



Robert Smith-Barry (right) was the man who "taught the Air Forces of the world how to fly" according to Lord Trenchard.

TEACHING THE WORLD TO FLY

The early aviators were all self-taught when it came to aerobatics, but even today the making of a pilot depends on grasping the concept of full control in all three dimensions

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Photo taken by Octave Chanute during his visit to witness Wright gliding experiments at Kitty Hawk, August 4-11, 1901.

PHOTO National Museum of the USAF

If we wish to improve our flying, a glance back to the turn of the century to compare two very different concepts can be surprisingly illuminating. The European school of thought in the early days was that flying should be akin to the motor-car and that aeroplanes should be inherently stable. On the other side of the world in the USA, there was a different philosophy that arose from a study of the flight of buzzards. The Wright Brothers were proponents of 3-dimensional manoeuvring, with the pilot as an airman, not a chauffeur. Instead, they believed that an aeroplane should be inherently unstable. As Wilbur himself declared, "We would arrange the machine such that it would not tend to right itself." From this, they developed an effective system of 3-axis control, overcoming the "dangerous" notion of banking the wings and in September 2004, achieved the first full (360deg) banked turn in Flyer II.

It is one thing to have 3-axis control available, but learning to use these is entirely another matter. Nevertheless, without any airborne instruction at the time, self-taught aviators demonstrated exceptional skill, by focusing on the fundamentals of aircraft control.

The Daily Mail wrote about Wilbur Wright in Paris 1908, flying the Wright Model A biplane saying, "He proceeded to give us an aerial display which held us breathless as we stood... climbing, diving, banking, circling this way and that, he handled his machine with an absolute certainty and precision which

had to be seen to be believed."

Notable flying skills were soon afterwards displayed during the world's first ever large-scale air show in Reims, France 1909 – the 'Champagne Air Meeting'. Young Frenchman Eugène Lefebvre not only drew a standing ovation from the crowd but ended up with a fine for frightening photographers. The manoeuvres were as close to aerobatic flying as anybody had exhibited up to the time but Lefebvre was entirely self-taught.

There was no formal training available in aerobatics and advanced flying techniques, despite detailed and accurate knowledge having been recorded. Test pilots such as Wilfred Parke and Geoffrey deHavilland had their findings on spin recovery techniques published in 'Flight' magazine. Adolphe Pegoud, a pilot on Louis Blériot's flight safety research team, made scientific recordings and then pioneered the half roll to inverted flight. Major Lanoe Hawker of the Royal Flying Corps (RFC), was not only the first to be awarded the VC for air combat, in 1916, but was a pioneer of battle aerobatics through refined stick and rudder skills. He used sideslipping techniques during manoeuvre to evade the superior German Albatross machines.

Aerobatic skills soon became essential for survival in the battlefield, but until 1916, they had to be self-taught. Flying training was deficient and the casualty rate through training alone was unacceptable. It was Britain's RFC, for so long outclassed by the Germans, which

came to the forefront with a systematic course of instruction in basic flying, aerobatics and air combat techniques. This tuition undoubtedly influenced the course of the air war such that by 1917, air fighting became ferocious with British pilots and machines matching those of Germany in terms of firepower and performance.

Hefty accident rates abounded and were accepted, from basic errors during takeoff and landing, forced landing practice, sideslipping, stalling and aerobatics. On the front-lines, the stall-spin accident during approach and landings was a major cause of fatalities (and still is 90 years later). A deplorable number of scouts were being destroyed by inexperienced pilots who upon arriving at the front could barely fly their machines, let alone fight the German pilots.

The need for high quality training was clear and the stage was set. This course of flying was pioneered almost single-handedly by an accomplished front-line pilot, Major RR Smith-Barry, who set up the Special School of Flying at Gosport, near Portsmouth. As CO of No 60 Squadron on the front-line and being concerned at the heavy losses from the Fokkers, he submitted a paper to Lord Trenchard detailing his ideas for improved instruction and proposing a revolutionary new training scheme. Under heavy pressure to find a solution, Trenchard wrote to Smith-Barry, "It's about time you went home to try out these ideas you've been pestering me with". He was subsequently posted to Gosport.



The author, Darren Audet, teaches aerobatics differently to other flying schools with a focus on flying the 'wing'.

Thus the School of Special Flying was founded. The Gosport technique was widely adopted throughout the Central Flying School (CFS) and then later influenced flying training throughout the world; our current flying training syllabus has its roots here.

He introduced proper dual instruction, where the student sat in the command seat and operated the control surfaces, as opposed to learning by observation. He was convinced that instructors were the key to the problem; unmotivated, unsupervised, without guidance, unaccountable, indifferent to their students and considered airborne instruction to be drudgery. He submitted a second paper recommending that instructors

should be selected and chosen from the finest pilots on front-line squadrons, that they should have their flying refined to a very high standard and that this would give a flying training unit an elite esprit de corps.

