

LOST WINGS OF WORLD WAR I

DOWNED AIRMEN ON THE
WESTERN FRONT 1914~1918



MARTIN W. BOWMAN

Lost Wings of WW I:
Downed Airmen on the Western
Front 1914-1918

*Because these wings are no longer wings to fly
But merely vane to beat the air
The air which is now thoroughly small and dry
Smaller and dryer than the will
Teach us to care and not to care
Teach us to sit still*

Ash Wednesday, T. S. Eliott

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Martin W. Bowman



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Prologue

The Reverend R.A. Bignold, the rector of Carlton Colville, writing to his parishioners in 1916, said: 'It is incumbent upon us to redouble our efforts for provision of food for British prisoners in Germany; that, whereas at the outset we were admittedly sending comforts supplementary to the ration provided by the German government, the nutritive value of the ration has now become so poor, that we must recognise that our prisoners are dependent upon us for saving them from virtual starvation.'

Ralph Mottram produced one of the most evocative novels about the First World War, *The Spanish Farm*. His letters and diaries also give a clear picture of life at the front. Here he describes a 'raid' on the enemy trenches in January 1916: *Bombing Patrols Southwest Of St Eloi*. The main object of these patrols was to secure the identification of the troops opposed to them. The patrols, which in each case were composed of two officers and about fifteen men, left ... soon after 6 pm and were back again by 8 pm, this period being selected owing to the brightness of the moon an hour later. Both patrols succeeded in cutting through the enemy's wire system and reached the parapet unobserved. The left patrol was discovered at that point and the trench proving to be strongly held, the patrol was able to do no more than throw bombs, it is believed with considerable effect. Unfortunately both the officers with this patrol were wounded, the first slightly by a stray bullet when still close to our own lines and the second as soon as the patrol was discovered. The patrol suffered no other casualties and it is certain that several of the bombs they threw fell into crowded trenches and detonated there. The right patrol reached the enemy's parapet undiscovered and the two officers and a sergeant crossed the enemy's trench and crawled along behind the parapet to a spot where a sentry was keeping watch at the junction of a small sap running out to a bombing post held by two bombers. They climbed into the trench and surprised the sentry but unfortunately the revolver which was held at his head missed fire. Attempts were made to throttle him quietly but he succeeded in raising the alarm and had to be killed. Had the pistol gone off, it is almost certain that the alarm would not have been raised, as there was no one within the immediate vicinity with the exception of the two bombers 30 yards in front of the trench.

As soon as the alarm was raised Germans came up from all sides and the patrol was forced to retreat. Before doing so they bombed the enemy successfully and killed some, including the two bombers at the head of the sap. The depth of the trench prevented them from getting the dead man out and so no identification was secured. This patrol had one casualty. At the point where the front trench was penetrated, it was a winding trench with no traverses, 8 feet deep, 6 feet broad at

the bottom, the parapet steep and revetted with wood, the parados a bare earth slope and the bottom 3 greasy planks laid parallel to each other lengthwise along the trench. No signs of any gas apparatus were discernible. The left patrol discovered a loose bomb hung to a knife rest, presumably as an additional safeguard. Nearer still to the trench there was a deep ditch full of water and submerged wire. The right patrol whilst reconnoitring their ground close to the enemy's trench, heard the two bombers previously referred to ring a small bell which was the signal for a Very light to be sent up from the trench behind them.

Lieutenant R.F.W. Sheraton with 59 Squadron, Royal Flying Corps gave this account of Active Service in 1917 in France.

'To me 59 Squadron will always be the Squadron. The circumstances which seemed to draw me towards it were rather curious. Whilst serving as a Subaltern with the Somerset Light Infantry at Arras in the early part of 1917, my Company Commander, Captain Hobhouse, who had gone down with measles (I think it was), was in hospital for a few days and the next bed to him in the ward was occupied by a pilot of 59 Squadron, Royal Flying Corps - a Lieutenant Tanfield. I had expressed to Hobhouse that I was keen to get transferred to the RFC and Hobhouse mentioned this to Tanfield, who said that his Squadron, which was then stationed at Bellevue, near Arras, would be pleased to take me up if I cared to visit the Squadron. This I did on the first occasion, when my Battalion was in rest. On the occasion that I visited the Squadron I met Tanfield, with other Officers, but Tanfield was unable to take me up since his machine was under repair. I was therefore given a flight by a Lieutenant Davies. (Davies' observer later was, I believe, the Canadian Sam Houston, both of whom left 59 Squadron about August 1917). I heard afterwards that Davies was killed in action.

I returned from my first flight more keen than ever to get into the air. Later, when my transfer came through and I landed in France, I asked the RFC Officer at base to pass me to 59 Squadron and although he was unable to do this, he did the next best thing and sent me to the Wing of which 59 Squadron formed a part. When I arrived at Doullens and was sent for there by the Squadron tender, I was very glad to learn that this had come from 59 Squadron. At the same time I was very unhappy to learn from the driver that 59 Squadron had just previously lost a complete flight of six machines to Richtofen's 'Circus' and that Tanfield was one of those who had been lost.

I arrived to join the Squadron at Bellevue on 31 May 1917 and found that the Squadron was leaving on the following day. I well remember what an hilarious evening everybody spent and I have vivid memories of a party of us dragging the Commanding Officer, Major Egerton, from his bed in a house in the village and insisted upon his giving a speech to us all standing in the roadway. When the Squadron finally settled down, there were not many hours left before daylight.

On the following day the Squadron moved by road to Izel-le-Hameau. No 29 Squadron was stationed nearby and a number of us went and had dinner with them that evening. About that time there had been enquiries by Members of Parliament which were rather disturbing to the Government and as a consequence, there arrived one day in June, Sir Charles Nicholson MP and Mr Joynson-Hicks MP. They explained that they had been sent out by the Government to obtain the views of pilots and observers regarding the qualities and defects of the British aircraft on the Western Front. I had been posted to 'A' Flight and I remember that my Flight Commander, Captain Roberts, was appointed by those present as our spokesman, to deal with questions put by the Parliamentarians, whose ignorance, I remember, caused considerable comment and many facetious remarks (privately, of course).

On 1 June Lieutenant Wheatley and Carter of 'B' Flight were killed about 6 am. Due to engine failure, their machines side-slipped into the ground. About this time the Squadron evenings were considerably enlivened by the Jazz Band which Captain Burney, the Flight Commander of 'B' Flight, got together and conducted in the mess of an evening. On 15 June the Squadron left Le Hameau about dawn and travelled to its new aerodrome at Longavesnes on the Somme. I remember feeling how disappointed I was at learning that the observers had to travel by road, whilst the pilots flew the machines. The policy was a short-sighted one, because one or two pilots lost their way and were involved in crashes which would have been avoided, in all probability, had they had observers aboard.

