



At the age of 9 years, Sir Frederick Henry Royce' father passed away and he had to work to contribute to his family's income by selling newspapers and delivering telegrams. By the time he turned 15 years, he had no formal education.

Just like W.O. Bentley, Royce worked as an apprentice at the Great Northern Railway Company in Peterborough after he received financial support from his aunt. However, after only three years his aunt died and he had to leave and to go to work for a toolmaker. This, it has been said, was a very valuable experience. He briefly worked at a tool-making company in Leeds and then for the Electric Light and Power Company in London. In 1882, he moved to Liverpool continuing to work for the Electric Light and Power Company. He acquired a great liking for the new science of electricity and worked hard at night school to repair his deficient education.

By 1882 he was chief electrical engineer for [Liverpool's](#) first electric street-lighting system. Two years later he moved to Manchester and entered an electrical and [engineering](#) business partnership with friend and equally ambitious young engineer Ernest Claremont, which developed into Royce Ltd., in Manchester, manufacturers of electrically driven cranes, dynamos, and motors.

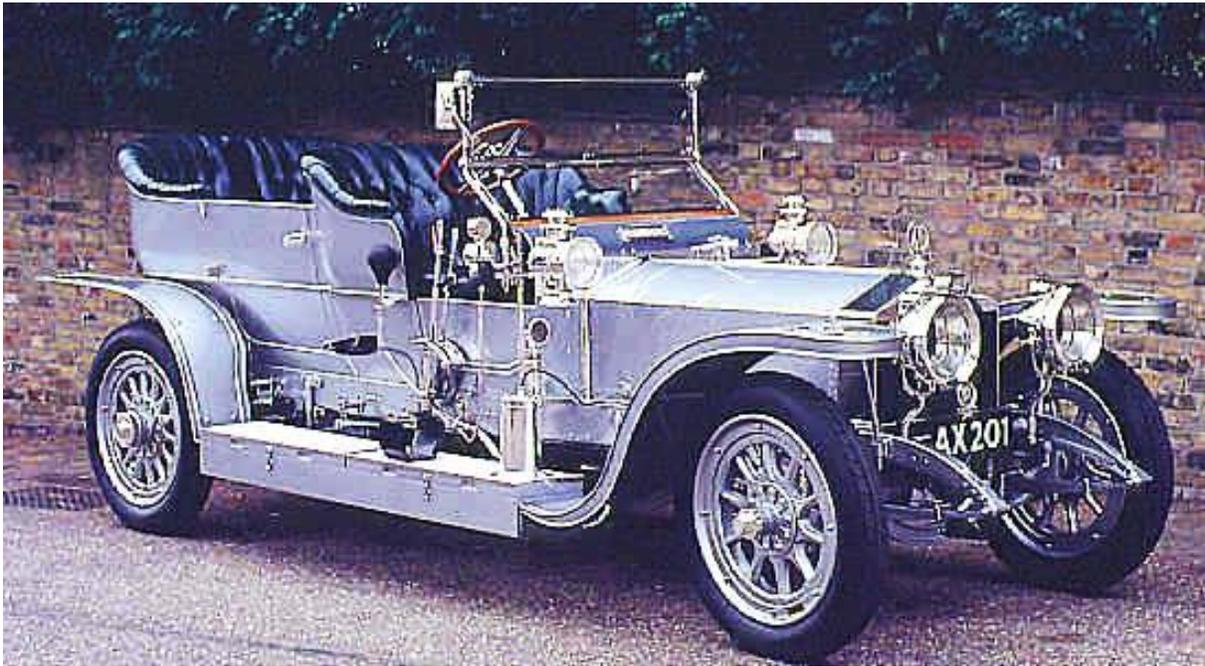
The association between Royce and Claremont was to last many years of financial success and the two men also became brothers-in-law.

Following a decline in trade after the [Second Boer War](#), and the arrival of increasing competition in cranes and dynamos from Germany and the United States, Royce began considering the motor car as a potential new product for the company. He bought a 1902 small [De Dion](#) and a two cylinder [Decauville](#). He improved on the design and then decided to manufacture a car of his own which he did in a corner of the workshop in 1904.

