on the morning of 9 November 1916 while escorting B.E.2cs of Nos. 12 and 13 Squadrons on a bombing raid on an ammunition dump at Vraucourt. The pilot, 2nd Lt I. Curlewis, was taken prisoner. A.2543 was one of six D.H.2s of No. 29 Squadron that made up the escort of 14 aircraft, the others being Nieuports and F.E.2bs of Nos. 60 and 11 Squadrons respectively. The bombing force aircraft did not carry observers on that occasion, enabling a 112lb bomb to be accommodated. Before the target was reached, the formation was attacked by 30 Albatros and Halberstadt fighters of Jastas 1 and 2. Two B.E.s of No. 12 Squadron were shot down in the ensuing skirmish and No. 29 lost two D.H.2s, both of which were last seen in combat with German aircraft at low altitude near Adinfer. The other pilot, Capt A. C. Bolton, was captured. The machine depicted here carries typical RFC markings for the 1916 period, with the identification number '5' presented on both sides of the nacelle and on the port upper and starboard and port lower wing surfaces.

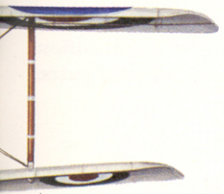
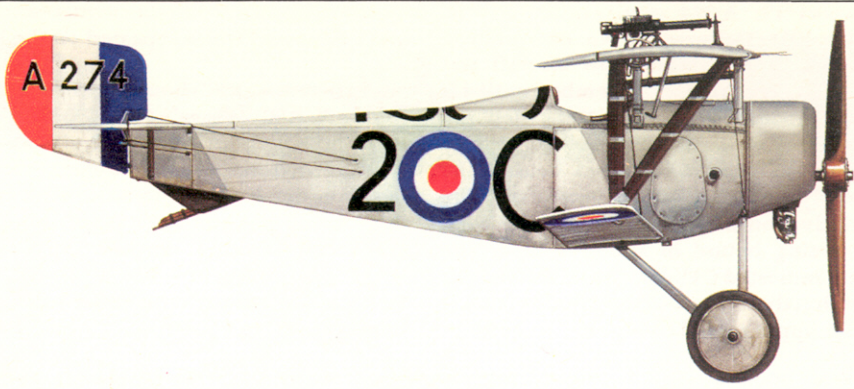
OPPOSITE BOTTOM: Bristol Scout Type C, No. 1611 of No. 6 Squadron, July 1915. On 25 July, Captain Lanoe G. Hawker was flying this particular aircraft when he attacked and shot down three enemy two-seaters, a feat for which he was awarded the third Victoria Cross to be given for an action in the air. The aircraft shows just one of the ways that individual pilots gave their machines the means to destroy enemy aircraft before the days of a reliable synchroni-

zation gear and fixed forward-firing machine guns. The mounting for the Lewis gun was to Hawker's own design and enabled the weapon to be fired at an angle, to miss the arc of the propeller. The machine has no other identification markings apart from its serial number and lacked roundels on the upper surface of the top mainplane. The dark cream shade shown here was the result of applying protective varnish over natural unbleached linen fabric. Cowling and metal side panels were natural aluminium finish and wing and undercarriage struts were natural varnished spruce.

ABOVE: Morane-Saulnier Type N, A.178 of No. 24 Squadron, July 1916. Known throughout the RFC as the Bullet, the Morane was certainly one of the most streamlined aircraft in use during this period. This machine was one of two that augmented the D.H.2s of No. 24 Squadron for the battle of the Somme, being flown on occasions by Lt T. P. H. Bayetto of No. 3 Squadron, on attachment to No. 24. Bayetto succeeded in forcing down an enemy aircraft while flying a Bullet on the first day of the battle. Due to its similarity to the Fokker E III, the Bullet carried the red identity markings shown from 19 July 1916, this machine having an additional fuselage band for recognition purposes. The plates fitted to the propeller blades deflected any rounds from the unsynchronized Lewis gun and the extra windscreen is believed to have been an additional protection against ricochets. The Morane-Saulnier trademark was carried in the form of a brass disc with the letters 'MS' fretted out, on each side of the engine cowling.



NIEUPORT 17, A.274, C Flight, No. 60 Squadron, November 1916



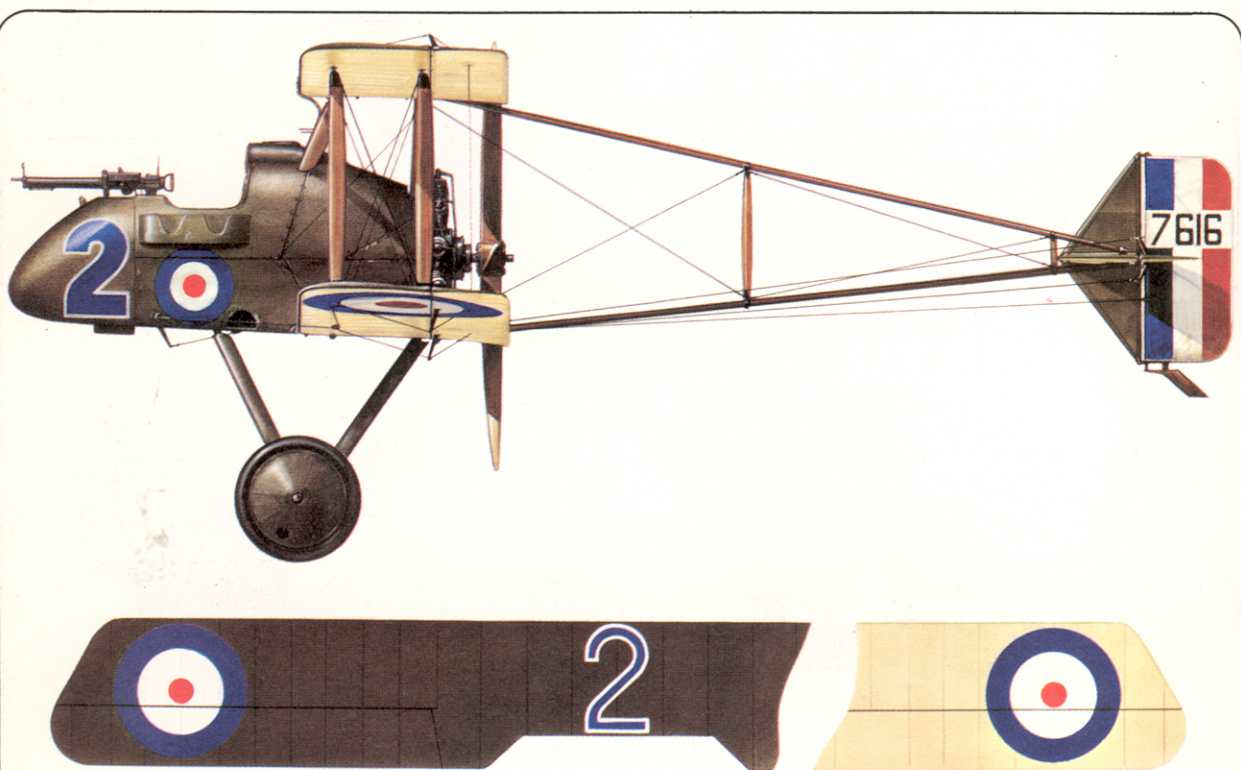
PAGES 28–29: Nieuport 17, A.274 of C Flight, No. 60 Squadron, November 1916. Delivered to No. 60 Squadron during the first week of November, this aircraft was flown by Lt William M. Fry from 15 December until his return to England on 19 February 1917. Fry 'inherited' the machine from his Flight Commander, Captain Henry Meintjes, who forced an Albatros to land behind the British lines while Flying A.274 on 11 December. The machine was doped silver on all surfaces with the polished spruce wing struts being bound in adhesive tape. The single letter marking indicated C Flight, the '2' the aircraft number. Mounted directly in front of the pilot's vision is an Aldis sight for the upper wing Lewis gun.

number appears on the centre-section of the upper mainplane and is not repeated on the lower surfaces.

