A Postscript
By Cecil French

In 1990, Ricardo International Plc, the successor to the Company which Sir Harry founded in 1915, celebrated its 75th Anniversary. During its life, the Company has been in the forefront of the developments which have revolutionized the reciprocating internal combustion engine, both spark ignition and diesel.

In writing *The Ricardo Story*, Sir Harry set out to write his autobiography. While it contains some technical detail concerning the Tank Engine and the development of the Turbulent Head, there is little concerning either his or the Company’s activities post 1930, since he thought that these had already been more than adequately covered by his published works and those of his collaborators.

In this postscript, I have tried to give some flavour of the wide range of technical activities and achievements, of what many of us still think of as “R & Co,” both up to Sir Harry’s death in 1974 and subsequently. A full description of the work carried out would require several volumes but fuller details are available to the reader by reference to the many technical papers prepared by Sir Harry and by his colleagues over the years.

**Sleeve-Valve Engines**

In an earlier chapter, Sir Harry mentions the intensive development of the four-cycle, sleeve-valve petrol engine which was carried out at Shoreham from 1921-1929. This formed the basis of the very successful ranges of Bristol and Napier sleeve-valve aircraft engines, and engines of this type were also built by Rolls-Royce.

In 1936, work started on the development of a very highly rated, two-cycle, gasoline-injected, sleeve-valve petrol engine for aircraft propulsion and the E65 and E54 single-cylinder research units were designed and built. These engines were separately blown and were operated both at Shoreham and at Oxford after the Company had been evacuated from Shoreham in 1940. Ex-
Experimental running was carried out at very high ratings with a type test being successfully completed at up to 225 lb/in² BMEP at 3000 rpm on the E65 unit.

Toward the end of the programme, short-duration tests were successfully carried out at 354 BMEP at 4000 rpm and it appeared likely that still higher powers would have been achievable, had fuel injection pumps of higher capacity been available.

This work, together with parallel studies being carried out at Derby, formed the basis for the design of the Rolls-Royce Crecy 12-cylinder engine which would have succeeded the Merlin and Griffon had it not been overtaken by the development of the aircraft gas turbine. The Crecy engine, in its developed form, would have been able to produce some 5000 bhp for a gross weight of about 2000 lb with little more frontal area than that of the Merlin or Griffon.

While these aircraft engines gave the ultimate in output, a very wide range of sleeve-valve engines were designed and developed by Ricardo over a period of thirty years or so from 1921-1951. Including two-cycle and diesel versions, some 78 different single-cylinder engine designs were, in fact, carried out.

Multi-cylinder, four-cycle diesel and spark ignition, sleeve-valve engines were designed and were put into production by a wide range of engine builders. An interesting project was a diesel sleeve-valve conversion of a Rolls-Royce Kestrel engine which was ultimately fitted into a car by Captain George Eyston and which set a diesel car speed record of 159 mph which stood from 1936 to 1953.

**The Comet Combustion System**

From about 1928 onward, the Company became increasingly involved with the application of high-speed diesel engines to road vehicles. Following an early decision to concentrate, at that time, on indirect injection, the ‘Comet’ swirl chamber system was developed for use in London buses built by the Associated Equipment Company and patents were taken out in 1931.

A range of Comet systems was developed over the years and patents on these variants remained in force in the last country until 1980.
By 1936, 32 companies, in countries from the USA to Australia, had taken out licenses from Ricardo. While the great majority of pre-war Comet engines were employed on trucks and buses, industrial uses, patrol boats, etc., Citroën in France produced a 1.7-litre, four-cylinder engine for use in cars, taxis and small commercial vehicles.

With time, increasing fuel prices and the development of improved fuel injection equipment, direct injection has, of course, taken over from indirect injection for the majority of diesel applications, with the exception of the high-speed, light-duty engines for use in passenger cars and light trucks. While direct injection has now started a small penetration in this area, the vast majority of such engines still employ indirect injection. With the exception of Daimler-Benz, almost all of these engines still employ the Comet Combustion System, 60 years after the filing of the initial patent—a quite remarkable record.