He built three experimental cars of his own design; their outstanding qualities came to the attention (via Henry Edmunds, a director at Royce Ltd.) of the London motor dealer C.S. [Rolls](#) who sold quality cars. So impressed by the quality of the cars, he soon agreed to take Royce's entire output and have [exclusive](#) rights to sell Royce's cars, which would bear the name Rolls-Royce. The first Rolls-Royce car, the Rolls-Royce 10 hp, was exhibited at the Paris salon in December 1904. A plethora of models then ensued culminating in the launch of its six-cylinder "40/50 hp" automobile, in 1905, later named the Silver Ghost (produced from 1907–25), the automobile earned a reputation as the "best car in the world" by the British motoring press. The Ghost was followed by the Phantom.

The partnership was formalised in 1906 by creating Rolls-Royce Ltd., with Royce providing technical expertise, and Rolls the financial support and business skills. By 1907 the company was winning awards for the engineering reliability of its cars, with their most popular car being the Silver Ghost.

The Silver Ghost was to make him famous and whose basic design was to remain unchanged for twenty years and to be a monument to his ability to improve by evolution. For decades Rolls-Royce produced only the chassis and engines for its cars, leaving it to expert coach builders to construct coachwork to individual customer requirements. In 1939 it began making entire cars.



Royce & Company remained in business as a separate company making cranes until 1932 when it was bought by Herbert Morris of Loughborough.

He was taken ill first in 1902. To cope with demand, the works was moved from Manchester to Derby in 1908. Continued ill health problems did not prevent him from designing the factory. But as a consequence of his health, was forced to leave Derby. He demanded that all new designs, plans and drawings of the factory be inspected personally by him before construction.

The fledgling but dynamic company suffered a major setback when on July 12th 1910 the Rolls partnership ended when Rolls at age 32 was killed in a crash of his Wright Flyer at a flying meeting at Bournemouth. Before this tragic accident, Rolls set the record of being the first man to do a return crossing of the English Channel.

Claremont later became Chairman of Rolls-Royce Ltd.

Later that year Royce became very ill, stricken by an illness considered by his specialists to be fatal. This was the culmination of years of undernourishment, over-work and lack of rest. Royce recovered, but ordained never to return to the factory at Derby, ensuing a need for him to work remote from the pressures of the factory.

It was arranged by Henry Edmunds for him and visiting designers to live in a new house - Villa Mimosa, in the south of France during the winter months. This was a crucial time in the development of the company and it was essential that the genius of Royce should not be lost. Therefore additional accommodation, a drawing office and a garage for two cars was included in the design. Royce was looked after by a dedicated nurse, Ethel Aubin until his death.

In the summer he was to live at St Margaret's Bay near Dover (later West Wittering in West Sussex) accompanied by two or three designers. A year later, at Villa Mimosa Royce was once again seriously ill. He was rushed to England undergo a serious operation - an operation in these days not often successful. Yet again Royce recovered to work hard for another 22 years. From then onwards there was to be no workshop activity for him, his sole activity being confined to the solution of problems by logical reasoning and deduction. The designer was his only tool and designing - his sole means of research, whilst drawings were his chief means of communication. Now separated from his wife, no children and devoid of any direct contact with the factory personnel and the day to day worries of development engineers and test department, there were no distractions.

4 August, 1914 Britain was at war with Germany. Leaders of industry felt the shock just as profoundly as the Rolls-Royce board members, fearing a collapse in demand for expensive luxury products at this time of war. Their policy of refusing any government request to switch to aero engine work quickly changed when the MD was called to a meeting to build a batch of Renault aero engines and in the process unknowingly opened a far-reaching new era for the young Derby-based company who had hitherto, a total lack of experience in the field of aero engines.

The poor design of the Renault engine inspired Royce to develop a far better product.

The company's board quickly agreed to a military plea to develop a new 200hp air cooled aero engine. Royce insisted that it be cooled by water rather than air, as this was the company's area of expertise. The new 20 litre V12 design was based partly on proven characteristics of the company's successful 7 litre 40/50hp car engine and partly on a German Daimler six-cylinder aero engine that Rolls-Royce had acquired earlier in 1914 for detailed examination.