OPPOSITE TOP: A. RFC shoulder patch for non-commissioned ranks; B. RFC 'Wings'; C. RFC Officer's shoulder strap in plain cloth without button or button hole at rounded end; it was sewn down to the shoulder at the inner end and into the shoulder seam at the outer end. One 'pip' is shown, there being just room for three along the strap; D. Captain's cuff ranking; E. RFC cap badge in bronze; F. RNAS pilot rating arm badge; G. RFC Sergeant's stripes; H. RNAS Squadron Commander's sleeve ranking; I. RNAS Engineer rating's patch.

BELOW: F.E.8, No. 7616 of No. 41 Squadron early 1917. A machine flown by Lt S. Hay until written off in February 1917, this F.E.8 bears a similar colour scheme to D.H.2 A.2543, with the exception that the individual aircraft

OPPOSITE BOTTOM: Strikingly-marked Thornycroft van impressed for use by No. 5 Squadron as an ammunition and bomb carrier. The vehicle was said to be a useful guide to airborne pilots.



F.E.8, No. 7616, No. 41 Squadron, early 1917

ROYAL FLYING
CORPS

A



B



C



D



E



F



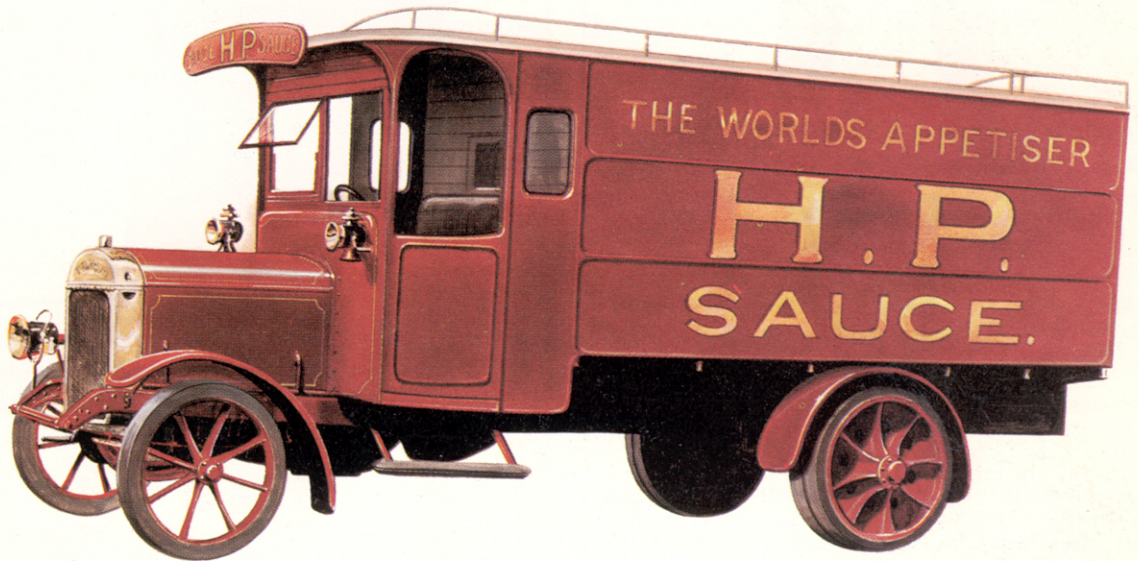
G



H



I



Thornycroft van impressed for use by No. 5 Squadron as an ammunition carrier.



Many officers seconded to the RFC retained previous regimental uniform with addition of pilot's wings. This second lieutenant wears typical infantry tunic with cuff ranking. Top-boots, field-boots, and puttees with ankle-boots were worn to taste.

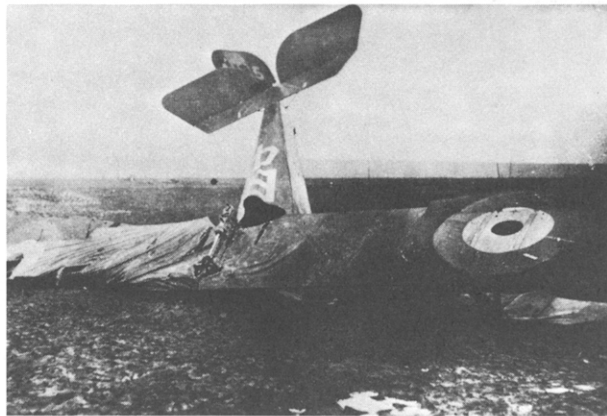
British pilot in typical winter flying dress. The fur-trimmed flying helmet and goggles are taken from photos and surviving examples, but many commercial types were acquired and used. The flying coat is a popular pattern, but again, many slight variations of cut and colour were observed. The sheepskin 'fug boots' were originally designed by Maj Lanoe Hawker; they were much sought-after by German pilots.



he knew that, even with luck, the way was one of hard work and perseverance. A dreadful thought had been in his mind for some days now, though he kept it sternly in the background. What would he be like under fire? This unpleasant question would obtrude itself on his thoughts this morning; he could not keep it back, though he knew the question could only be answered by the test itself.

He turned for relief to the Flight Sergeant, who had just come into the shed, and started a technical discussion with him. The Flight Sergeant, a busy man, was polite, and stood it for five minutes; then he excused himself and disappeared into a sort of dog kennel that was his office. In a minute he appeared again and ordered two of the machines to be taken outside. A defensive patrol was going off in half an hour. As Smith watched the preparations, fascinated, the two pilots who were going on patrol appeared walking up from the Mess. They nodded to Smith then went into the Flight Office and put on great leather coats and mufflers and all the paraphernalia of the active service pilot. Then they went out and, after a short look over the machines, climbed into their seats. To do this they had to use a step ladder, as it was not possible to get in by the ordinary way with all [their] flying clothes on.

They started their engines almost at the same moment, and tripped them on the switch. Each then tested his engine and waved away the chocks. They taxied slowly out on to the aerodrome and Smith noticed that one of the machines carried one solitary black streamer. He began to feel hungry now, but just as he was thinking of going down to the Mess he heard the hum of returning aeroplanes. The early patrol of four machines was coming back. He could see them—one, two, three specks against the sky. Where was the fourth? He could not see him anywhere. One after the other they shut off their engines and came gliding down into wind and alighted carefully. Smith's professional interest was aroused and he admitted to himself that these fellows out here could fly all right. He started to walk towards the machines and nearly bumped into the CO. He saluted and got a smile and a "Good morning". The pilots one by one got out of their machines and clustered around the CO, all were



27. This Nieuport 16, A.125, was shot down on 3 November 1916 by four scouts of Jasta 2. It fell in the vicinity of Ayyette and the pilot, Lt J. M. J. Spenser, was wounded and taken prisoner. (Imrie)

talking at once. Smith hung about shyly and tried to understand what they were saying, but it was beyond him. Their conversation seemed to be something like this:

"Yes, sir, quite different, long nose, sort of pale green . . . with a great streamer . . . I saw two fellows all right. After that we could not catch them . . . I didn't see that fellow . . . Where did Brown get to? . . . I think they were some sort of Rolands, sir . . . Came right out of the sun from over Achiet . . . Two thousand feet above us. Never saw them till they were on us. Buckingham [ammunition] jammed again, no damned use . . . Very few artillery machines . . . You got that one all right Bill. I saw him. Did that B.E. get away all right? The mist put 'em off I expect . . . Miles below us most of it . . . Lots of clouds coming up from the sou'west . . . Did you see that Balloon over Moislains? Quite low, yes . . . Old Brown's all right. I saw him land at Baisieux . . . Did you notice that third Fokker? What height did you make them, Bill? . . . Very few trains about . . . By Jove! did you see the way that fellow turned?"

Smith was reassured. Any fool could see that these pilots were happy. Their faces shone and they never stopped laughing. Was this the war? Smith felt more than ever anxious to get the preliminaries over and become a useful pilot in the squadron. He felt quite impatient. Would they ever let him fly?"