Compound Engines

During the 1930s and 1940s, work was carried out on compound engine concepts, combining a diesel piston engine as a gas generator with a turbine expander. Early work had shown that detonation prevented the use of spark ignition and a comparison of two- and four-cycle diesels demonstrated that two-cycle was superior in terms of power output and specific weight.

Two alternative simple ported single-cylinder engines were constructed, together with a sleeve-valve unit. A very substantial amount of running was carried out and this work formed the basis of the Napier Nomad prototype aircraft engines which were ultimately built, developed and flight tested with results that agreed closely with Ricardo’s predictions.

As with the gasoline-injected, two-cycle engine, however, gas turbine developments prevented any production use of compound engines and this work ceased in 1952. Since that date, however, we have come back to it at least twice, once in the original spark ignition form for passenger cars and once for high-power, long-range helicopter applications.
Gas Turbines
While the Company's main involvement has been in the area of piston engines, it played a significant part in the development of the fuel systems for the prototype Whittle gas turbine engine. Fuel burners were manufactured by the Company and then overspeed governors and barometric altitude fuel control devices were both designed and developed and manufactured in prototype quantities. While no further work was carried out on large gas turbines after 1946, in the early 1950s a heavy fuel burning combustor was developed in association with the Shell Company.

A further project concerned the design of small radial inward flow and axial turbines. A relatively large number of design variants were produced in collaboration with the National Gas Turbine Establishment at Pyestock and were tested on a high-speed dynamometer at speeds of up to 80,000 rpm. These tests were ultimately extended to include pulsating flow to simulate turbocharger operation.

The last gas turbine tests to be carried out by the Company involved the testing of ceramic turbine rotors in a gas turbine which had been built for laboratory teaching purposes, employing turbocharger components and designed and developed at Shoreham for the Company's manufacturing subsidiary, G. Cussons Ltd.

Submarine and Torpedo Propulsion
While some of the Company's early work had been directed toward engines employed in submarines and in landing craft and patrol boats, it was not until 1948 or so that any substantial development was carried out directly for the British Admiralty. A test shop with test cells was built at Shoreham by the British Government and operated by Ricardo.

A number of projects were carried out, some of which used High Test Peroxide (HTP) as an oxidant. For submarine propulsion, it was proposed to use Recycle Diesel Engines. A number of experimental power plants were constructed and the final test involved the "dunking" into Shoreham Harbour of a complete power plant fitted into a pressure vessel.
Probably the most “exciting” project was aimed at a power plant for a torpedo employing an inverted cycle where the aspirated charge was vaporised diesel fuel and HTP was injected directly into the cylinder at the appropriate time for combustion to commence. Since HTP mixed with a hydrocarbon liquid forms a high explosive, spectacular results ensued if liquid HTP came into contact with lubricating oil in the piston ring grooves!

**Compressors**

While from an outsider’s point of view Ricardo’s is thought of as an engine company, a number of special-purpose compressors have been designed and developed over the life of the Company. These included three-stage air compressors for transportable oxygen plants for use in aircraft to provide oxygen for bomber crews in 1942 and a larger mobile oxygen plant for use in welding by the British Army in 1950.

A two-stage oxygen compressor, compressing to 2600 lb/in² with water lubrication of the pumping cylinders was also designed and developed and subsequently built in some numbers by the Hamworthy Engineering Company for use in aircraft carriers.

Piston-type wobble plate compressors with double-acting cylinders arranged around and parallel with the driving shaft with a rotary valve were also developed in the early 1950s. While the original design was intended for use as an engine supercharger, the production unit found quite wide use as a source of air for unloading cement powder and flour where the freedom from oil carryover in the air, low noise level of the unit and low pulsatory levels of the air offered particular advantages.

A later design of two-stage air compressor, fitted with piston and/or poppet valves supplied air at 100 lb/in² and ran at up to 3600 rpm. This was intended for direct drive by a high-speed, automotive type of diesel engine but while the unit performed successfully, it did not succeed in competition with oil sealed rotary compressors which came on to the market at about the same time.
Steam Engines
Sir Harry had always been interested in steam engines, as exemplified by his Rugby School Motor Cycle. In 1952, he had the opportunity of designing and developing a small steam power plant of transportable form to be used in the underdeveloped world such as India and to “live off the land,” burning coal, straw, dung, brushwood, etc.