On 13 July HM The King visited Peronne and I flew with Lieutenant Oliver over the town and took a few photographs at 12,000 feet. He and I had previously been photographing the German front line on that day. On 15 July the Squadron left Longavesnes for Mons-en-Chausee. We were now serving with the Third Corps of the Army, Lieutenant General Sir William Pulteney in command. Periodically about this time, we used to play football matches under both codes, even in the height of summer - cricket was out of the question because we had no ground fit to play on. Deck tennis was also another game which was well supported and keenly contested.

59 Squadron at this time was serving on the extreme right of the British position in France, the French joining us somewhere in the region west of and opposite St Quentin. No.3 Squadron in the meantime had taken our old aerodrome at Longavesnes and were flying Morane-Parsols there. It was just about that time that we observers were detailed to fly regularly with particular pilots and I flew with Lieutenant J.A. Craig. We did not get on very well at first, I recollect and he took an opportunity of reporting me to Captain Roberts for failing to open fire on a German plane at the time he felt I should have done. At the subsequent interview with Captain Roberts I explained to him that I was following the instructions which I had learned whilst training at Brooklands. How different the theory at home was, in comparison with that adapted in practice, I was to find out as I gathered experience with the Squadron.

After this little contretemps, Craig and I settled down together very well indeed and we worked most harmoniously with, I think, some measure of success. Anyway, I have since heard that Craig was recommended (though without avail) to receive the Military Cross on two or three occasions, whilst he was serving with 59 Squadron. Eventually he was awarded, in 1918, the Distinguished Flying Cross and was one of the first to be granted that decoration.

About 7 o'clock on the evening of Saturday, 18 August word came through that the wire in front of Gillemont Farm was insufficiently cut and Craig and I were ordered to go up and register No. 40 Siege Battery to deal with the situation, before the attack early next morning. As we taxied across the aerodrome the pin on the left wheel sheared through and the wheel came off just as we were leaving the ground. I happened to be facing the tail-plane, noticed this and advised Craig, with whom I was flying as usual.

It was vitally important that the shoot should be proceeded with, since dusk was approaching and there would be no further opportunity left. The Squadron was concerned as to our well-being and went to endless trouble to advise us of our predicament. Major Egerton, the CO, informed the Central Wireless Station to get into touch with us and even went to the trouble of placing on the aerodrome large white strips formed to shape the letters 'A5 WHEEL OFF'. It was about 8 o'clock and darkening when we reached the aerodrome and as I had no message bag on

board, I fired Very lights to those on the ground as a signal that we had seen their message. Craig circled the aerodrome once or twice and then gave me the signal that he was about to go down and land, advising me to hold on as tightly as I could. The whole of the personnel of the Squadron appeared to be on the aerodrome to see what happened, since the R.E.8 was notoriously nose-heavy and prone to catching fire. Craig had a very difficult task, since darkness was approaching, making the landing more hazardous. I felt our sole remaining wheel touch 'terra firma' and everything went quite smoothly until the axle dropped and cut into the soil. Immediately this happened, the whole world appeared to turn upside-down and the plane went over onto its back. As a matter of fact, both Craig and I were unhurt and we scrambled out to be welcomed with the congratulations of the other fellows in the Squadron, led by the ambulance.

In the early morning of Sunday, 19 August our infantry attacked the German lines at The Knoll and Gillemont Farm (near Hargicourt) and for a number of days previously the Squadron was much engaged in registering the guns on the German batteries. Our artillery fire at that time was excellent. Many guns were ranged by the Squadron during that period and it was quite the usual thing to be in the air for two sessions of 3-4 hours each. The Knoll and Gillemont Farm were captured by the British Forces, but the Huns counter-attacked in the evening. We lost two of our fellows that day, one of our R.E.8s being brought down by anti-aircraft fire, piloted by Lieutenant Tipping with his observer, Lieutenant Gordon. This was a grievous loss to the Squadron. Also, Tipping was our violinist and used to perform remarkably well.

On 21 August the Squadron suffered a further misfortune. Captain Pemberton, OC 'C' Flight and his observer, Lieutenant Manners-Smith, being shot down by a German plane whilst taking photographs in the morning, north of Vendhuille. I heard subsequently (although I was never able to verify it) that Pemberton was killed and that Manners-Smith, although wounded, brought down the plane safely. On 24 August the Squadron received a letter of thanks from the Army Corps, thanking the Squadron for its valuable help in recent operations. On 25 August the Huns retook Gillemont Farm from us.

On 26 August Craig and I, having received instructions the night previously, took off at 5.15 am and were engaged on contact patrol (with, I believe, the 34th Division), attacking Cologne Farm, again near Hargicourt. When we arrived over the line we were flying through our own artillery barrage, which was the thickest I had ever seen. The Huns were firing machine guns at us from the flanks, I recollect, as we went down calling 'A.A.' continuously on the klaxon. I was able to mark the positions of the advanced infantry units, who had marked them by lighting red flares, just as the day was dawning. These positions were entered on maps in triplicate and copies were dropped by me at the Headquarters of the 34th Division and of the 3rd Corps. Our fellows captured Cologne Farm all right. The 35th Division, however, on the left of the attacking front advised us that they believed the Germans were massing for a counter attack. We went over but could see nothing and I dropped a message to that effect at the Headquarters of the Division.

On 27 August, Craig and I again took off at 5.30 am and went on contact patrol with the 34th Division, as yesterday. We flew very low over the trenches at a few hundred feet only and were pleased to note that our men had kept their gains. Maps pointing out the position were dropped by us at the Headquarters of the Division, Corps and at 59 Squadron. On 31 August, the Germans were reported as having retaken part of The Knoll.

At the beginning of September our pilots were engaged on night flying, bombing Cambrai and other places and although I was warned for this, the instructions were subsequently cancelled, no observers being allowed on this work.

On 15 September I went home on leave and when I returned on 1 October I found that Captain Roberts had returned home. Also, that during my absence one of our pilots, Lieutenant Baker, in taking off, had taxied into a plough at the edge of the aerodrome, the plane catching fire. He was rescued by a French ploughman and suffering from burns he was sent to hospital. Our new Flight Commander arrived to take charge of my Flight (A). On 11 October, Craig and I fell foul of the CO for flying in bad weather and sending a message, not in code, to the effect that conditions were good for all classes of the Squadron's work. A severe 'ticking off' by the CO resulted. On the afternoon of 17 October, Captain Fales (A Flight Commander) and I went over the lines and took oblique photographs. These were some of the first oblique photographs taken on the Western Front, so I heard. We flew down the line towards St Quentin at just under 1,000 feet and returned home at about 200 feet. The light was bad and we were constantly machine-gunned whilst the photographs were being taken.