THE FIRST ACES

During the early days of the Somme battle the fighter squadrons on the army fronts not directly concerned had had plenty to keep them busy. On 1 July, a large formation of enemy machines was seen approaching Festubert. This was met and attacked by the commanding officer of No. 32 Sqn, Major L. W. B. Rees. Rees took on four of the enemy aeroplanes single-handed. His first opponent dived away east; the second landed in the German lines. While tackling a third Rees was hit in the leg, but he pressed home his attack to within ten yards, wounding the enemy observer. In spite of his own wound, Rees then fired on another enemy machine, using up the remainder of his ammunition. He had completely broken up the enemy formation,



28. R. H. B. Ker (left) and S. E. Cowan. One of No. 24 Squadron's original pilots, Cowan served with the unit until posted to No. 29 Squadron as a Flight Commander on 1 October 1916. While attacking an enemy aeroplane on 17 November he collided with the aircraft flown by 2nd Lt W. S. F. Saundby and both men were killed. (Hawker)

which returned to its own lines, abandoning its mission. Rees was awarded the Victoria Cross for this action.

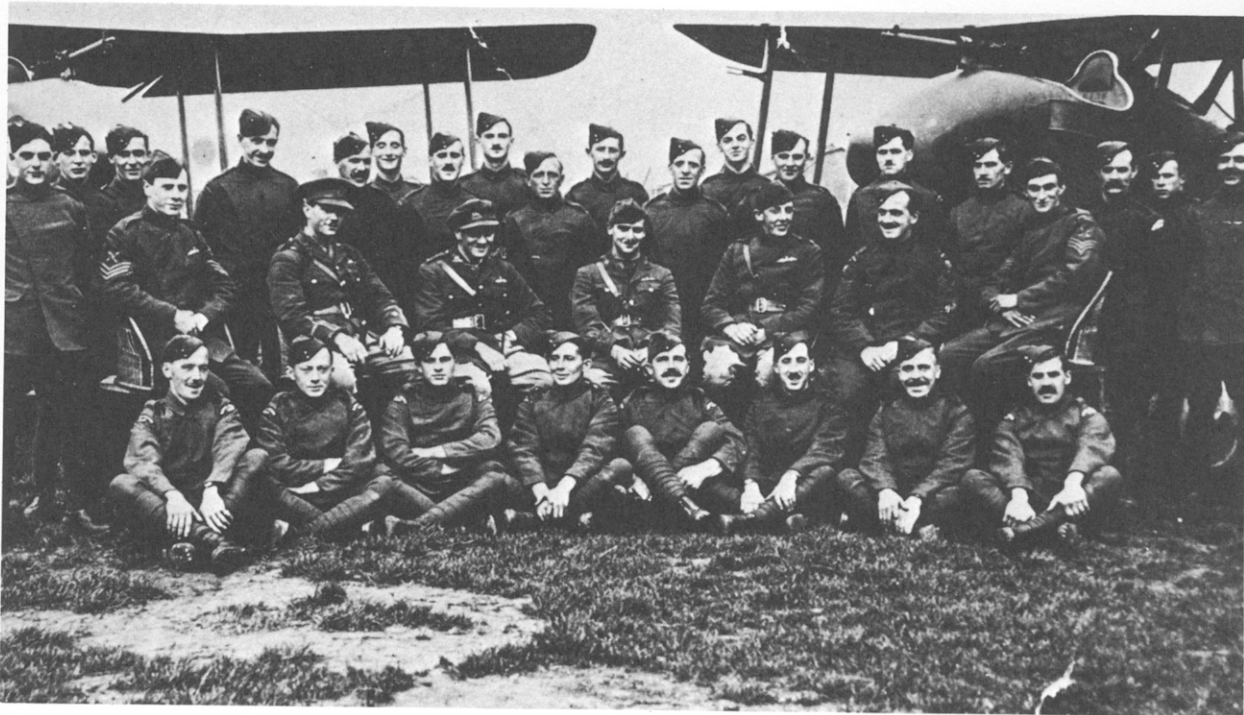
During August two additional fighter squadrons arrived in France. No. 19 Sqn, equipped with B.E.12s, reached Fienvillers and joined 9th Wing on 1 August. The B.E.12, an unsuccessful attempt to modify the basic B.E.2 design into a single-seater fighter, was quickly found to be useless in this role and was relegated to bombing duties.¹

On 2 August a Flight of No. 40 Sqn arrived at Treizennes and came under the orders of 10th Wing, 1st Brigade. The unit had been formed at Gosport on 26 February 1916 under the command of Captain R. G. Howard, DSO. In March, Major Robert Lorraine, MC took command. A pre-war pilot and an actor by profession, Lorraine had earlier flown with No. 5 Sqn. After flying the normal complement of various types of training aeroplanes, the squadron was finally equipped with the F.E.8, a single-seater pusher of similar configuration to the D.H.2. On 19 August the remaining two Flights of the squadron landed at St Omer, transferring to Treizennes on the 10th of the month to cover the front from Armentieres to just north of Arras.

During August air fighting continued with a notable increase in intensity. The main concentration of enemy activity was still over 4th Army Front and pilots of No. 24 Sqn were fighting daily combats. A typical engagement was fought by Lt D. E. Evans, who shot down an LVG two-seater on 6 August and was again in action two days later when he attacked four Rolands over Bapaume. Evans' Aileron control was shot away and his engine stopped:

'I saw that petrol was running out of the petrol safety bag so I turned on the emergency supply. The engine picked up, but the machine having no aileron control, I could only fly in small circles, firing a few shots when the gun passed in the direction of any of the enemy aircraft. There were three of them all around me, but they turned east and dived. I noticed that petrol was running over

1. On 28 July, No. 21 Sqn had been withdrawn to Boisdigham and re-equipped with the B.E.12.



the floor of the machine so immediately switched off. The machine gradually straightened up and I was able to glide west with wind and land at Baisieux.'

On 7 August an NCO pilot who was to become one of the RFC's most successful fighter pilots joined No. 29 Sqn: Sergeant J. T. B. McCudden. Having flown F.E.2bs in No. 20 Sqn for a month before joining No. 29, McCudden found himself based to the north, away from the main area of the Somme battles, but he was nevertheless able to gain valuable experience.

August also saw the return of Albert Ball to fighter pilot duties. Coming back from home leave on 23 June, Ball had flown a number of patrols and on 2 July had shot down a Roland C.II for his first confirmed victory. But the heavy fighting was beginning to tax Ball's reserves. On 16 July he wrote to his mother that he was feeling 'a bit poo-poo just now', adding, 'During the day did 12 flights and at last nature is asking to have its own way.' On 18 July he asked Major Hubbard, his CO, if he might have a few days' rest from flying. Hubbard passed Ball's request to General Higgins—colloquially known as 'all bum and eyeglass'—commanding 3rd

29. This photograph of A Flight of No. 41 Squadron was taken in England three days before leaving for France. On the extreme right wearing a forage cap is Captain H. Jackson, who was hit by anti-aircraft fire on the morning of 7 April 1917 and later died of wounds received after his F.E.8, No. 6437, crashed in the British lines.

Brigade, and to Ball's disgust he was transferred to No. 8 Sqn to fly B.E.2cs on artillery observation and co-operation work. Although this seems a poor reward for Ball's work during the previous two months, and it is hard to understand the reasoning behind Higgins' decision, Ball was well known as a rather 'difficult' character, and was very prone to express his opinions of some of the aeroplanes he was called upon to fly. It is also an arguable fact that many other fighter pilots—not to mention the hard-pressed pilots of the Corps squadrons—had seen a great deal more action than Ball. It is probable that Higgins wished to show him the other side of the coin.