A two-cylinder, single acting engine with a simple cast aluminium boiler was designed and developed and demonstrated and two small prototype batches were commissioned by the National Research Development Corporation. While tests on these were successful, with the ready availability of small industrial petrol engines in all parts of the world, together with their fuels, it became clear that there was unlikely to be a market for the steam engine.

Steam engines were returned to early in the 1970s when the United States Environmental Protection Agency sponsored a number of projects aimed at the use of vapour cycle engines in order to reduce vehicle exhaust emissions. Ricardo’s were a partner in the project which used water as the fluid, with a reciprocating expander.

The steam engine or expander was Ricardo’s responsibility and a four-cylinder unit with poppet inlet valves and ported exhaust was designed and prototypes were procured. In order to achieve variable cut-off, each cylinder employed two inlet valves in series, one to control the start of admission and one to control the end. The two valves were operated by different cam shafts and cut-off could be varied by varying the phasing between these two cam shafts.

While low exhaust emission levels were achieved, the fuel consumption of the vehicle was substantially worse than that of vehicles fitted with conventional engines and the pressure on fuel economy, which resulted from the 1973 Middle East fuel price increases, resulted in the abandonment of all three vapour cycle projects.
Stirling Engines
Hot air engines were widely used toward the end of the last century but had been displaced by the internal combustion engine. During the 1930s, however, the Phillips Company in Holland started to develop high-pressure Stirling engines, employing hydrogen as a working fluid. This work continued after the war with larger power units for cars and buses.

The United Stirling Company of Malmo in Sweden was set up to continue work in this area and Ricardo's carried out the mechanical design of the first United Stirling P40 engine and also manufactured a number of experimental units for United Stirling.

Fundamentals of Combustion
In the early 1940s, after the gap of some 20 years since Sir Harry had carried out his classic studies on detonation and pre-ignition, Ricardo's received a contract from the Shell Company to pursue further fundamental studies into the mechanisms involved in detonation, employing the more advanced techniques which had by then become available.

By using high-speed sampling valves derived from Atlas electrically operated injectors, it was possible to follow the chemical nature of the knocking process. By this means, it was possible to forge a link between the engine phenomena being studied at Shoreham and the more fundamental work on combustion which was being carried out elsewhere on laboratory-type apparatus.

Subsequently, the work was extended to cover pre-ignition. The method developed for this involved the use of artificial means of producing a hot spot which could be heated by external means independently of other engine conditions.

Studies of diesel combustion employing high-speed photography also commenced at Shoreham early in the 1950s. Here, too, this work was later supplemented by the use of high-speed sampling to follow, in this case, the mechanisms involved in the production of exhaust pollutants. Still later, Ricardo's were early users of laser anemometry to study air motion and its relevance in diesel combustion.
Company Honours

Sir Harry was created a Knight in 1948. Two of his successors as Chairman of the Company, Jack Pitchford and Diarmuid Downs, were honoured by the award of the C.B.E. (Companions of the British Empire) and Diarmuid Downs was further honoured by a knighthood in 1985 and also by election as a Fellow of the Royal Society in the same year.

The Company has provided four Presidents of the Institution of Mechanical Engineers—Sir Harry himself in 1947, Jack Pitchford in 1960, Diarmuid Downs in 1978, and the present author in 1988—and it has also provided Presidents of both major international engine societies, FISITA for automobile engineering and CIMAC for larger diesel and gas engines and gas turbines—Jack Pitchford and Diarmuid Downs being Presidents of FISITA in 1961-63 and 1978-80, respectively, and the present author of CIMAC in 1983-85.

During his lifetime, Sir Harry was awarded a number of medals, honorary membership of professional institutions and honorary degrees including the James Watt International Medal in 1953. He delivered the Horning Lecture to the American Society of Automotive Engineers in 1955.

He died in 1974 in his 90th year, and until shortly before his death, he came to the laboratories at Shoreham several times a week where he particularly enjoyed discussing technical matters with his younger colleagues, including many who were at the start of their professional careers. The Company which he founded had become a Public Company in 1962 and continued. In 1990, it merged with a somewhat younger company, SAC International, which had been founded in 1961 and which carried out somewhat similar design work but in other fields, primarily aircraft design, gas turbines and robotics. The merged company is now known as Ricardo International, thus perpetuating the name.
APPENDIX A

Biographical Notes

Chorlton, Alan
Alan Chorlton grew up in the industrial environment of the north of England, broken by one interval in Russia in his early 20s as engineer to a large textile plant. During World War I he was Deputy Controller of Aero-engines to the Ministry of Munitions and it was in this capacity that he first met Harry Ricardo.