On 19 October, Craig and I went on Army patrol at 6 am with two other machines, to Gavrelle (north of Arras) and we dropped bombs on Cherisy. At this time the Squadron was engaged on Army work. On 21 October, the first United States troops arrived and some of them visited our aerodrome in the afternoon. That day I received my orders to return to England and there was a farewell dinner in the evening. On 22 October, I left the Squadron. (Later, Craig wrote and told me that the machine in which we had done so much flying together, was taken up by a new pilot who crashed, killing himself and writing off the machine completely).'

Corporal Ralph Wilson, of Ramnoth Road, Walsoken, served in the Royal Fusiliers. He was captured during the German advance in spring 1918 and spent eight months as a prisoner of war. As a former reporter he was able to pen a vivid account of his life as a prisoner, which appeared in his local paper. He wrote:

'The small party that I was captured with was marched, after a night's sleep in the line that the Germans had advanced from, to a prisoners' cage at Esnes, a small French town, where the women secretly and gladly gave us a share of their small food supplies to supplement our first experience of semi-starvation rations, which have been typical all along of what the Germans have regarded as sufficient for human beings - other than themselves. Our next march was to Caudry, where we spent three days in a rather comfortable factory and when we walked from there to a prisoners' cage at Le Quesnoy, the mounted escort relieved the monotony of the journey by chasing women and children who were trying to give us pieces of bread and biscuits. And in that occupation they were ably assisted by the lances they carried. Our numbers had by this time been considerably augmented.

'At Le Quesnoy we were left in open cages for two days and nights and before we entrained from there we had become saturated with rain. It was a frightfully uncomfortable journey in locked-up cattle trucks, with exceedingly limited food supplies, to Munster, in Westphalia, where is a very large camp. For about eighteen days we lingered there, on rations that were very scanty in quantity and very unsatisfying in quality. In addition, we suffered severely through loss of sleep, for a bath and the fumigation of our clothing were of course non-effectual against the hordes of fleas that infested the wood-shaving mattresses and blankets that constituted our bed. Before we left this camp we were scarcely able to walk and when we departed to another place we merely tottered to the station as a result of our weakness. We were removed to Limburg (on the river Lahn), a promising

looking camp which fed us better as regards quantity, though the food itself was extremely poor. Again we were troubled with fleas in the dirty barracks that we were unable to clean because the means were not provided to sweep them out.

'By this time we had been informed of something that we had no knowledge of while we were at the Front: that our public and other authorities at home, through the Red Cross Society, kept us supplied with rations weekly from England and we began to look for them. Already we had had two small issues of what were known as 'emergency rations' - food from England sent in bulk but we knew that our own people were doing their very best to fortify us against the inadequate feeding of our enemies. So we had to await as patiently as possible for our own parcels of food to arrive. At Limburg, all information concerning us was again taken, as a form of registration and once more when we arrived at Poremba, on May 3rd, after over two days railway journey. In Springhirsch lager we seemed to be miles from anywhere. The surrounding country is only partially developed agricultural land, very marshy and at one time covered by pine forests, thousands of acres of which still remain. The camp stands on the side of the very picturesque and very straight main road running from Hamburg to Neumunster. It consists of two compounds, with the German sentries' quarters (numbering about 160) outside the barbed wire at one end.

'Gradually the original number of prisoners (about 300) was increased to just under 1,500 and some idea of the state of over crowdedness there may be imagined when I mention that our space for exercise was three square yards per man. But our chief objection was not so much to outside overcrowding, as the fearful lack of space inside the barracks. The beds there, in the middle of the room, were constructed after the fashion of ships' bunks, one above the other; three feet high and there were other bed spaces along the floor on each side. There were insufficient tables, inadequate heating and lighting apparatus and most of us had to have our meals upon our bunks. All we had to sweep out with were bunches of heather gathered a few times a week from a neighbouring wood. We were free from vermin when we arrived there, but before long we were considerably troubled with lice. On two occasions only did we have our clothing and blankets fumigated and the fumigation apparatus was only a partial success. It was useless too, for every nook and cranny seemed to contain the irritating parasites, so we could never be free from the filthy vermin. Two hours daily we had compulsory exercise. That, I think now, was for our benefit, though in those days, when we were very hungry, we had scarcely strength to walk around the compound for the period laid down.

'This compulsory exercise resulted in many fellows having troubles piled on to them in the way of close confinement. In many instances, being too weary to walk about - more vigorous exercise was demanded of us until the Germans found it useless to urge us - men rested or hid themselves and being caught, were put in cells on reduced rations for periods varying from seven to twenty one days. The German camp comedian was an aggravating toadying interpreter, whose chief occupation seemed to be seeking out exercise-defaulters, threatening them with 'Eine und zwanzig tagen' and then taking their names. Sentence followed without us having any chance whatsoever of defending ourselves or presenting an excuse; and there was no appeal. When I speak of ill-treatment I do not mean actual physical violence, for there was very little of that. I can remember only a few cases where Germans assaulted any of our men and then not of a serious nature. But ill-treatment was meted out in a rather more subtle fashion - by the issuing of extremely unjust orders, which could not often for human reasons be complied with.

'During the very hot weather, the suffocating atmosphere of the huts was intolerable. We could not sleep or rest: yet if we went outside to get fresh air after a certain hour at night, we rendered ourselves liable to imprisonment for being out of barracks after what was, ironically enough, termed 'Lights Out', though in those days we never had lights, for German time was so far advanced that for a long time it was daylight until after ten o'clock at night. Other discomforts were seriously deficient sanitary arrangements and parades that were totally unnecessary and were held at inconvenient hours. It is impossible to go into much detail, for detail would fill volumes. But of all the suffering that we had, that of hunger was the worst. Until August and September, the majority' of us were dependent on German rations and here I think you will be particularly interested. I still cannot understand how the country can have held out so long during the war on such rations. Not only was the quantity small, but the quality was extremely low. 'Substitute' was a word stamped across every article of diet. The feeding of prisoners could not have been a very difficult problem. I cannot accuse them of doing their best to keep us alive, but I charge them with doing their very worst to prevent us from starving. I further declare in all seriousness that were it not for the sending of food from our own country, we should gradually have died and I cannot imagine a more agonising death than that of slow starvation. As it was, some few, to our own knowledge, died through want of nourishment. We should have shared the fate of the unfortunate Russian and Italian prisoners (who, we were told by some Germans, had, through want of food developed consumption and other diseases and gradually expired to the number of thousands), were it not for the hopes we placed in our sympathetic people back home.