Ball was bitter over the nature of his 'rest'. He wrote to his parents, 'I am now getting a taste of real army thanks', adding a postscript: 'Oh, I am feeling in the dumps.' But it was not in Ball's nature to bear a grudge for long and he resolved to 'play up' and



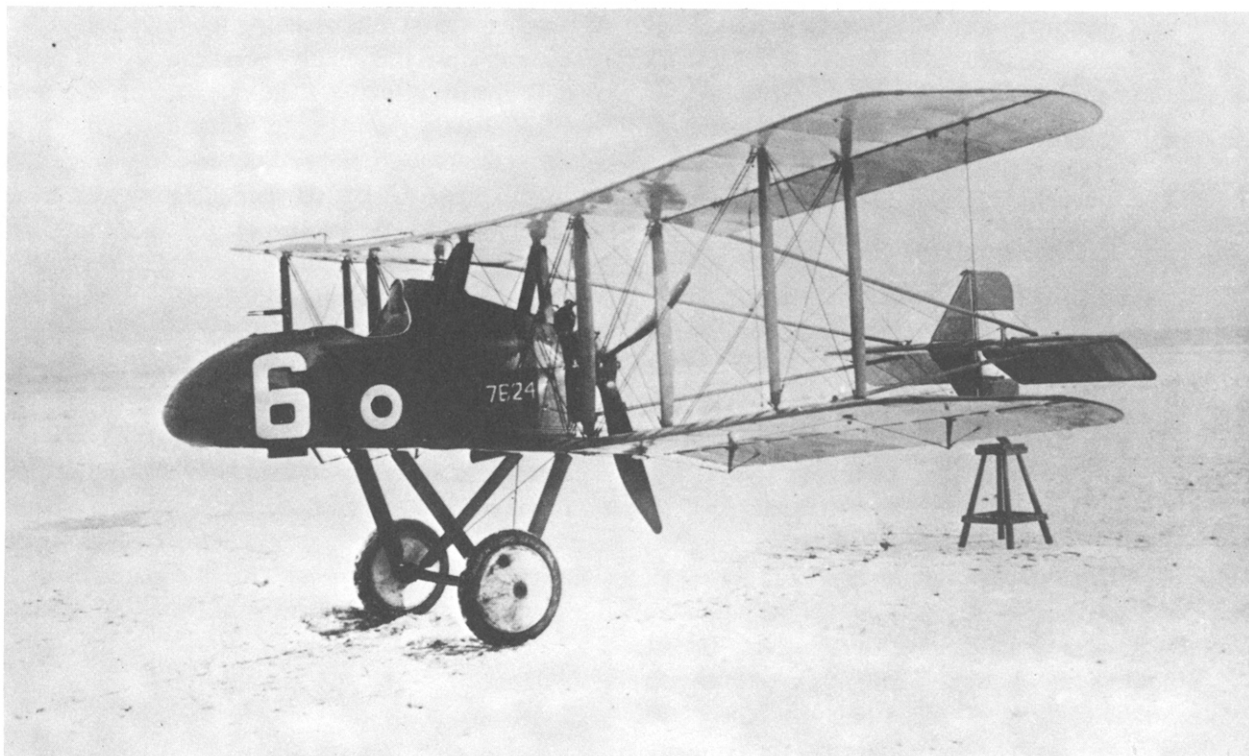
30. Pilots of No. 32 Squadron well illustrating the variety of uniforms and footwear worn by pilots of the RFC. (Miller/Reese)

make the best of it, having been told that he could ask to be sent back to No. 11 Sqn when he felt he had had enough 'rest'. He was determined to win his way back into the good graces of General Higgins and he volunteered for the dangerous task of landing a spy behind the German lines after dark. Unfortunately, the mission was abortive. The unarmed B.E. was chased by three Fokkers—only losing them because of the gathering darkness—and was heavily 'archied'. On landing the spy refused to get out, reasoning, not without justification, that the chase by the Fokkers and the groundfire had alerted the whole countryside, and Ball was forced to return.

Albert Ball returned to No. 11 Sqn on 10 August. On 16 August he wrote home: 'Dearest people. Hallo. I am back in my dear old hut. All is OK and my garden is fine. You will be surprised to hear that I have started with luck. I went up this morning and attacked five Hun machines. One I got and two I

forced down. After this I had to run for all my ammunition was used. However, I got back OK with only two hits on my machine.'

At this time Ball was beginning to formulate the method of attack which was to bring him so much success. He would approach the enemy machine and dive underneath it, whereupon he would pull down his Lewis gun on the Foster mounting and rake the underside of his opponent. He used this method when attacking seven Roland C.IIs on 22 August. Scattering the enemy formation with his first shots, Ball selected a victim, obtained position underneath and closed to within 15 yards before opening fire. The Roland crashed west of Bapaume. Ball regained height and attacked five more coming south from Vaulx. Taking position under the rearmost, he was actually firing from a range of 30 feet before the German pilots realized that they were under attack. Ball shot down two of the Rolands before he ran out of ammunition and the remainder chased him back to the lines. Later in the same patrol, after having landed at No. 8 Sqn's base for more ammunition, he attacked several more enemy



formations but was driven back to the British lines with the Nieuport badly shot about. This patrol was his last in the Nieuport Flight of No. 11 Sqn as he was to transfer to No. 60 the next day.

No. 60 Sqn's Morane Bullets had suffered many casualties in the heavy fighting during July. Not only was the Morane an extremely demanding machine—a pilot later wrote '... it was very uncomfortable to fly, giving the impression that it was trying to kill the pilot'—but the replacement pilots were both inexperienced and poorly trained. Major Smith-Barry, who had succeeded to the command of the squadron on Major Waldron's death, was appalled at the casualty rate and informed Lt Colonel Dowding, commanding 9th Wing, that he could not send new pilots into action with less than seven hours total flying time. Dowding agreed and passed on these views to Trenchard. The latter withdrew the squadron from front line operations on August 3, writing to Haig:

'I have had to withdraw one of the fighting squadrons from work temporarily and have sent it to St Andre-aux-Bois. This squadron, since the

31. The F.E.8, No. 7264, which Captain T. Mapplebeck of No. 40 Squadron was flying on 9 November 1916 when he was shot down by a pilot of Jasta 8 and became a prisoner. (Bruce/Leslie)

battle began, has lost a Squadron Commander, two Flight Commanders and one pilot—all killed or missing, and yesterday it lost two more machines with two pilots and observers by anti-aircraft fire. Besides this, they have had several officers wounded. They have a very difficult machine to fly and I think a rest away from work is absolutely necessary.'

While No. 60 Sqn was at St Andre, its observers began to be posted out and the remaining Morane biplanes withdrawn. The Nieuport Flight of No. 11 Sqn was transferred to the squadron, and when it returned to front line duties on 23 August, flying into Izel-le-Hamel aerodrome, it had two Flights of Nieuports and a Flight of Morane Bullets. No. 60 now came under the orders of 13th Wing, 3rd Brigade, relieving No. 23 Sqn.

Ball joined the strength of No. 60 Sqn on 23 August, and when the unit recommenced oper-

ations, his personal score began to mount rapidly. On the morning of 28 August he shot down a Roland C.II, and in the evening, while flying an escort for the B.E.s of 3rd Brigade, he had four separate combats, forcing three enemy machines down and crashing a fourth.

NEW OPPONENTS

The RFC still enjoyed air superiority over the Somme, but the last day of August saw an indication of a swing in the pendulum of technical superiority. As part of the re-organization of the *Luftstreitkräfte*, seven *Jagdstaffeln* had been formed during August, equipped with the new Halberstadt D II and D III and Fokker biplane D types, all of which were superior to the D.H.2 and F.E.8 pushers. On 31 August pilots of No. 24 Sqn fought an action with another new type: the D series Albatros. Only two or three of these new fighters were at the front by the end of August 1916, but Andrews and Glew, the No. 24 Sqn pilots, met and fought them for half an hour. The two D.H.2s returned safely, but had been completely outclassed by the modern German fighters.

On 3 September, Lt G. H. Bowman—'Beery' to his friends—had a narrow escape. While on escort duty he saw a B.E.2c under attack by a Fokker: 'Dived on Fokker, who left '2c. I was then attacked by a Roland scout and while flying nose on to each other, I shot him. Being out of control hostile aircraft came straight on and took off his right hand top plane on my right wing. My lateral control was Na Poo. Hostile went down over Zinsilles. I came back to lines at 2,000 feet.'

On 6 September, another No. 29 Sqn pilot, Sergeant J. T. B. McCudden, opened his eventual score of 57 victories by shooting down a white Albatros over the Menin road. He and Bowman were later to share many more adventures together.

The third phase of the Somme battle opened on 15

32. Lt R. H. Soudy of No. 41 Squadron, fully attired to combat the bitter cold at height during the winter of 1916/17. (C. Cole)

September, with tanks assisting the infantry for the first time, and the main operations again being carried out by 4th Army. In the air war, the new German *Jagdstaffeln* began a spirited counter-attack. On 17 September, Oswald Boelcke, the leading Fokker pilot after Immelmann, had been given command of *Jagdstaffel 2*, stationed at Bertincourt, between Peronne and Cambrai. The *Jasta* was now almost up to full strength with the new Albatros D types and during the morning of the 17th, it attacked a formation of B.E.2cs of No. 12 Sqn, escorted by the F.E.2bs of No. 11. The Germans shot down two B.E.s and four of their escort, repeating this success two days later when the same unit attacked a reconnaissance by No. 11 Sqn, escorted by the Nieuports of No. 60 Sqn. The fighting ranged from over Quéant to the British lines, and Captain H. C. Towers of No. 60 Sqn, the C



Flight Commander, was shot down and later died from his wounds.