Smith-Barry's philosophy was in demonstrating what could be achieved with an aeroplane with an intelligent and scientific approach; by replacing fear and unknown behaviour with analysis. He shed light on the mysteries of control to instil confidence in those who had previously been flying in dark ignorance of major principles. This harks back to the approach of the Wright brothers, and subsequently those other self-taught but successful aviators such



THIS PAGE Darren Audet flies with a student for some advanced aerobatics. The concept of control in three dimensions remains the same even today. (Photo: Mick Osbaldeston)

as Lefebvre.

Smith-Barry was given a free reign to choose his instructors. He was also given the aeroplane of his choice for training, the highly manoeuvrable and responsive Avro 504. He had suffocating restrictions on aerobatics removed. He encouraged his students to be adventurous, letting them get into many difficulties, but teaching them how to recover. This was essential to prepare them for France. During first solo, some of his pupils had even gained the confidence to do intentional spins.

Smith-Barry impressed the War Office with his instructional training techniques and they commented that "the work undertaken by the Special School of

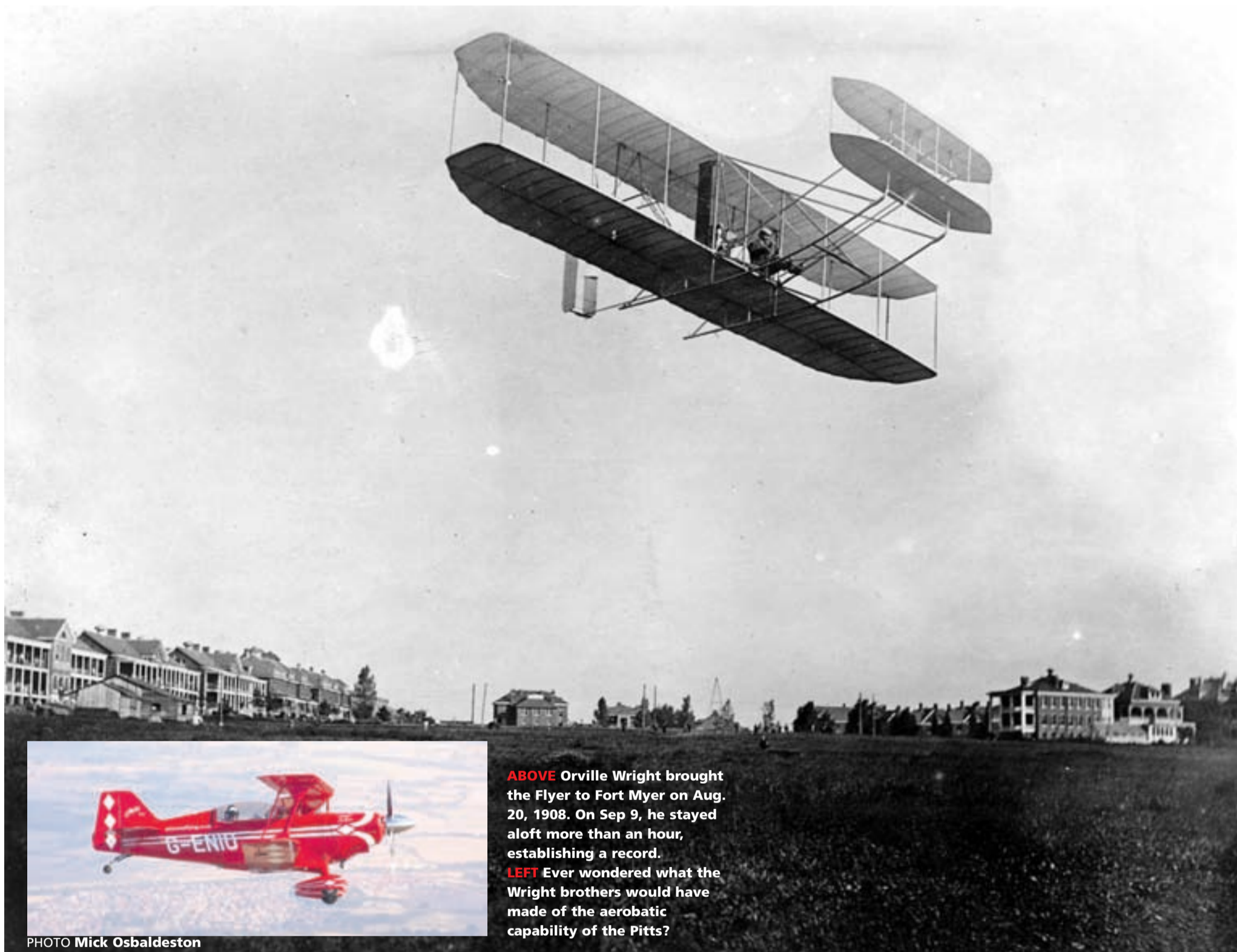
Flying is of an exceptionally high standard". High ranking members of the general staff visiting Gosport were startled with what they saw: students with less than two weeks' flying experience giving displays of solo aerobatics and formation flying. Following this, Smith-Barry was ordered to, "Send to the Brigades the results of the methods of tuition ordered by you... in order that these methods may be standardised throughout the Division."