'The best food we had would not compare favourably to the worst in England. Under the category of the best come the bread, oats, potatoes, beans and horse meat, all of which were issued in very sparing quantities. The worst, of which we naturally had most, though often not enough, in spite of the fact that it was practically uneatable, were sauerkraut and pickled mangolds and swedes. There were other 'foods', the names for which I know not, because they were a mysterious substitute. The bread, which averaged 250 grammes a day, was a black, heavy, solid, sour substance, but there were times when we regarded it as cake, for often it was all we had for the whole day, the other food being uneatable, hungry as we were. We generally had that for breakfast, with nothing to put on it, unless we were lucky enough to have a little salt. To drink with it, we usually had a hot fluid, which we dignified by the name of coffee, but was nothing of the sort. It was, we believed, a drink made from burnt ground acorns. There was no taste to it, but we drank it because the water supply in the camp was polluted: though often we went days together without taking anything to drink at all. Occasionally we had a distasteful herb tea, sweetened with a little saccharine.

'The horse-flesh was rare, but valued because it was meat. Sometimes it was served up like sausages, boiled in with potatoes or oats or sauerkraut. More often than not it was strongly tainted, visibly green, before it was cooked. It had a disagreeable flavour, but we had to eat it or nothing at all. Most of the food was served up as a sort of soup, served up in huge coppers. A mixture of beans, potatoes, meal and meat was accepted as a great luxury and it was possible for a couple of litres of that to satisfy us for half-an-hour almost. There were occasional small issues of something resembling butter and jam, but as there was never enough to go round, they were used for flavouring the 'soups'. The filthiest of all foods was sliced mangolds, preserved in some kind of acid and boiled up as it was, or with a little meal, it was disgusting to smell and extremely difficult to swallow. It was that we

existed on mainly and for one period of a month we had it for dinner and tea. Ultimately our stomachs revolted against it, so that we had nothing the whole day long save that 250 grammes of bread.’¹

Footnotes Prologue

- 1 Quoted in *Norfolk in the First World War* Frank Meeres (Phillimore & Co Ltd 2004).

Chapter 1

‘Not So Quiet On The Western Front’

Dead horses and shapeless bundles of clothes lay scattered in the mud. Streams of scarlet tracer-bullets leaped endlessly upwards. The air was heavy and agitated by shells whose wakes hurled the aircraft about in their passage. Ever and again some machine, cut short in its flight, crashed into the ground and flared with a sudden blaze. Many more, like blackened skeletons, burnt fitfully or lay on their backs with buckled wings. Despite the cold, the pilots sweated with the exertion of weaving stick and rudder-bar. Those who survived returned to their aerodromes time after time for more ammunition and fuel; then back to the lines and the beehives of smoke mixed with flying lumps of flesh...

Too Busy Fighting John Gurdon DFC

The Royal Flying Corps was constituted by royal warrant In April 1912. It consisted of a naval wing and a military wing. (In time the naval wing was re-named the Royal Naval Air Service). An experimental branch of the Royal Flying Corps was formed in March 1913 and in the spring of 1914 a headquarters flight was placed at its disposal. When the War came the Royal Flying Corps took the field with the British Expeditionary Force in August 1914 under Sir David Henderson. The original force consisted of 105 officers and 755 other ranks, with 63 aeroplanes. Of these 36 were flown over the Channel with singularly few mishaps. After a brief period at Amiens, the majority of the corps moved to Maubeuge and began to carry out reconnaissances over Belgium. The early reports of the observers gave valuable information as to the movements of the German troops. During the retreat from Mons the headquarters was moved from Maubeuge to Le Cateau and afterwards to various other places. Besides following the movement of the German advance, pilots were also able to watch the positions of the British in retreat and inform the corps commanders of the state of their rearguards. Later valuable work was done in the photographing of enemy positions and the early photography of the Royal Flying Corps was the forerunner of that immense photographic map of the Western Front in thousands of sections, constantly renewed, which played a great part in the later stages of the War.

With the improvement both in material and organization and the increase of artillery power, the airmen of the Allies were able to show to better advantage. The work of the aerial scouts went on incessantly. They preceded both armies in the long race to the sea which began west of the Aisne in the third week in September and ended on the Yser in the second week in October, strategical reconnaissance being by far the most important part of their work, while tactical observation and photography also occupied them continually. There was also the

unceasing work of directing the fire of the artillery. Now and then, when occasion offered, the airmen came out in large machines, carrying a store of bombs, with which they tried to disrupt enemy railway communications.

About the middle of October 1914 there was a series of German aeroplane raids on St. Omer, Dunkirk, Calais and Boulogne. During this early period of the War a German cavalry division was defeated by a few airmen. The large force of horsemen were pursued and harassed from the sky during the whole of 15 October and as evening drew on a well-aimed bomb attack completed their discomfiture.

The superiority in the air won by the Allies at the beginning of the War was partly due to the fact that their opponents were at first using old machines which they had kept at their frontier stations. They had mainly old-type Taube monoplanes, Aviatik biplanes and early-type Albatros and L.V.G. biplanes. These were heavy and slow and many of them had only four-cylinder engines of 70hp. In the middle of October a large supply of superior machines arrived in the German lines. Some of them had been built before the War; others had been completed after it had started. Progress in construction, however, had continued in England. British airmen had the Sopwith Scout, the Bristol Scout, the remarkable Avros, so light and yet so strong and the new Martinsyde Scout. Later the Royal Aircraft Factory developed a small machine with the then enormous speed of well over 100 mph. In November 1914 a combined squadron of British and French airmen made an attack upon the forts of Lille. On 4 November they blew up Fort Englos. The next day they destroyed Fort Carnot. The forts were being used as magazines by the Germans and were important as points of support in the enemy's line of entrenchments. Their sudden destruction by aerial bombardment was an affair of some significance. The Germans got new machines about the middle of October 1914 and in the middle of November especially they devoted much attention to the British Army Service Corps, killing men and transport horses. It seemed as though the British had then lost for a while the supremacy of the air through not having enough fast and powerful aeroplanes to attack all the German pilots who approached their lines.

The first Zeppelin raid on England took place on 19 January 1915 when the Norfolk coast was bombarded. On 14 April a more serious attack was made in Northumberland, the airship proceeding over Blyth, Wallsend and South Shields and dropping several bombs without, however, doing much damage. The following night a Zeppelin visited Essex and Suffolk and dropped bombs on Maldon and Lowestoft. On 16 April a biplane dropped bombs at Faversham and Sittingbourne in Kent. Later in the month a Zeppelin attempted to visit Northumberland again but failed and early on 30 April another airship dropped bombs at Ipswich and Bury St. Edmunds. On 10 May the Zeppelins began a new serious succession of raids. On 31 May the Zeppelin raiders approached their principal goal, the outlying district on one side of London and bombs were dropped at places in Essex and Kent. On the night of 6/7 June 1915 Zeppelin LZ37 became the first airship to be shot down. In company with LZ38 and LZ39, the airship set out from Bruges to bomb London but adverse weather later forced them to alter course for their secondary targets - railways in the Calais area. LZ37 was located and attacked by Flight Sub-Lieutenant Reginald Alexander John

Warneford of 1 Squadron RNAS flying a Morane-Saulnier Parasol from Dunkirk. Warneford's only means of attack were six 20lb bombs; he followed the airship from Ostend to Ghent, being forced to keep his distance by fire from the airship's gunners. He made a single pass over the airship as it began to descend to its base at Gontrode, dropping all six bombs from about 150 feet above it. The sixth exploded and the airship fell in flames on a suburb of Ghent killing four people on the ground. Only one member of Oberleutnant Otto van de Haegen's crew survived. Warneford returned safely to base after making a forced landing to repair a broken fuel line. He was informed the following evening that he had been awarded the Victoria Cross; he died twelve days later when the tail of a Henry Farman pusher biplane collapsed in mid-air.