For the remainder of September the RFC clung doggedly to its now tenuous command of the air, but the casualty rate in the fighter squadrons was increasing and the balance began to swing in favour of the *Luftstreitkräfte*. On 30 September, Trenchard wrote to Haig, outlining the position. Haig informed the War Office that an immediate increase of fighter squadrons was needed to contain the new *Jagdstaffeln*: '... the enemy has made extraordinary efforts to increase the number, and develop the speed and power of his fighting machines. He has unfortunately succeeded in doing so... it is necessary to realize clearly, and at once, that we shall undoubtedly lose our superiority in the air if I am not provided at an early date with improved means of retaining it.'

By the middle of October the *Luftstreitkräfte* had 38 squadrons with German 1st Army; a total strength of 333 aeroplanes, 45 of which were fighters. The 3rd, 4th and 5th Brigades of the RFC had a total of 383 aeroplanes, of which 73 were fighters. However, the disposition of the opposing armies was such that, in general, the superiority in numbers of the RFC brigades was in the order of 45 aeroplanes. But quantity was not enough. The RFC had no fighter aeroplanes that could match the Albatros D types, either in performance at operating height or firepower, the German fighter carrying two machine guns to the one fitted to British fighters.

During October the Germans made determined efforts to interfere with British reconnaissance and artillery spotting flights and on the 20th of the month more than 80 combats were reported in the RFC daily communiqué. Casualties were heavy. On 23 October, Trenchard reinforced the units on the Somme to the tune of three Corps and two fighter squadrons: No. 29 Sqn flew down to Izelle-Hameau, and No. 32 Sqn to Lealvillers.

Two new squadrons also came out from England during October, No. 41 which arrived on 13 October, and No. 46, on the 26th. The former, under the command of Major J. H. A. Landon and equipped with the F.E.8—a type then virtually

obsolete—flew to Abeele aerodrome on 21 October to begin operations under the orders of 11th Wing, 2nd Brigade. No. 46 Sqn, commanded by Major P. Babington, had Nieuport two-seaters and made its base at Droglandt with 2nd Wing.

As an additional reinforcement to the hard-pressed squadrons on the Somme front, 8 Sqn Royal Naval Air Service, commanded by Squadron Commander G. R. Bromet, arrived at Vert Galant aerodrome on 26 October. 'Naval 8' flew a mixed complement of Nieuports and Sopwiths, six two-seater Sopwith 1½ Strutters; six single-seater Sopwith Pups, and six Nieuport 17s. The highly manoeuvrable little Pup was up to this time used exclusively by the RNAS and had scored some initial successes with No. 1 (Naval) Wing in September. Naval 8 had been formed during October from the RNAS units based at Dunkerque, and its six Pups came from No. 1 Wing. The squadron's 1½ Strutters were replaced by additional Pups on 16 November and Nieuports by the end of the year.

Two large-scale air battles on 26 October involved three RFC squadrons. The first, at 7.25 am, took place near Bapaume between five D.H.2s of No. 24 Sqn and nearly 20 enemy fighters. The pace of combat made it impossible to observe results, but individual German aircraft gradually broke off the

33. The Albatros D I first appeared over the Western Front in mid-September 1916, in the hands of Jasta 2. This example, No. 391/16, was shot down on 16 November by Captains Parker and Harvey of No. 8 Squadron. The pilot of the German machine was Ltn Büttner, whose personal marking can be seen on the fuselage under the newly applied British markings.



action until only nine or ten remained in the fight. All the D.H.2s returned safely, with only one pilot slightly wounded, the British having found that they could outmanoeuvre the Halberstadt fighters, which lost height in turns.

The second dogfight, in the afternoon, showed a more positive result for the Germans. Eight Albatros D IIs of *Jasta 2*, led by Boelcke, attacked four artillery B.E.2cs in the Ancre area, shooting down three. Captain E. L. Foot of No. 60 Sqn and a D.H.2 from No. 32 hurried to the aid of the B.E.s, but Foot—known throughout the RFC as ‘Feet’—was outmanoeuvred, forced to dive away and his attacker, Hans Imelmann of *Jasta 2*, shot the Nieuport through the petrol tank, setting it on fire a few feet above the ground. Foot escaped without injury.

At the height of these continued successes the *Luftstreitkräfte* suffered a severe blow. On 29 October, Lts Knight and McKay of No. 24 Sqn were on patrol over Pozieres when they were attacked by six Albatros D IIs of *Jasta 2*.

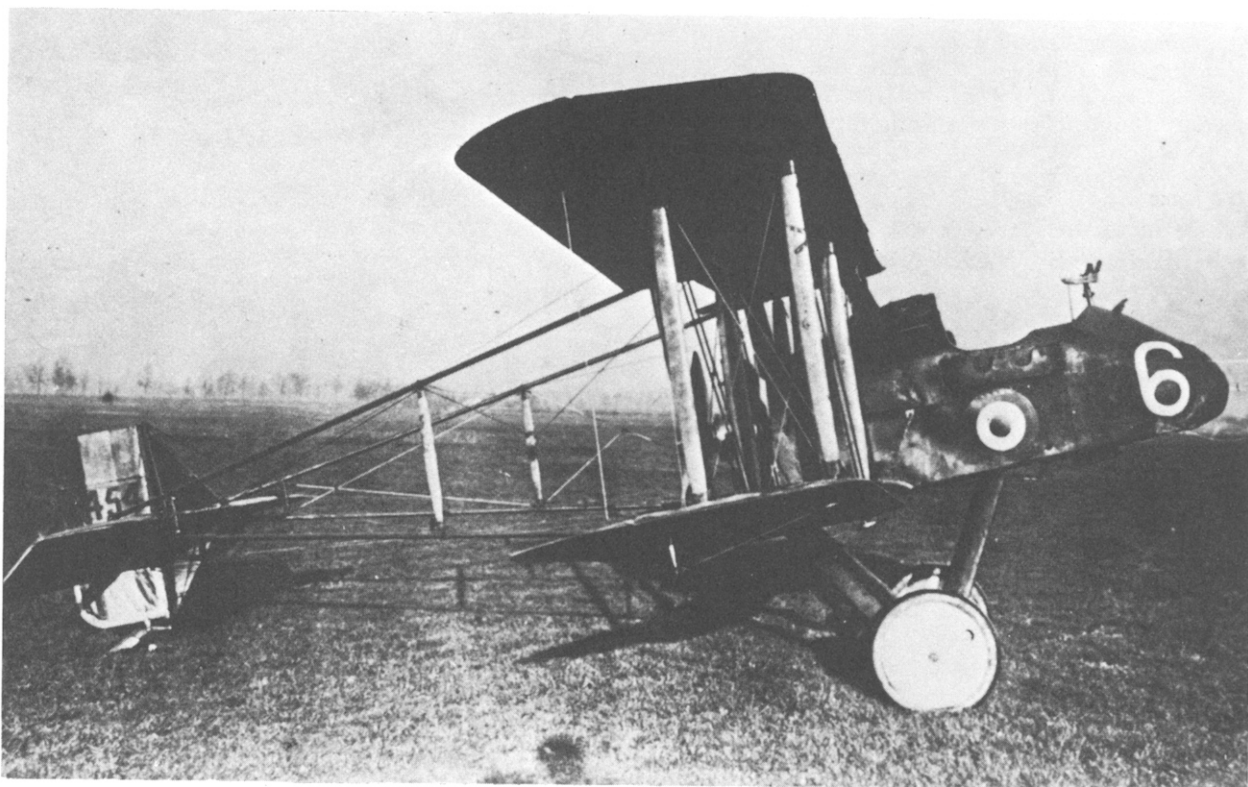
‘They hesitated about five minutes before they attacked. One then did a sideslipping dive under the top deH, but Lt Knight did not attack as he was suspicious of this manoeuvre. The hostile aircraft (HA) then all dived at Lt Knight, who promptly spiralled to avoid their fire. During the fight, six other scouts joined in, making a total of 12 against two deHs, and some went down and attacked Lt McKay. The HA dived in turn on to the deH’s tail, but the deH promptly turned sharply under the HA, which usually switched on and climbed again. The deHs were very careful to avoid diving straight at any HA that presented tempting targets, but fired short bursts as HA came on their sights. It was after about five minutes strenuous fighting that two HA collided. One dived at Lt Knight, who turned lefthanded. The HA zoomed righthanded, and its left wing collided with the right wing of another HA which had started to dive on Lt Knight. Bits were seen to fall off; only one HA was seen to go down, and it glided away east apparently under control, but was very shortly lost to sight as the deHs were too heavily engaged to watch it. The fight continued for another fifteen minutes drifting east, during which Lt Knight came down and joined Lt McKay;

the deHs were about 5,000 feet, just east of Bapaume when HA broke off the engagement and allowed the deHs to return unmolested.’