Chorlton was a pioneer, advocate and talented designer of the automotive (high-speed) diesel, whose work included railcar motors for North America. Probably his crowning achievement, though tragically short-lived, was the design of the engines for the R101 airship, described by Ricardo as “... a remarkable performance, for no one had (at that time) produced a diesel engine of anywhere near comparable power and weight.”

In the early 1930s Chorlton entered politics, in which he remained until his retirement at the end of World War II.

Clerk, Sir Dugald
Clerk was a pioneer of the internal combustion engine and an early influence on Harry Ricardo. He was a Scot who had spent his younger days in industry in Glasgow, and had built his first gas engine in 1876, when 22 years old. He was the inventor of the Clerk-cycle two-stroke engine in 1879. He studied chemistry and physics, first in Glasgow and then in Leeds, Yorkshire, where he remained for awhile to lecture under Professor Thorpe. He then returned to work on engine development, and was one of the first to realise the significance to engine combustion of flame propagation and turbulence. From 1902 he was engine designer and director of the National Gas Engine Company, and in 1908 was elected a Fellow of the Royal Society for his scientific and engineering work. During World War I he was seconded the Admiralty as director of engineering research. It was mainly for
his work here that he received his knighthood.
Dugald Clerk was keenly interested in the motor car, and served on the technical committee of the Royal Automobile Club. As Harry Ricardo recalls, he was noted for his memorable lectures to the Institutions of Mechanical and of Civil Engineers in London, being an active member of both bodies.

Green, Major F.M.
Though Ricardo is less than complimentary about Green's first efforts at aircraft engine design, subsequent work with S.D. Heron at the Royal Aircraft Factory, Farnborough, produced a practical and reliable Vee engine that was used in quantity in World War I. Green left Farnborough following O'Gorman's departure in 1917 and became chief designer to Armstrong Siddeley Motors, where, with Heron, he continued the work on the 14-cylinder radial engines that he had begun at Farnborough.

He was involved in the formation in 1920 of Sir W.G. Armstrong Whitworth Aircraft Ltd, and with another ex-Farnborough colleague John Lloyd as chief designer, was responsible for the Siskin fighter that served the RAF in the early inter-war years, and for the groundwork on the successful Jaguar engine, one of the first supercharged radial aircraft engines. Green retired in 1933, but returned to Farnborough (by that time called the Royal Aircraft Establishment) at the outbreak of World War II.

Halford, Frank
“. . . a very capable young flying officer, a certain Captain Halford . . .” is Ricardo's first recollection of Frank Bernard Halford.

When only 21, Halford was involved in the design of the B.H.P. (Beardmore-Halford-Pullinger) 230 hp in-line water-cooled six, one of the outstanding aircraft engines of WWI.

The young Halford had learned to fly before the war, and became a qualified flying instructor. At the end of hostilities (and this is an episode that Sir Harry unaccountably fails to mention) Halford spent two years in America as Ricardo's agent, and was the first to interest Ford in the Ricardo turbulent head. Halford left Ricardo's employment in 1923.
Apart from his love of flying and his flirtation with motorcycle racing in the early 1920s, Halford’s working life was dedicated to aero-engines. He was a leading figure in the design of the Armstrong-Siddeley Puma, and subsequently the Napier engines, including the Rapier, Dagger and Sabre (which was to develop more than 3000 hp). At the lighter end of the scale he evolved the Gipsy range that powered so many de Havilland and other aircraft.

Halford worked closely with de Havilland, sharing premises at Stag Lane, North London. In 1941 Tizard (q.v.) involved him in jet propulsion. Halford was responsible for the H.1 engine (later called the Goblin) that powered the first Lockheed Shooting Stars and Curtiss-Wright XF-15, as well as the first Gloster Meteor, and was the standard engine for the de Havilland Vampire fighter.