The last Zeppelin raid of the year took place on 15 October when Zeppelins again visited the London area and the eastern counties. Joachim Breithaupt, commander of Zeppelin L-15 tells of the fate which befell him and his crew.

'Clear for action!'

The speaking tubes carry my urgent command to all parts of the great airship. We are over the outskirts of London - the city we have come to bomb on this night in March 1916. The fierce searchlight beams flash past the gondola and guns are firing at us from all directions. Shrapnel shells burst to both sides and below us, passing under the ship in elegant, parabolic curves. The officer of the watch lies on his stomach, observing the ground through his pendulum telescope; the sentries on the platform eagerly scan the skies for hostile aircraft and pass their observations through the speaking tube to the pilot in the gondola.

Closer and closer come the shell-bursts. Then we are hit. Several shells crash through the middle part of the ship over our heads. By some miracle my Zeppelin, L-15, does not catch fire. But the steering gear is put out of action and four of the gas bags are emptied. The carrying capacity of our ship is greatly reduced and our time in the air is limited. Our machine guns fire sharply at a British aircraft which is shadowing us and trying to reach our height, but soon our guns and every other jettisonable metal part, have to be thrown overboard to make the ship lighter.

We are now over Ipswich and the anti-aircraft guns open fire again, but this time without success. Still L-15 is sinking rapidly. We have lost 10,000 feet already and are now wallowing along only 2,000 feet above the ground. All hope of reaching the Continent safely has to be abandoned. But we must do our utmost not to crash where the English can salvage valuable parts of the airship and gain knowledge of its construction. Can we reach the open sea...?

This was my third raid over England, my second on London. My first London raid had been a great success from our point of view. With other Zeppelins we arrived over the city on the night of 15 October 1915. At first London lay dark beneath us, but we could make out several landmarks like Regent's Park and the Serpentine. Shells were thrown up at us continually and the fire increased as we flew over Tottenham, so we decided to attempt the attack from another side. A sea of houses was now clearly visible below us, for the searchlights had been turned on. We stood out to the west and steered over the suburbs in the direction of the city. On either side other Zeppelins stood out brilliantly against the night sky, lighted up like ours by the searchlights. My height when passing Waterloo

Bridge was 11,000 feet. I should have liked to have flown higher, but the air temperature was greater than we had expected and our carrying capacity was not so good.

That night I dropped a stick of bombs which caused damage in a long line stretching from Hyde Park down to Lime-house in the docks area. A long strip of fire below us showed clearly the effect of our work. We suffered no damage on that trip, but a thick fog covered Germany on our return to base and this almost caused our downfall. We began to run short of fuel as we neared Terschelling and two of our motors were working irregularly. It was essential that we found the landing ground as soon as possible. It was five hours after this before we saw the captive balloon which marked the landing ground, soaring above the thick clouds of fog. By then, only one of our four motors was working. I forced my way down through the fog and at that last moment the remaining engine failed. The ship lost driving power and rose again to 1,500 feet. The southerly wind drove it like a drifting balloon over the impenetrable clouds towards the sea. The only chance left was for me to make an immediate blind landing and hope that there was no town below. I opened the gas-valves and the ship fell, slowly at first and then faster. The altimeter indicated a descent of twenty feet per second - over 13 mph. There was no ballast left to check our fall. Down we went. At one hundred feet we saw the ground and immediately struck it hard. The framework was forced down over the gondola, but we all escaped with slight wounds. Luck was with us, for there were no houses or trees in the area and the ship was dragging slowly over a far-stretching heath. I sent some crew members overboard to anchor the ship, which was eventually towed back to base over three miles away.

My second attack on England was in January 1916 and was directed against the western industrial districts. Bad visibility and a faulty compass prevented us from reaching our target - Liverpool - and my bombs fell on Burton-on-Trent. The orders for my third and what was to prove my last raid on London came on the evening of 30 March 1916. Senior Captain of Airships, Captain Matthy, received a message from Commander Strasser, Chief of Naval Airships: 'In the event of constant weather, all available airships will rise tomorrow to attack central and southern England. Chief objectives are London and the districts of Lincoln, Nottingham and Derby.'

Dawn the next day and the landing place suddenly springs to life. Shed doors are thrown open and motors start with a growl for a few seconds' trial run. Benzine, gas and water ballast are piped in; fire and high-explosive bombs trundled to the ships on heavy barrows. At 11am we discuss the weather and it is decided that the raid is on. Whistles and horns sound the 'Stand-to' for the five hundred men of the aerodrome staff and ship's crews make their way on board. As I climb into the gondola the officer of the watch greets me with the report, 'Ready to start, sir.' There is one last-minute wait while the air conditions in the higher regions are tested by pilot balloons. 'Airship march!' The order is given and one ship after the other is pulled with ropes out of the shed. The slightest touch of the framework against the shed could mean disaster and the greatest care must be taken. By repeated weighing off - that is, by letting out some of the water ballast - our ship is made lighter than air. The side motors growl as they are started and then L-15 rises majestically by the prow up into the air. Over the Frisian Isles

we steer, keeping low. Even at 200 feet the ground is hidden by a thick fog. But this is good, because we avoid inquisitive eyes. At 2,000 feet the weather clears and we cruise sedately along among the mountains and valleys formed by the clouds. We see another airship bound on the same errand as ours and wave greetings and 'good luck' messages to each other. Towards 6pm the clouds clear a little and we are nearing the English coast. We drop ballast and increase height slowly to 5,000 feet. The bombs are prepared for their drop. Our orders are not to cross the coast until after dark. As the last rays of the sun disappear over the horizon we drop our remaining ballast. The instruments show that we have reached 9,000 feet and we can feel the extra height by the increase in cold. As we cross the coast the English batteries fire at us, but there are no bursts near enough to worry us. From time to time a searchlight flashes past the gondola, but, once inland, there is darkness and silence.