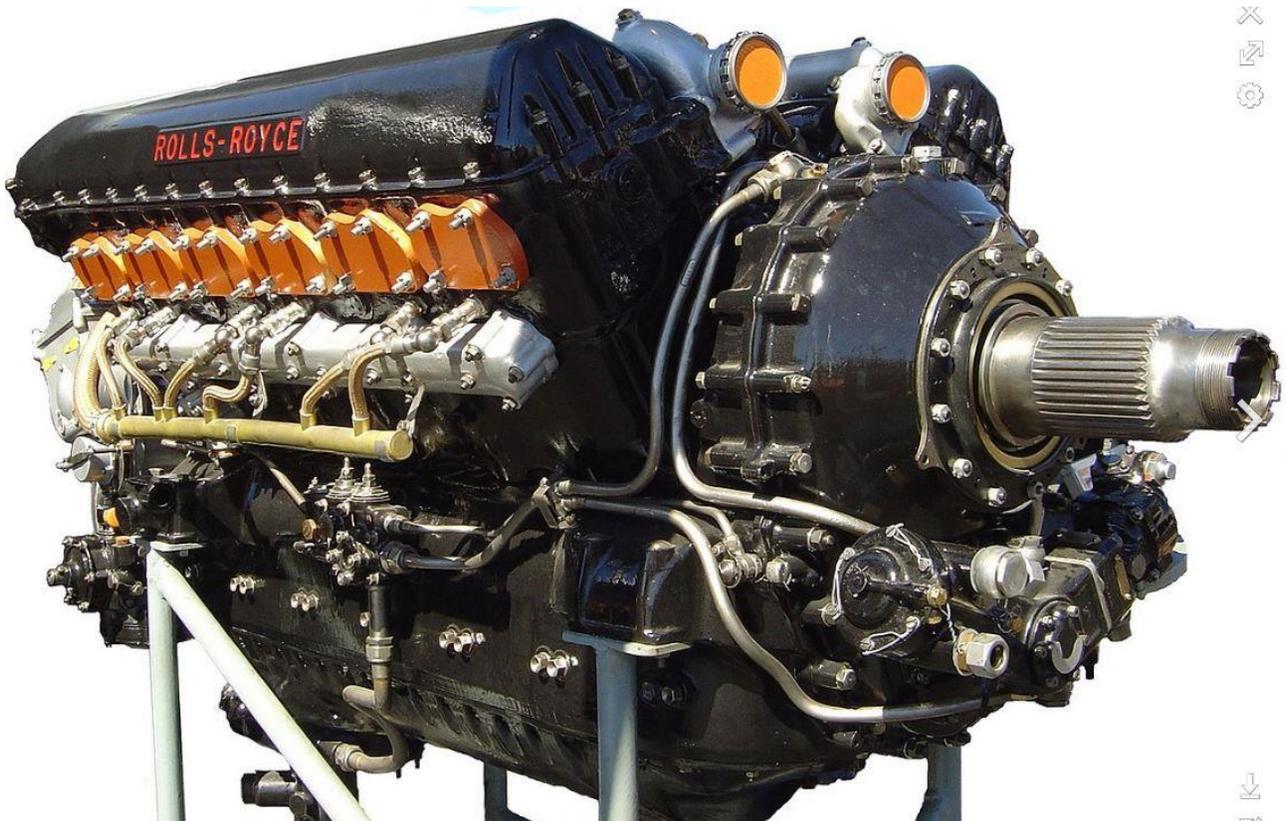
By October 1914, Rolls-Royce was fully committed to aero engine work, with development underway as well on two smaller derivative engines. All later gained names of birds of prey: Eagle for the big V12, Falcon for the smaller 150hp V12 and Hawk for the 75hp in-line six-cylinder unit, effectively one bank of the V12 Falcon.

Anxious to avoid similar problems to troublesome rival engines, Royce urged his engineers to put maximum effort into effective bench- and flight-testing, while continuously striving to improve reliability and increase performance. The Eagle made its first test-bench run at the start of March 1915 and within two days it achieved 225hp, exactly the target figure Royce had set just six months earlier – and 12.5 per cent more than the military had contracted for.

Royce tested rival suppliers ruthlessly, testing their engines to discover the weakest components and designing and proof-testing replacement parts.

The engine first flew on a [Handley Page](#) bomber in December 1915, the first flight of a Rolls-Royce aero engine. Throughout World War I Rolls-Royce struggled to build Eagles in the quantities required by the [War Office](#). The final version during peace time and for civilian use continued until 1928 and in total 4,681 Eagle engines were built. The eagle's final accolade with an epic achievement seven months after the Armistice. Piloted by John Alcock and navigated by Arthur Whitten Brown, a Vickers Vimy IV powered by two Eagle VIII's won headlines worldwide with the first non-stop flight across the North Atlantic earning its crew knighthoods for their achievement.

Royce's devotion to technical excellence in the Eagle would lead to the creation of the most successful aero engine of the next world war – the Rolls-Royce Merlin.