Air Chief Marshal Robert Saundby, arriving to do the Gosport instructor's course described the atmosphere as extraordinary too, "The effect on me, and indeed on most of those who undertook the course, was extremely

stimulating – even electrifying," he said. "I had believed I knew something about flying before I went to Gosport, but the course certainly opened my eyes and made me realise what I had to learn."

Front-line pilot Norman Macmillan who was on the course said, "This was part of Smith-Barry's gospel, that aerobatics, and the dash and confidence, were not only safe, but were essential for mastery in air combat. It was fascinating, so simple, so direct, so easy that one wondered why the method had not been evolved even right before the war."

At a CFS reunion in 1939, Trenchard drew attention to Smith-



ABOVE Orville Wright brought the Flyer to Fort Myer on Aug. 20, 1908. On Sep 9, he stayed aloft more than an hour, establishing a record.

LEFT Ever wondered what the Wright brothers would have made of the aerobatic capability of the Pitts?

PHOTO Mick Osbaldeston

PHOTO National Museum of the USAF

Barry as the man "who had taught the Air Forces of the world how to fly" and Trenchard's biographer, Andrew Boyle, wrote, "...original, unconventional but practical, the Smith-Barry technique grew into a uniform system which spread from Britain to other countries."

After Smith-Barry had unleashed aerobatic flying into the skies of Britain, research into aerobatic techniques was then pursued with a vengeance, and skills gained, from such as Farnborough test pilot Lt Oliver Stewart, a thinker well ahead of his time who recorded techniques of universal pilotage and attitude orientation in his book, *Aerobatics*, published in 1928. Unfortunately, aerobatics in Britain became almost the sole preserve of the RAF, the CFS instructors in particular, and so quite elitist – until 1964. This

was when the world turned its head towards RAF pilot Neil Williams who gained almost hero status when, unable to find a suitable aerobatic machine to enter the first World Aerobatic Championships (WAC) in 1964, he chose an aeroplane not designed for aerobatics at all – a Formula One midget class air racer designed by Le Vier of Lockheed. The Cosmic Wind had not even an inverted fuel system, but Williams' handling of this aircraft caused a sensation. Afterwards, as fourteen times British aerobatic champion he was placed fourth in 1976 at the WAC in Kiev, after controversially not receiving the gold medal. He authored the world-renowned book *'Aerobatics'*, which was not only of interest to competition pilots, but also primed new pilots to the sport with an easy to read style of writ-

ing. "It would be difficult to overstate the importance of this book and its influence on the growth of aerobatics" wrote Annette Carson. Thus, it has both inspired and schooled pilots worldwide in the aerobatic art form.

There are many who might despair at the loss of traditional flying techniques from that 'golden age' of flying, but one just needs to look further to realise that we are still living in a golden age, and that such knowledge has not been lost over the years – there are still those who preserve it, and it is available to anyone who seeks it. Whilst there are certainly limitations now, flying today can still be what one makes of it. There were limitations in training prior to 1916, but one man had the imagination and courage to make it better. Looking backwards can sometimes remind us of

the road that moves forwards.

The School of Special Flying was established to counter appalling accident rates from the stall/spin near the ground, engine failures, sideslipping, and takeoff and landing mistakes.

Training aircraft were highly manoeuvrable, capable of spinning and aerobatics. Flying skills therefore evolved with the evolution of flying machines.

Spin training and aerobatic flying were taught to a high standard very early in Smith-Barry's courses.

Instructors were chosen from the highest calibre and most experienced pilots. They were further trained to hone their flying skills. A flying school was a centre of excellence.

The Wrights, Lefebvre, Smith Barry and Neil Williams were not limited by the rules at the time, but used their

ideas and leadership to challenge and to change the attitudes affecting their circumstances.

Most pilots are attracted, at least initially, to flying by a fascination of having true freedom in three dimensions, but many lose sight of this and become side-tracked by rules, procedures and administrative minutia, settling instead for incessant R/T, operating black boxes and even flouting their knowledge of restrictive practices.

If they have never truly mastered the basic control of an aeroplane about each of its axes and into three dimensions, they may very well take this limitation with them forever. As Neil Williams said, "Many potential adventurers dabble in the shallows, but only those who go on to explore the deeps shall reach their goal." **GF!**