'Occasionally we are forced to drop a light bomb to fix our position and its split-stars illuminate the country below dazzlingly for one minute. But we do not like doing this because it shows our position to the enemy as well as to ourselves. We steer towards the Thames and then turn westwards - towards London and the intense barrage which we know awaits us... Then the first well-aimed broadsides of shells had crippled our ship I suppose that each member of the crew had a momentary feeling of danger. But as Captain I was far too busy to feel frightened although I could already foresee the dire consequences of our damage. In no time it seemed as if the nose of our ship was dipping through twenty degrees. The steering gear was quite useless. Although there was now no hope of reaching the Continent, I had to do all in my power to prevent the L-15 falling on land when the inevitable crash came, to prevent valuable parts reaching British Intelligence. The rate of descent was not, at that moment, alarming, but we were losing gas all the time. Every removable object had been thrown overboard and all secret maps and papers destroyed.

'After what seemed a lifetime of aimless drifting we found ourselves once more over the Thames and there seemed a chance that I could pull off a 'soft' landing, save the crew and then sink the ship. All the men who could be spared were ordered up into the ship, which would float when we hit the water. Only myself and two helmsmen remained in the gondola. At midnight our height was only 1,000 feet and all we could do was to wait for the end. Suddenly it happened. L-15 had lost so much gas that, without warning, the framework doubled in two and we began a vertical plunge towards the cold waters of the Thames. There was no sound except the roar of the wind as the airship fell out of the sky. Without warning, I was thrown violently on to the floor of the gondola. We had hit the water. The gondola was completely submerged and I could feel my body being tossed around like a cork by the masses of water which roared in. Somehow I found myself on the surface and my crew hauled me up into the ship. One of the two helmsmen also reached the surface, but he had lost all his teeth in the struggle. The other helmsman we never saw again. L-15 was sinking slowly all the time while we huddled together on the top of the ship. The centre section was completely covered by the water. For hours we waited for ships to come and rescue us, but not until dawn was breaking did we see four trawlers approaching. As we waited for them to draw near we cut the gas bags. The airship sank a few

minutes after we had been taken off. Zeppelin L-15 had made her last bombing raid on England and for us, her crew the war had come to a premature end'.²

In France meanwhile, the first British bombing raid in direct tactical support of a ground operation occurred on 10 March 1915, comprising attacks on railways bringing up German reinforcements in the Menin and Courtrai areas during the Neuve Chapelle offensive. Improved Aviatiks and twin-engined battle-planes carrying guns suddenly appeared towards the end of April 1915 but the German staff thinned its western lines of fast, scouting aeroplanes in order to exercise an overwhelming superiority in the war against the Russians. A more defensive attitude was maintained against British and French airmen and German battle-planes were less frequently seen over the British trenches. The first air Victoria Cross was awarded posthumously to 2nd Lieutenant William Bernard Rhodes-Moorhouse, pilot of a B.E.2 of 2 Squadron RFC for gallantry in a low-level bombing attack on Courtrai railway station on 26 April 1915.

By the end of the battle of Loos in October 1915 a marked improvement in the performance of German aeroplanes began to make itself felt. British and French pilots found that their machines were no match for the new, swift aeroplanes with which the German pilots were being supplied and consequently the successes obtained by the enemy constituted a grave menace. The main reason for the German ascendancy was the improved Fokker E.III 'Eindecker', or monoplane. A remarkably fast machine, it was able to attain great heights and make long vertical dives. Moreover, most of these machines were fitted with interrupter gear, by which the firing of the machine gun was synchronized with the engine, thus allowing the pilot to fire through the blades of the propeller. This innovation gave the Fokker a marked fighting superiority.

Three men of the Fokker aircraft company manufactured a mechanical interrupter gear which relied on the propeller itself to operate a machine-gun's firing mechanism, thus preventing the gun from firing when a blade aligned with the gun barrel. The gear was fitted to a Fokker M.5K monoplane scout and on 1 July 1915 Lieutenant Kurt Wintgens used the new gun gear to destroy a French Morane. His victory was soon repeated by other Fokker pilots, including Oswald Boelcke, the first true fighter leader of the First World War; Max Immelman or 'The Eagle of Lille' as he was known, Germany's first great fighter ace; and Max Mülzer.³ It was the start of what came to be called the 'Fokker Scourge', when the British and French flying services suffered rapidly increasing losses to the agile Eindeckers.

When the Fokker crisis arose in the autumn of 1915 the British pilots often operated scarcely higher than 8,000 feet. In their new Fokkers, with engines of 200hp, Immelman, Boelcke, Wintgen and other German pilots used to hover over their own lines at an altitude of 12,000 feet and dive down on the B.E. machines like hawks and approach their enemy from an unguarded angle, usually from the direction of the sun, whence they were invisible and poured a hail of lead into him before he was even aware of the danger. The manoeuvre, known as the 'Immelmann turn', named after Lieutenant Max Immelman, was perfected by the German pilots.⁴ At first most confusing to the British and French airmen, this skilful manoeuvre caused the loss of many machines. But the real danger of the Fokker lay, not so much in its fighting ability as in the moral effect it exercised

over its rivals. In 1916 only a comparative handful of German pilots were operating the Fokker scouts; yet so great was the superiority of the agile single-seater, with its synchronised forward-firing machine gun, that the 'Fokker Scourge' became a major disaster for the Allies.

In Great Britain the best available material from private and foreign sources was ordered in considerable quantities and the personnel of the RFC was quickly expanded. A private British machine, the de Havilland, began to be used on active service in large numbers before the improved official F.E. machine arrived. The new Martinsyde, the fighting Maurice and the new Sopwith were placed at the service of the pilots of the RFC. Meanwhile, the Rolls-Royce Company had produced a 250 hp aero-engine of an original kind. It was fitted into a government machine and in May 1915 was entrusted to a pilot who had never flown to France. Being ordered to fly to the front, he lost his way, strayed over Lille, was attacked by German guns and coming down, presented the enemy with a valuable sample of the new aero-engine on which Great Britain was largely relying to regain her dominion of the air.

By this time the B.E.2C machine, a product of the Royal Aircraft Factory, had become antiquated owing to the progress made by German, British and French manufacturers, as were the hundreds of British machines manufactured to the order of the government by firms new to the art of aeroplane construction. Some of these firms had been delayed in production by late alterations and even by downright errors in the drawings supplied to them by the Royal Aircraft Factory. Sir Hugh Trenchard, however, the chief of the RFC, devised a method of operation as soon as he obtained from private British firms a few battle-planes capable of assisting the Bristol Bullet pilots and Vickers gun-bus pilots and manoeuvring against the new Fokker. The old, slow machines were sent out in flocks of from six to 12. High above the weak flock of workers circled two or three of the battle-planes, ready to engage any Fokker that swooped into the field. By the first week in May 1916 duels in the air began to grow infrequent; instead, combats took place between squadrons of fast fighting machines at high altitudes, while far below them there was often a flight of almost defenceless working planes waiting the issue of the battle.

