# THE DEVELOPMENT AND USE OF THE SALMSON CANTON-UNNÉ AERO ENGINE 1908 – 1918

## Part 1

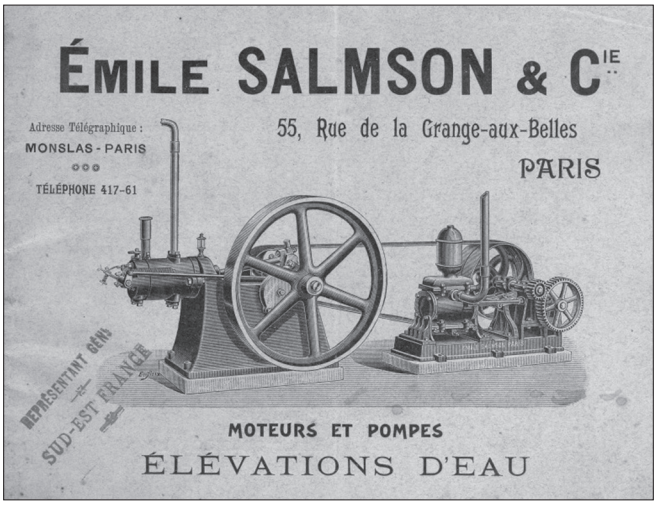
## by Peter J. Cowlan

*When compared with such famous and well documented manufacturers such as Gnome, Clerget, Benz, Sunbeam and Rolls-Royce, Salmson is not a name that slips off the tongue so easily whenever aircraft engines of the First World War are discussed. It is far more likely to be associated with the SAL.2 A2 aeroplane of 1917/18 and, following the cessation of hostilities, the production of automobiles. However, the aircraft power units produced under this name certainly deserve to be recognised, for they played a not insignificant part in the story of aviation in the early years of the 20th century. In the words of Glen D. Angle, former Professor of Mechanical Engineering, '… it is certain that no other water-cooled radial designs can be credited with such a long record of achievements.' The Salmson name is also, if one believes the account, directly linked to the very initiation of the First World War itself!*

Salmson is probably a name that the average aviation enthusiast would, if questioned, define as being French; as French as Montgolfier, Bleriot or Garros. Many people may therefore be surprised to learn – as indeed the author was, that the name has its origins in Sweden. Jean Baptiste Salmson was born in 1807, in the environs of Stockholm, and was an engraver of medals. In the early 1820s he moved to Paris in search of work and it was in this city, in 1823, that a son, Jean Jules was born. Jean would grow up to be a well-respected sculptor, winning many accolades. Indeed, examples of his work are to be found to this day gracing public buildings and art collections around the world. He began exhibiting at the Salon in 1859, and in that same year his wife bore him a son; Emile Jean Jules. In 1877 Jean Jules was appointed director of the School of Industrial Arts, in Geneva to where, it is believed, the family re-located.

It may well have been assumed, or indeed expected by his family that Emile would follow in the foot-steps of both his father and grandfather, and enter into the world of the arts. He would however be destined to find his vocation in a different form of art; that of transforming pieces of metal into objects with a life of their own. The world of engineering was at this time evolving with dizzying speed, and Emile wanted to be part of it. Establishing his own manufacturing business in 1890, his company would be involved initially with the manufacture of steam powered pumps and compressors. Another six years or so would pass before the company first began to explore other means of propulsion, taking its first steps in the construction of petrol powered internal combustion engines.

***Salmson Advertisement, c.1908.***




In the early years of the new century Emile was, like many other individuals with an engineering background, captivated by the new phenomenon of aviation. It is thought that during the early part of 1909 he, together with a certain Pierre Emmanuel Aimé, began construction of a heavier than air machine. *Flight*, of 2 October 1909, gives the following description of one of the exhibits at the International Exhibition of Aerial Locomotion, held in Paris.

*Among startling unusual designs, one must not omit to mention the Autoplane, that is seemingly a series of curves, the foremost one being with the tip of the wings downward like an inverted U and the rear one having the tips turned upwards, but far less abruptly. The exhibit is by MM E. Aime, and E. Salmon.* [*sic*]

Described and illustrated in more detail in the 16 October issue of *Flight*, this *direct lift* Autoplane, apparently powered by a Duteil & Chalmers twin cylinder horizontally opposed engine, was the subject of at least two patents. The convention date was 30 September 1908; the patent itself pertaining to *air currents directed onto inclined surfaces*, these currents being produced by a second pair of sideways facing propellers which would - in theory - provide the direct lift. Regardless of whether this apparatus actually did achieve any vertical lift, the two men obviously believed the idea worthy of further perseverance for, under the terms of the Paris Convention, a second patent was applied for within a calendar year, in Britain, on 25 September 1909. One major point of interest though is that the drawing illustrating the patent application bears little resemblance to the actual machine displayed in Paris.

In parallel with Emile Salmson's experimentations, two other men were also grappling with the difficulties associated with powered flight. At some point during 1907, no doubt spurred on by the successes of Levavasseur, Delagrange and Farman in the first half of the year, Georg Unné, and Georges Henri Marius Canton, constructed what they obviously hoped would be a successful flying machine. Following his

***The Aime-Salmson Autoplane.***