The two Albatros D IIs which had collided were flown by *Hptm* Oswald Boelcke and his colleague *Ltn* Erwin Böhme, both intent on their attack on Knight. Böhme managed to regain control of his machine and returned to Bertincourt, but Boelcke crashed and was killed. At the time of his death Boelcke, a brave and chivalrous man, admired and respected by the RFC, was the leading German ‘ace’, with some 40 victories to his credit. As an innovator and teacher of fighter tactics, his death came at an inopportune time for the emerging *Jagdstaffeln*. But the tradition was well founded and in capable hands. Less than six months after Boelcke’s death, one of his pupils, Manfred von Richthofen, had equalled his mentor’s score.

November 1916 opened with a day of high winds, low cloud and rain. The coming winter was to be the worst suffered by Europe for many years. Air activity slackened during the first days of the month, but 9 November was bright and clear and the *Luftstreitkräfte* was out in force. An attempt by the B.E.s of Nos. 12 and 13 Sqn to bomb the German ammunition dump at Vraucourt was challenged by more than 30 enemy fighters, starting the biggest dogfight yet seen in the war. The B.E.s were attacked soon after crossing the lines, but as they neared their objective the German fighter pilots intensified their attacks, getting inside the British formation. The escort, provided by the F.E.2bs of No. 11 Sqn, Nieuports of No. 60 and No. 29’s D.H.2s, fought hard but was outclassed by the enemy fighters. Two B.E.s were shot down and the pilot of another wounded. From the escort, a Nieuport and two D.H.2s were shot down, and an F.E. returned with a dead observer and a wounded pilot.

On the same day the pilots of No. 29 Sqn had their first combats with the new Albatros fighters when three D.H.2s—flown by Sgts Noakes, McCudden and Lt Ball (no relation to Albert Ball)—were attacked by six Albatros D IIs over Achiet-le-Grand. The fight continued for 25 minutes, the D.H.2s keeping together—‘which was undoubtedly our salvation’—and edging towards the British lines.



The German pilots suddenly broke off the action, leaving the badly shot-up D.H.2s to make their way back to Le Hameau. The three pilots had survived only by virtue of the manoeuvrability of the deHavillands.

Losses now began to mount in the squadrons operating the D.H.2 and F.E.8, both hopelessly outclassed by the new German fighters. On 23 November, Major Lanoe Hawker was shot down and killed by von Richthofen, the Prussian ace's 11th victory. Hawker, flying the more manoeuvrable but slower aeroplane, fought superbly, but his engine began to run badly and he was forced to break off the combat and dive for the safety of the British lines. Richthofen followed, firing burst after burst at the D.H.2 and Hawker finally fell, shot through the head, only 150 feet above the ground and a few hundred yards from safety. Thus both the RFC and the *Luftstreitkräfte* recorded the loss of two great leaders in 1916.

The last ground attacks of the Somme battles had been made on 18 November; an unseasonable thaw turned the battlefield into a sea of mud, with rain

34. 2nd Lt G. S. Deane of No. 41 Squadron was last seen over Picanton at 10.25 am on 26 November 1916, flying this F.E.8, No. 6454. The machine suffered an engine failure and Deane was forced to land behind enemy lines. (Bruce/Leslie)

and snowstorms adding to the impossible conditions and finally halting operations: 'so ended the greatest continual battle which the world has yet seen'.¹

From 28 November to 3 December there was no war flying, fog keeping the aeroplanes of the combatants on the ground. Operations recommenced in a limited way on 4 December, but the weather clamped down again the following day and no flying was possible for five days. After a brief spell of activity on the 10th of the month, the weather lifted briefly on the 11th and a few combats were fought.

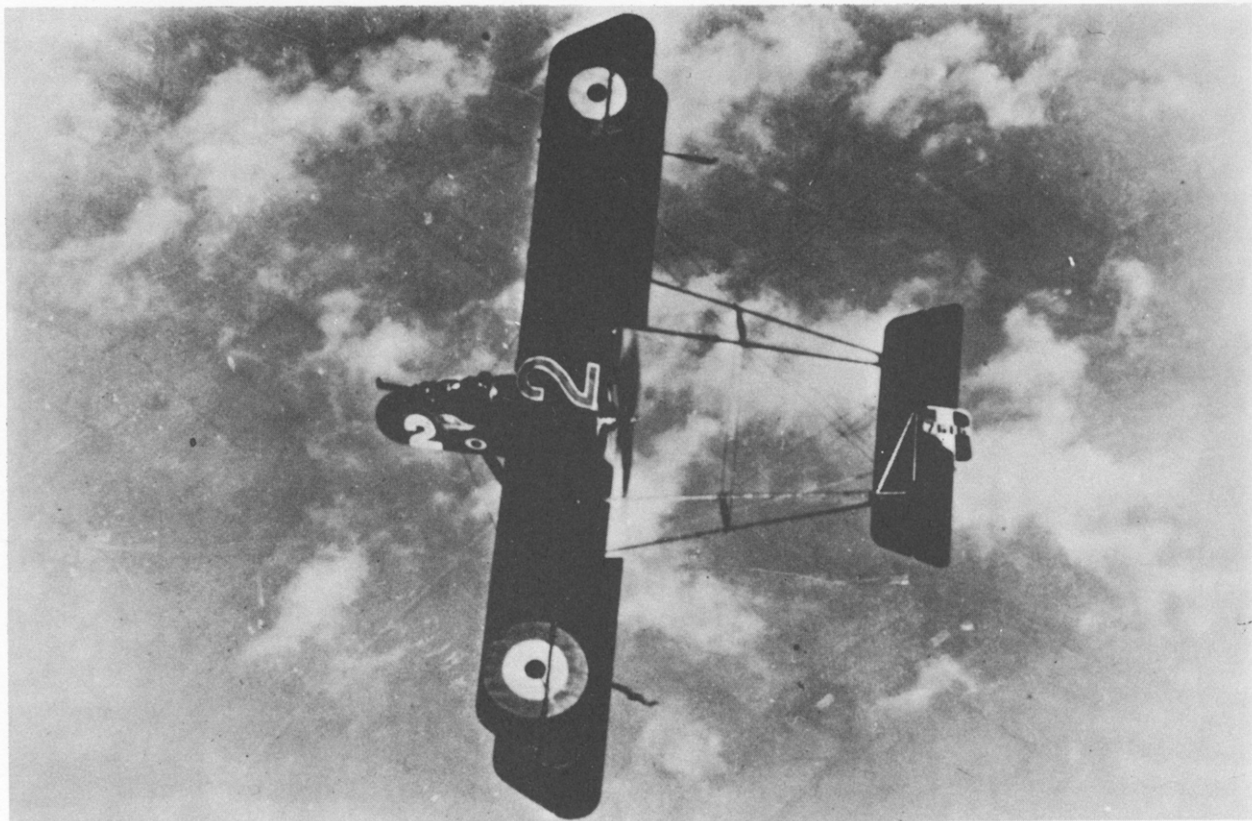
As winter set in over the Western Front, air fighting gradually died down, flaring up only spasmodically when the weather permitted. Lt E. L.

1. *The War in the Air*, Raleigh and Jones.