In October 1928, he began design of the ["R" engine](#) in his studio in the village of West Wittering, Less than a year later, the "R" engine, in a [Supermarine](#), set a new world air speed record of 357.7 miles per hour and won the [Schneider Trophy](#) of 1929.

The [Royal Air Force's](#) entry for the 1931 race for the trophy was hindered by political opposition of the [Labour Government](#) who decided not to finance the next attempt in 1931, preventing their planes, pilots and policing of the route over the Solent.

[Lady Lucy Houston](#), a philanthropist, suffragette and a staunch anti-Labour Government activist offered to donate a substantial amount of finance to save the project if the authorities reverse the order. She has been acknowledged as an aviation pioneer, "the saviour of the [Spitfire](#)

[Rolls-Royce](#) increased the power of the [R-Type engine](#) by 400 hp to 2,300 hp. The improved [Supermarine S.6B](#) seaplane won the trophy at 340mph and later broke the air speed record becoming the first aircraft to fly over 400mph.

Her gift provided a valuable impetus to the development of the engine technology that would ultimately be vital in the [Second World War](#), and in particular the [Battle of Britain](#). The accelerated research on engine development for this effort would otherwise have taken six to ten years to learn.

Following the success of the "R" engine, Royce developed and launched the PV-12 (private venture) in October 1933, knowing that it would be of use to the RAF. The engine's first test was in 1934, the year after he died. It became the Rolls Royce Merlin engine. Its water-cooled Merlin engine, introduced on the eve of [World War II](#), powered many aircraft (including the Supermarine [Spitfire](#) and the Hawker [Hurricane](#) and Mosquito and Avro Lancaster bomber).

In 1931 Rolls-Royce acquired [Bentley Motors Ltd.](#) (founded in 1920 by Walter Owen Bentley), a maker of fine cars. As part of integrating its acquisition, Rolls-Royce management discontinued the [Bentley 8-Litre](#) car due to the perceived market overlap with the Rolls Royce [Phantom II](#).

This meant the acquisition brought with it the Bentley brand, debt and engineers & manufacturing employees with no product to produce

A "20/25" straight six 3.6 engine was put into a chassis, an open four-seater body and a Bentley radiator completed the design. The engine was modified and the car was taken down to West Wittering to get Royce's approval. They were somewhat apprehensive of what he would say, but he gave it his blessing. He told them that such a fast car should have a means of varying the stiffness of the springing. The night before he died he sat up in bed and drew a sketch on the back of an envelope handed it to Miss Aubin with the instructions to get this to the lads please, and straight away. He died before it reached Derby. The hand written instructions on the envelope were that of Miss Aubin; Royce being too weak to write. This was the adjustable shock-absorber.

From his earliest successes in the infant electrical industry, which he joined in 1884 aged just 21, to his death in 1933, Royce uncompromisingly pursued his basic principle of establishing the best design, using the finest materials available, worked by the highest levels of craftsmanship. In his own words: "Whatever is rightly done, however humble, is noble". "Strive for perfection in everything you do. Take the best that exists and make it better. When it does not exist, design it."

Whilst a high standard of ability to design was essential, it was by no means the only qualification needed. One's acceptability to Royce depended also on personality, manner of speech and mannerisms, style of dress and private life. To quote Ivan Evernden, MBE Chief Projects Engineer.

He worked mentally all of his waking hours, making small sketches on the back of an envelope or any odd piece of paper that was at hand. However, he could read, with extreme rapidity, the most complicated drawing, to the extent that he could see the components in the flesh, visualising the mechanism working and so sense the loads to which the parts would be subjected, and the stresses and strains which would ensue.

I can recall more than one instance when he took up a design discarded by a competitor as a failure, and made it into a success, because he realised that the idea had been good but the execution faulty. He believed in the process of evolution and often said 'I am a mechanic and not a pioneer'.

Perhaps his most outstanding quality was the patient attention he would give to the very smallest detail of a design. He would spend an hour or more with one at the drawing board reviewing every conceivable solution of a simple problem, which too many would seem to be a trivial matter. The expression 'good enough' never failed to invoke his wrath.

Royce, was awarded the [OBE](#) in 1918, received knighthood in 1930 and was created a [baronet](#), of [Seaton](#) in the County of Rutland in 1930 for his services to British Aviation. He had no children and the baronetcy became extinct on his death.

Mike Gilchrist.

Acknowledgements: Rolls-Royce Enthusiast's Club. Ivan Evernden.

Nigel Blackwell.

Wikipedia.