

EARLY AIRCRAFT DEVELOPMENT & THE MARKETPLACE

by Lorne Bohn

With aviation in its infancy at the outbreak of WWI, the role of aircraft in the military was very limited. There were some who even felt that aircraft had no place in warfare. In 1910, Richard Haldane, the British Secretary of State went so far as to declare, *We do not consider that airplanes will be of any possible use for war purposes.* By 1916 however, aircraft were to become an essential weapon in the preparation and execution of ground offensives.

As technology advanced, it did not take long for aeroplanes to prove their worth along with the machine gun, the tank and the Zeppelin. A great many of the early technological advances took place in France and many came about because of military necessity.

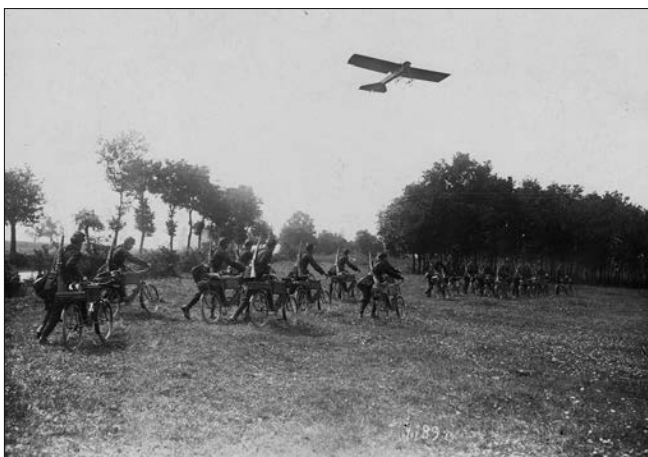
...military aviation saw its importance grow; this new weapon posed a problem of insertion in the military structures of the time; the command structures created during the war to manage, organize and employ the development of aeronautics were not exempt from overlap and confusion. This extension of the military aviation resulted in a specialization of men and planes, with the appearance of bombing and aerial combat. It was a challenge for the army, which was to provide adequate training and for the aviation industry, which was to provide equipment designed for a given mission.¹

Even so, one early French treatise put aircraft in the same category as other new inventions such as the bicycle, and stated that even though aircraft had some value, it would be military strategy and command which would win wars.

As trench warfare progressed, balloons and aeroplanes proved their usefulness in the observation of troop movements and with artillery spotting. Photography also advanced and the two combined to create very clear and detailed observations of enemy positions.

In 1915, Lieutenant-Colonel J.T.C. Moore-Brabazon designed the first practical aerial camera which was used throughout the war by the RFC in photo reconnaissance. As the war progressed, aerial photography became essential for military operations. From the photographs, the British Army was able to compile highly detailed 1:10,000 scale maps by mid-1915. The entire Somme Offensive of July to November 1915 was made possible because of photo reconnaissance. From 16000 feet a

A French bicycle company on manoeuvres during early-WWI.



photographic plate could cover an area of about 2 by 3 miles (3.2km x 4.8km) of front line in sharp detail.²

Perhaps one of the most neglected aspects of the rapidly changing technology of this time is that which took place with flight clothing. At first, simple street clothes were worn but as aircraft became capable of flying higher and faster, it necessity dictated a change in clothing as well. The interest in the novelty of flying combined with the ever-increasing popularity of automobiles and motorcycles created a market for specialized clothing which made the experience of flying much more comfortable.

By 1912, Henry Woodhouse, president of the Aero Club of America, wrote in the Aeroclub of America Bulletin (New York): *...that if we consider that there are 2,500 licensed pilots at least as many unlicensed: not less than 50 aviation schools where pupils make from one to 200 flights per day.³*

He went on to list the *radical changes* in the construction of aeroplanes in Europe.

...steel for general construction, heavy wheels, improved skids, strong cables for trussing, double cables for controls, better joints, turnbuckles, bolts, and general accessories. It also brought thoroughly tested propellers, remarkably efficient motors with self-starters, self-acting fuel pumps, oil safety-valves oil quantity indicators, and special devices to minimize the dangers of fire, brakes to stop the aeroplane on the ground, scientific instruments to facilitate travel, safety-helmets and safety-belts to minimize hurt when accidents happen. Other innovations have been hoods to shield aviators from the elements, special seats with comfortable arrangement for carrying passengers. A notable feature, the standard makes are available in three or four types – light, medium weight or heavy; for sport, for racing for cross-country flying for military service and to carry one or more passengers. The last and best innovation has been the hydro attachment which is now being supplied with one dozen of standard machines and is in itself a wonder of safety and utility.⁴

In the early years of the RFC, recruits came from Army regiments and became observers. Once qualified as an observer, an airman was awarded a half wing brevet which could not be forfeited. Some RFC airmen volunteered for flying duties because they would receive supplementary flying pay. By the end of WWI, 8000 RFC airmen had been killed either in training or in flying accidents. Given the frequency of accidents it is no wonder that hard shell flying helmets were adopted early on.

Formal military training for instructors didn't begin until 1917, when Colonel Robert Smith-Berry formulated a comprehensive curriculum for pilot training, because he was appalled at the high fatality rate of pilots in 1915 and 1916, as well as the poor standards for new pilots.

Originally with aircraft being relegated to the role of reconnaissance and having two-man crews, it was the observer who was in command of the aircraft and the pilot was regarded more of a chauffeur. This changed quickly and it became common for experienced observers to be selected for pilot training.

Applicants for aircrew generally entered the RFC as a cadet via the depot pool for basic training. The cadet would then