35. D.H.2 No. 5925 which was flown to France by No. 24 Squadron on 7 February 1916 and remained on strength until 10 May the following year. On 22 May it was flown back to England and is seen here at Brooklands still retaining No. 24's red and white flight markings on the outboard wing struts. This same aircraft was being flown by Lt Robert H. M. S. Saundby of A Flight, No. 24 Squadron on the afternoon of 23 November 1916, when von Richthofen shot down Major Lanoe Hawker. (Bruce Robertson)







36. Lt S. Hay of No. 41 Squadron on patrol over the Ypres Salient in F.E.8, No. 7616, the subject of the colour profile on page 26. (Cole)

37. Often described as the most delightful flying machine ever made, the Sopwith Pup was operational with two squadrons by the end of 1916. Although more manoeuvrable than the German Albatros D types, it carried only one machine gun and was slower at operational heights, which enabled the German pilots to initiate or break off combat at will.



Benbow of No. 40 Sqn shot down an Albatros over Lens on 20 December, but then no fighter actions took place for five days. A brief improvement in the weather conditions on 24 December enabled the Corps squadrons to carry out their work, and although there was no flying on Christmas Day, Boxing Day saw a number of fiercely fought combats. The next day clearer weather permitted operations on a limited scale, 21 engagements being recorded over 3rd Army Front, but the weather gradually deteriorated again and there was little flying during the last three days of the year.

Despite the emergence of the *Jagdstaffeln*—25 were in existence by the end of December 1916—the RFC had clung tenaciously to the command of the air; but not without cost. Between 1 July and 17 November, the Corps lost 308 pilots and 109 observers killed, wounded or missing; and over 800 aeroplanes had been lost to strength. The number of squadrons had been increased from 27 on 1 July, to 38 by the end of the year and the RFC now had eight



38. Major F. F. Waldron and Captain R. R. Smith-Barry of No. 60 Squadron, 1916. The latter took over command of the unit on the death of Waldron on 3 July 1916 and that December was sent home to put into practice his ideas for the improved training of pilots. He later founded the School of Special Flying at Gosport. (J. Warne)

IIs and Halberstadt D series fighters which now equipped the *Jagdstaffeln*.¹ These German machines, although lacking the overall manoeuvrability of the Sopwith Pup and Nieuport 17, were both faster at operational height and better armed, with two guns against the one carried by the British scouts, a fact that was to have disastrous consequences for the RFC in the opening months and spring of 1917. But these sobering events lay in the future.

Throughout the winter of 1916, weary pilots and observers blessed the inclement weather, grateful for the rest from the gruelling offensive patrols and escort duties. They had fought well, and in the words of the official historian: 'They were not a melancholy company. Fighting to them was a sport, a grim one, but still a sport, and they relived their adventures in the Mess with a zest that borrowed something from the playing field dressing room. They did not belittle their risks. Rather they accepted them as a price to be paid for the joy of the new life that was theirs. They met in the air an enemy who lived under similar conditions, and their combats were clean rapid contests in which brain and artistry were exalted above mere muscle. Many of the squadrons had suffered grievous losses, but they came from the battle strong in the knowledge that they had been called upon to play a big part and they had not failed.'

The tragic notion that war could be treated as a sport was to be shattered in 1917 as the air fighting on the Western Front developed into a bloody and protracted battle in which both sides asked and gave little quarter. In just under two years, the machine that appeared to have 'little relevance to modern war' had become a powerful force which neither side could afford to neglect if the slaughter in the trenches was to be turned to their respective advantage and bring a satisfactory conclusion to the war.

single-seater fighter squadrons, plus the services of Naval 8. But of these eight squadrons, five (Nos. 24, 29, 32, 40 and 41) were still equipped with the obsolete D.H.2 or F.E.8 pushers, and only two, No. 60 Sqn with its Nieuport 17s and Naval 8 with its Sopwith Pups—a second Pup squadron, No. 54, had arrived in France on 25 December, but was not yet operational—were effective against the Albatros D

1. No. 19 Sqn also had a few Spads on charge, but was not to be fully equipped until February 1917.

**Order of Battle of RFC Fighter Squadrons for the Battle of the Somme
1 July 1916**

General Officer Commanding: Major General H. M. Trenchard, CB, DSO, ADC
Headquarters: St Andre-aux-Bois Advanced HQ: Fienvillers

9th (HQ) Wing
Lt. Col. H. C. T. Dowding
Fienvillers

No. 27 Squadron
Maj. A. E. Borton, DSO
Fienvillers
17 Martinsyde Scout

No. 60 Squadron
Maj. F. F. Waldron
Vert Galant
4 Morane biplane
9 Morane Type N (Bullet)

I Brigade
Brig. General D. le G. Pitcher
Château Werppe, Chocques

1st (Corps) Wing

10th (Army) Wing
Lt. Col. P. L. W. Herbert
Norrent-Fontes

No. 25 Squadron
Maj. R. G. Cherry
Lozinghem
17 F.E.2b
1 F.E.2c

No. 32 Squadron
Maj. L. W. B. Rees
Treizennes
12 D.H.2

II Brigade
Brig. General T. I. Webb-Bowen
Oxelaere

2nd (Corps) Wing

11th (Army) Wing
Lt. Col. F. W. Richey
Nieppe

No. 20 Squadron
Maj. G. J. Malcolm
Clairmarais
13 F.E.2d

No. 29 Squadron
Maj. E. L. Conran
Abeelee
15 D.H.2
2 F.E.8

III Brigade
Brig. General J. F. A. Higgins, DSO
Château de Sains

12th (Corps) Wing

13th (Army) Wing
Lt. Col. C. F. de S. Murphy
Foufflin-Ricametz

No. 11 Squadron
Maj. T. O'B. Hubbard
Savy
8 F.E.2b
4 Vickers Gunbus
3 Bristol Scout
3 Nieuport Scout

No. 23 Squadron
Maj. A. Ross-Hume
Le Hameau
14 F.E.2b
3 Martinsyde Scout

IV Brigade
 Brig. General E. B. Ashmore, CMG, MVO
 Les Alençons

3rd (Corps) Wing

14th (Army) Wing
 Lt. Col. C. G. Hoare
 Bertangles

No. 22 Squadron
 Maj. R. B. Martyn
 Bertangles
 18 F.E.2b

No. 24 Squadron
 Maj. L. G. Hawker,
 VC, DSO
 Bertangles
 19 D.H.2
 3 Bristol Scout *
 2 Morane Scout *

*Attached from squadrons of 3rd (Corps) Wing

Dates of arrival of additional fighter squadrons during the battle.
 No. 40 Squadron. Maj. R. Lorraine. 12 F.E.8 Treizennes. 10th Wing (I Brigade) A Flight, 2 August 1916. B and C Flights 25 August 1916.

No. 41 Squadron. Maj. J. H. A. Landon. 17 F.E.8. Abeele. 11th Wing (II Brigade) 21 October 1916.
 8 Squadron, Royal Naval Air Service. Sqn. Commander G. R. Bromet. 6 Sopwith 1½ Strutter. 6 Sopwith Pup. 6 Nieuport Scout. Vert Galant. 22nd Wing (V Brigade). 26 October 1916.

Notes sur les planches en couleurs

Page 25 : Lieutenant Pilote de la RFC, 1915–16, mis en dolman large de la RFC et chapeau de police avec jambières d'un dessin typique. Prenez note de tous boutons qui sont cachés; Épaulettes avec étoiles du grade cousues à bouts internes. Insigne du bronze de la RFC sur chapeau et sur pointes de col, 'ailes' sur sein gauche au-dessus de cordon de Military Cross.

Page 26 en haut : D.H.2, C Flight No. 29 Squadron, novembre 1916. Cet avion fut abattu le 9 novembre tout en escortant B.E.2cs au raid de bombardement à Vraucourt et le pilote fut fait prisonnier. Il tient marquages britanniques typiques de la période, le numéro d'identification '5' étant utilisé seulement pour convenance et ne conformant pas à tout système rigide, ces marquages furent invariablement le choix des commandants des escadrilles d'avions individuels.