Gradually the number of British fighting planes increased; the perils of the British scouts, spotters and bombers were diminished and for a time Great Britain and France held a practical dominion of the heavens. Meanwhile some remarkable battle practice went on behind the British front in the late spring and early summer of 1916. From aerial photographs a good reproduction of the German system of fortifications was constructed on the practice field and over the lacework of trenches the British infantry manoeuvred in attack, in conjunction with low-flying, directing airmen known as contact patrols. As a result of organization in the field the RFC was thoroughly rearranged. Six distinct orders of machines were developed. Fighting planes were divided into two classes, one of which operated over the British lines in a defensive manner, while the other swept out over the German lines to attack Fokker pilots and at the same time protect British working machines. The working machines were, as a general rule, arranged in scouting groups, artillery observation groups, aerial photography groups, bombing raid groups and infantry contact groups.

By the nature of things the fighting pilots came most brightly into the limelight of fame. The tale of their exploits is a long record of singular daring, of daily hazard cheerfully faced and conquered. Chief among them was Captain Albert Ball, who ranked in the summer of 1916 above all French and German fighting pilots in regard to his record of victories. Only 19 years of age, he had taken part in 100 air combats and had brought down 30 enemy aeroplanes.

Albert Ball VC DSO** MC was the first high-scoring fighter pilot whose exploits became widely known on the home front. His fighting philosophy usually involved an unhesitating charge straight at the enemy, whether equally matched or outnumbered six or seven to one. Born in Nottingham in 1896 and a good shot while still a boy, Ball joined the Sherwood Foresters on the outbreak of war. During a visit to Hendon he became fired with enthusiasm for flying and secured a transfer to the RFC. He joined 13 Squadron in France on 15 February 1916 and flew B.E.2Cs on artillery-spotting flights. In May he was posted to 11 Squadron, which had on charge a Nieuport scout and this little machine became his preferred mount throughout his career. His first two successes came on 22 May; he shot down (but could not get confirmed) an Albatros DI and forced a two-seater to land. On 1 June he flew over the German airfield at Douai; a Fokker and an Albatros rose to challenge him. Though he did not destroy them he completely out-flew them and returned safely. On 25 June he shot down a balloon and his MC was gazetted two days later. He shot down a Roland CII on 2 July. While on a brief 'rest' on 8 Squadron he forced an enemy balloon observer to take to his parachute while on an artillery-spotting flight. Given a new Nieuport on his return to 11 Squadron on 10 August, Ball resumed his private war against the Rolands. He then took his Nieuport to 60 Squadron and was given a roving commission. Uncaring of odds, he would charge at enemy formations and deliver a devastating fire at close range, generally from a position immediately below the belly of the enemy machine, with his wing-mounted Lewis gun pulled down and back to fire almost vertically upwards.

His DSO and Bar were gazetted simultaneously on 26 September and a second Bar on 25 November. (During 15-28 September he shot down four Rolands and forced a third to land and he destroyed two Albatros and forced down three more). By the time he left France on 4 October Ball was credited with the destruction of ten enemy aircraft and with forcing down 20 more. On 7 April 1917, after a period spent instructing pupil pilots in England, he returned to the front as a Flight Commander on 56 Squadron. This unit had flown out to France at the beginning of April 1917 and first flew the new S.E.5 scout at Vert Galand. Ball did not at first view the change of equipment with enthusiasm. He acquired a Nieuport for his personal use, but as he continued to increase his score while using both types of aircraft he became reconciled to the S.E.5. His 44th and last victory on 6 May 1917 was nevertheless gained in his beloved Nieuport. He flew close beneath an Albatros scout of Jasta 20, hauled the gun back and shot it out of the sky near Sancourt.

Late the following evening three flights consisting of eleven S.E.5As were drawn up to patrol offensively east of Lens. 'B' flight comprised Arthur Percival Foley Rhys Davids, born on 26 September 1897, at Honour Oak Park in South London, who was flying his first combat patrol and three other pilots, led by

Captain Crowe. One of these, Lieutenant Musters disappeared early on. Rhys Davids saw him dive, apparently in pursuit of another aeroplane and he was never heard from again. As combat ensued Rhys Davids was preparing to dive on an Albatros with Captain Crowe and Lieutenant Leach when the experienced German appeared. Rhys Davids found his plane full of bullets, his engine in bad shape and the rest of the aircraft badly damaged. Both of his guns had jammed and had his opponent not abruptly left he may have found his combat career at an end before it had even started. His engine stopped completely and he managed to glide into a field. Rhys Davids, who had reported for duty as a 2nd Lieutenant, RFC Special Reserve on 28 August 1916 in Oxford, had been delighted at the prospect of joining Major Richard Blomfield, CO of 56 Squadron at London Colney, which he dramatically referred to as 'The Land of The Gods.' In particular Rhys Davids was ecstatic to find himself serving with Captain Albert Ball.

The 7th September was a sad day for 56 Squadron. Only five aircraft returned to Vert Galand. News came in that both Rhys Davids⁵ and Captain Crowe were down safe on the British side of the lines, but another pilot, Leach, was in a critical condition in hospital. They did not yet know that Musters was not to return and Albert Ball was already dead. Captain Ball, flying his S.E.5, had dived into dense cloud while chasing a German single-seater near Lens. He emerged upside down from low lying cloud and crashed apparently without prior injury in the air. His back was broken, his chest crushed and he suffered numerous broken bones on impact. He died shortly afterwards at the scene. The enemy later discovered his wrecked aircraft and his body. His death remains a mystery. Lothar Freiherr von Richthofen was officially credited with the victory, but he denied it, maintaining that the aircraft he shot down was a triplane; an opinion confirmed by other witnesses. Ball's body bore no wound and what caused his aircraft to crash has never been established. He was 20 years and 9 months old when he died; his Victoria Cross was gazetted on 3 June 1917.