Page 26 en bas : Bristol Scout Type C de No. 6 Squadron, juillet 1915. Ce fut l'avion volé de Captain Lanoe G. Hawker le 25 juillet quand il abattit trois avions à deux places allemands, un fait pour lequel il fut décoré de la Victoria Cross. Il tient la propre montage de Hawker pour une mitrailleuse Lewis fixée pour tirer exempt de la vis à air révolante. L'avion ne tient pas de marquages d'identité à part son numéro de série et il montre le fini crème foncé accompli au moyen d'appliquer vernis protecteur sur étoffe naturelle écru; contres-fiches sont vernies de sapin.

Page 27 : Morane-Saulnier Type N de No. 24 Squadron, juillet 1916. Connu comme la Bullet de la RFC, le Morane fut semblable au Fokker E III et une consigne du 19 juillet 1916 aboutit à la peinture d'identification rouge comme illustrée. Les plaques à deflexion montées sur les ailes de l'hélice sont illustrées en perspective laquelle illustre aussi le deuxième pare-brise tenu sur cet avion, probablement pour défendre le pilote contre volées ricochantes.

Page 28–29 : Nieuport 17 du C Flight, No. 60 Squadron, novembre 1916. Avec au moins un Albatros à son mérite cet avion est enduit argenté total avec des marquages noirs indiquants son 'escadrille' et numéro individuel. Les contres-fiches des ailes de sapin polies sont serrées avec

ruban adhésif et une visée Aldis pour la mitrailleuse de l'haute aile est montée directement en avant de la carlingue de pilote.

Page 30 : F.E.8 de No. 41 Squadron, tout au début de 1917. Volé de Lt. S. Hay jusqu'à cet avion fut passé au compte en février 1917, il tient son numéro individuel placé au centre des surfaces des hautes ailes laquelles sont vertes de kaki, une nuance qui entra dans usage général dans la RFC. Les surfaces inférieures sont du fini de toile naturelle.

Page 31 en haut : A. Pièce d'épaule de la RFC pour sous-grades; B. 'Ailes' de polite de la RFC; C. Épaulette de drap sans dessin d'un officier de la RFC, montrant une étoile, il y en avant place à trois; D. Grade sur parement d'un officier britannique; E. Insigne RFC du bronze pour chapeau; F. Insigne à bras de pilote de la Royal Naval Air Service; G. Chevrons de sergent-chef de la RFC; H. Grade à la marche d'un commandant de la RNAS; I. Pièce de grade de soldat du génie de la RNAS.

Page 31 en bas : Ce camion Thorneycroft fut seulement un exemple d'un véhicule civil enrôlé dans service militaire au front. Dans ce cas il commença à être le caisson de No. 5 Squadron.

Page 32 à gauche : Sous-lieutenant de la RFC mis en tunique d'infanterie typique avec grade sur parement; beaucoup d'officiers postés aux services voltants retenants leurs tenues d'armée de régiment. Bottes à revers, bottes à campagne et bandes-molletières avec bottes jusqu'aux chevilles furent portées pour plaire à goûts individuels.

Page 32 à droit : Pilote britannique mis en tenue aérienne d'hiver typique, le casque garni avec fourrure et les lunettes étant des exemples des plusieurs modes en usage. Tuniques varièrent aussi, ceci étant une modèle en vogue. Les bottes à chaleur de basane furent beaucoup recherchées des pilotes allemands.

Farbtafeln

Seite 25 : RFC Lieutenant-Pilot, 1915–16, in weiter RFC Jacke und Feldmütze mit typischen musterhaften Beinragen bekleidet. Bermenken alle Knöpfe sind versteckt; Epaulette mit Sternen als Rangabzeichen an inneren Enden zugenäht. RFC Abzeichen aus Bronze auf der

Mütze und auf den Kragenspitzen, Fliegerabzeichen an der linken Brust über dem Military Cross Band.

Seite 26 oben: D.H.2, C Flight No. 29 Squadron, November 1916. Dieses Flugzeug wurde am 9. November abgeschossen, während es B.E.2cs auf einem Bombenangriff nach Vraucourt begleitet und der Pilot wurde Kriegsgefangener genommen. Es trägt typische britische Hoheitsabzeichen des Tages, das Kennzeichen '5' wurde nur für bequeme Einrichtung genutzt und hat nicht an jeder unbeugsamen Ordnung angepasst, solche Hoheitsabzeichen waren oft die Wahl der einzelnen Staffeoberstleutnante.

Seite 26 unten: Bristol Scout Type C der No. 6 Squadron, Juli 1915. Dies wurde das Flugzeug am 25. Juli von Captain Lanoe G. Hawker geführt, als er drei deutsche Zweisitzer abgeschoss und für diese Heldentat wurde er die Victoria Cross zuerkannt. Es besitzt die eigene Lafettierung Hawkers für ein Lewisgewehr, das aufgepflanzt ist, um frei von der Drehluftschraube abzufeuern. Das Flugzeug trägt keine Hoheitsabzeichen abgesehen von seiner Seriennummer und es hat die dunkelkremfarbige Oberflächengüte, die mittels Auftrags Schutzlackfarbe über ungebleichter Naturbespannung erreicht wurde; Streben aus Fichtenholz werden gelackiert.

Seite 27: Morane-Saulnier Type N der No. 24 Squadron, Juli 1916. Bekannt als das Bullet bei dem RFC war das Morane gleich als das Fokker E III und ein Befehl des 19 Juli 1916 hatte zur Folge den roten Kennanstrich, wie man oben illustriert hat. Die Spritzbleche, die an den Propellerflügeln angeschlossen sind, werden in der perspektivischen Ansicht erläutert, der auch die zweite Windschutzscheibe von diesem Flugzeug getragen illustriert, um aller Wahrscheinlichkeit nach dem Pilot gegen Ricoschets zu schützen.

Seiten 28–29: Nieuport 17 des C Flight, No. 60 Squadron, November 1916. Mit wenigstens eines Albatros zu seinen Gunsten wird dieses Flugzeug Gesamt-silber mit schwarzen Hoheitsabzeichen gefirnisst, den seine Kette und seine Einzelnummer anzeigen. Die glatte Tragflächestreiben aus Fichtenholz werden mit Klebeband verbunden und eine Aldisvisiereinrichtung für das Lewisgewehr and der Obertragfläche ist ganz vor dem Führersitz montiert.

Seite 30: F.E.8 der No. 41 Squadron, früh 1917. Geführt Von Lt. S. Hay bis auf es in Februar 1917 abgebucht wurde, besitzt dieses Luftfahrzeug seine Einzelnummer auf den Obertragflächen in den Mittelpunkt gestellt, den grausilber sind, ein Farbeton, der in verbreiten Gebrauch bei dem RFC gekommen ist. Die Niedertragflächen besitzen eine Oberflächengüte aus Naturleinen.

Seite 31 oben: A. Schulterfleck für Unterdienstgrade der RFC; B. Flieger-abzeichen des Pilots der RFC; C. Achselstück eines Offiziers der RFC aus ungemustertem Tuch, das nur einer Stern als Rangabzeichen besitzt, obgleich es Raum für drei gibt; D. Stulpdienstgrad eines britischen Offizier; E. RFC-Mützeabzeichen aus Bronze; F. Armrangabzeichen eines Pilots der Royal Naval Air Service; G. Ärmelstreifen eines Unteroffizier der RFC; H. Armlrangunterschied eines Staffeoberstleutnant der RNAS; I. Rangfleck eines Pionier der RNAS.

Seite 31 unten: Dieser Thorneycroftwagen war nur eines Beispiel eines Zivilwagen, das ins Dienst an der Front angetrieben wurde. In diesem Falle ist er Munitionswagen der No. 5 Squadron geworden.

Seite 32 links: Leutnant in typischem Fussvolkswagenrock mit Stulpdienstgrad bekleidet; viele Offiziere, die zu Kriegsdienst postiert wurden, behielten ihre Regimentsheeruniformen. Stulpenstiefel, Marschstiefel und Wickelgamasche mit Enkelstiefel wurden nach Einzelgeschmack getragen.

Seite 32 rechts: Britischer Pilot auf typischem Winterfluganzug, der Helm mit Pelzbesatz und die Schutzbrille sind Beispiele der vielen Moden im Gebrauch. Mäntel waren auch verschiedenartig und dieser war ein volkmässiges Muster. Die Wärmestiefel aus Schafleder begehren die deutsche Piloten viel.

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