Rittmeister (Cavalry Captain) Manfred, Freiherr von Richthofen - the so-called 'Red Baron' was the greatest ace of the First World War. The eldest son of an aristocratic Silesian family, he was born on 2 May 1882. Early in the War Richthofen served on the Eastern Front as an officer in a Uhlan Regiment before transferring to the Air Service in May 1915. His first operational posting was to Feldfliegerabteilung Nr. 6g; with this unit he flew two-seater reconnaissance machines in the East and he continued to serve in general purpose units until September 1916 when he was selected for Jagdstaffel 2, the single-seater scout squadron trained and led by the brilliant Oswald Boelcke. By this time it was probable that Richthofen had already gained two victories, a Maurice Farman S.11 over Champagne in September 1915 and a Nieuport 11 near Douaumont on 25 April 1916 - but for lack of ground confirmation these were not included in his official list of victories. His first officially recognised victory was over an F.E.2b of 11 Squadron RFC; Richthofen, flying an Albatros D II scout, shot this aircraft down on 17 September 1916 and the crew, 2nd Lieutenant L. B. F. Morris and Lieutenant T. Rees, were killed. Richthofen's score continued increasing and in January 1917 he was awarded the coveted 'Blue Max', the Ordre pour le Mérite and given command of Jagdstaffel 11. His considerable fame spread; a cold and calculating fighter, he brought to air combat the attitudes of the aristocratic huntsman; he

maintained a collection of silver cups, each engraved with the particulars of a victim. During 'Bloody April' in 1917 he shot down 21 aircraft. The most famous pilot to fall victim was Major Lanoe G. Hawker VC DSO commanding officer of 24 Squadron RFC, who has been called 'the English Boelcke' for his skill, vision and organising ability. Hawker, flying a D.H.2, had scored nine victories when he was shot down after a prolonged and unequal dogfight with Richthofen on 23 November 1916 to become the 'Red Baron's' eleventh victim. Late in June 1917 Richthofen was given command of a new formation, Jagdgeschwader Nr. 1, comprising Jastas 4, 6, 10 and 11 which became known to the Allies as 'Richthofen's Flying Circus', partly on account of the bright colours used by various pilots to decorate and identify their aircraft. Contrary to popular legend Richthofen did not invariably fly a personal aircraft painted blood red overall; he flew several aircraft, Albatros D IIIs and Fokker Dr Is and one of each type is thought to have been painted red overall; but he also used several which were only partially finished in red.⁶

Other great British fighters included Captain R. N. Adams, who attacked six enemy machines over the enemy's lines, set one on fire and drove off the others. While still a learner he went out with Lieutenant Savage and saw his comrade brought down by the ace of the Fokker fighters, Leutnant Immelmann. Lieutenant Dirk Cloete first acted as observer to Adams and later, promoted pilot, saw his former chief engaged with six enemy machines. Diving into the affray, he sent one enemy crashing to earth and helped to fight away the other five, another of which Adams himself brought down. In fights against odds Captain W. A. Summers as pilot and Lieutenant W. O. T. Tudor-Hart as observer, appear almost to have topped the list. Quite unsupported, they attacked over the German lines, a formation of ten enemy aeroplanes. Under constant fire from as many as four hostile machines at one time, they broke up the formation and though their own machine was badly damaged, they continued their extraordinary struggle until all their ammunition was expended.

The first Albatros scouts reached the front in September 1916, superseding the Fokkers and Halberstadts and one of the first units to be re-equipped was Jasta 2 led by Kapitän Oswald Boelcke who led the first 'circus' across the Allied lines on 17 September 1916. The de Havilland D.H.2 pusher scouts were helpless against the new fighter and Boelcke rapidly took heavy toll of his opponents. The D.H.2 was a primitive machine with no windscreen, no brakes and no throttle. It climbed as high as 14,000 feet, went at 90 mph, fought vicious battles and survived the most violent manoeuvres without breaking. The pilots had to be optimists, however, for the planes were made of wood, the fuel tank was unshielded, incendiary bullets were in use and there were no parachutes. Nevertheless, air power became a reality.

Geoffrey de Havilland reached manhood in an age of change, when the first motor-buses were beginning to jerk noisily past horse-drawn trams. He went to an engineering school at Crystal Palace and the first result was a hand-made motor bike, on which he roared off every week-end to his home in Hampshire. He took a job designing buses and got married. The pattern of his life looked unremarkable. Then the young motor-engineer became a man possessed. He was able to persuade his grandfather to advance him £1,000 so that he could leave his

job and design an aero engine. Then, together with a friend, Frank Hearle, who remained his partner for 50 years, he built an aeroplane out of wire, wood and linen. Young Mrs. de Havilland stitched the fabric for the wings, conscious that her husband's life might depend on every seam. When the plane was finished in the year 1909, de Havilland took it off, flew 40 yards - and crashed. Undaunted, he built another and he and that plane learned to fly together. Sitting unprotected on the wing, cap jammed backwards on his head; his sharp face seeming to cut into the wind, the tyro pilot knew his first sweet victory over his lifelong friend and enemy, the air. It coincided with the birth of his first son, Geoffrey, destined to become the most famous test-pilot in Britain. The heady excitement continued until the £1,000 ran out; but the success of his first aircraft had landed him a job at the Royal Balloon Factory (later the Royal Aircraft Factory) and he and Hearle set to work to produce Britain's first military planes. De Havilland's later models, the D.H.4 and the D.H.9, were the workhorses of the war and many hundreds of de Havilland machines saw service over France.⁷

The new Albatros D.III arrived on the Western Front early in 1917 and the opinion of many was that 'it is easy to fly and superior to all enemy aircraft at the front.' But aerial superiority was not to remain permanently with the German air service for, in the early spring of 1917 the Albatros scouts were no longer superior to their opponents; the Allies had introduced the SPAD S.VII, Sopwith's Camel and Triplane and the S.E.5. 8 Louis Bechereau designed the SPAD in 1916 around the new 150 hp Hispano-Suiza 8Ac 8-cylinder water-cooled engine. The SPAD VII flew for the first time in May that year and became one of the most famous French fighters used by the *escadrilles de chasse* (fighter squadrons) in the First World War. Large numbers also saw action with the RFC, US Army Air Service and Belgian and Italian air arms. The most famous unit to use the SPAD was the elite Group de Combat No 12, which was known generically as 'Les Cicognes' (The Storks'). Among its ranks was Capitaine Georges Guynemer, of SPA3 and the second top French ace with 54 confirmed kills, who flew the Spad VII in early 1917. In the late summer of 1917 the SPAD XIII made its appearance on the Western Front. Its high-aspect-ratio wing permitted a favourable rate of climb but the thin aerofoil and wing arrangement produced such bad gliding characteristics that pilots had to land the SPAD with engine on. Fortunately its robust construction enabled aviators to dive their machines with little worry of structural failure. RFC units equipped with the SPAD VII did not re-equip on the new type. No 23 Squadron was the only British squadron wholly equipped with the SPAD. It was plagued by the unreliability of its Hispano-Suiza engine and after an undistinguished career 23 Squadron replaced the SXIII in May 1918 with the Sopwith Dolphin. The SVII outlived the Spad XIII in the RAF, continuing in post-war service with 72 Squadron in Palestine and Nos. 30 and 63 Squadrons in Mesopotamia.

The loss of Spad XIII orders for the RFC was more than made up for by the introduction of the type into service with eleven *squadriglie* of the Italian 'Aeronautica del Regio Esercito', one Belgian squadron and sixteen squadrons of the American Army Air Service after the US entered the war in April 1917. Capitaine René Fonck, of Escadrille SPA103 of Groupe de Combat No 12 and the leading French ace with 75 confirmed kills, used the Spad SXIII to shoot down six