When the de Havilland Engine Company was formed in 1944, Halford was appointed Chairman and Managing Director. His Ghost engines powered the first Comet airliners, and shortly before his death he was working on the Gyron axial flow gas turbine of 15,000 lb thrust.

**Hopkinson, Professor Bertram**

From King’s College, London, Hopkinson went to Cambridge University, first to study mathematics, and then to read law. However, on the sudden death of his father, a consulting engineer, he relinquished law to study engineering and so maintain his father’s practice. Here he became involved in the electrification of tramways, and on patent law cases.

When Professor Ewing retired from Cambridge, Hopkinson was appointed as his successor to the Chair of Mechanism and Applied Mechanics. The future of the internal combustion engine was his overriding enthusiasm. He contributed much to the systematic testing of engines, including some original and valuable inventions, and was an inspiration to his students, of whom Harry Ricardo was one of many to determine the course of engine design in Britain.

During World War I, with the rank of major, he was involved in technical work for the Army, the Admiralty, and then for the
Air Ministry with research and development responsibilities at the new testing station at Martlesham Heath, with the young Tizard (q.v.) as his second-in-command. He was only 44 when he was killed in an air crash in 1918, officially commended for "... the patriotic self-abnegation with which he devoted his great abilities to the Public Service."

**Horning, Harry**

Harry Horning was an influential American pioneer of the internal combustion engine, and particularly of lubrication and fuel research. He shared with Harry Ricardo an interest in the problem of engine knock, and helped develop the ASME octane measuring engine. He was co-founder of the Waukesha Motor Company in 1906, and of the SAE's Research Department. He was President of the Society in 1925.

For many years Harry Horning carried the responsibility for obtaining and administering Ricardo's patents in America. He died in 1936. In 1938 the Horning Memorial Award was instituted by the SAE.

**Lanchester, Sir Frederick**

Lanchester, who was born in South London in 1868, was an engineer and mathematician of great breadth of achievement. He was educated at what are now Southampton University and Imperial College, London. He was an early and influential theorist of flight, his two major books, the *Aerodynamics* of 1907, and *Aerodonetics* (aircraft stability) of 1908, were seminal works of aeronautical science. He worked on the British government's Aeronautics committee from 1909.

In the early 1900s he turned his innovative mind to the motor car, formed the Lanchester Motor Company, and introduced many developments which, though technically successful, were not widely adopted by the cost-conscious motor industry. Nevertheless, with his brother (widely known as Mister George) a significant number of Lanchester cars were produced for the upper end of the market until 1931. Lanchester was equally inventive in sound reproduction, with a number of patents, was
a competent musician and published books of poetry. Ricardo considered him “...the greatest inventor of his day...”

O’Gorman, Mervin
A few years before World War I the British government established at Farnborough in Hampshire a facility to provide the armed forces with observation balloons, dirigibles and kites. It was called the Royal Aircraft Factory, and had grown out of the Balloon Factory. O’Gorman was its first Director, presiding over a small staff of engineers and a modest-sized workforce. He was a far-sighted, persuasive, and sometimes outspoken individual who was not one to toe the official line that favored airships to heavier-than-air machines. He was an early pioneer of motoring, but more important, he was a firm believer in research, and built the Royal Aircraft Factory into a centre of aeronautical research, which, as the Royal Aircraft Establishment, and subsequently RAE Farnborough, it remains today. His influence was crucial to the development of Allied fighting aircraft in World War I.

O’Gorman remained a powerful influence for science and research, with a keen eye for engineering talent. He died in 1958, recognised more by his fellow engineers and scientists, than by the officialdom that was often the target of his critical Irish wit, as Harry Ricardo (see p. 145) well recognised.

Pomeroy, Laurence
Laurence Pomeroy worked from 1905 to 1919 on the staff of Vauxhall Motors, the UK motor manufacturer that in 1925 became part of General Motors. He then worked in the USA for the Aluminum Company of America, but returned to become chief engineer of Daimler.

He was a noted speaker and writer on automobile engineering, and an advocate of improved valve-train design and of the long-stroke engine. From 1937 to 1940 he was general manager at Stag Lane, North London, of the de Havilland Aircraft Company.
Pye, Sir David Randall
David Pye was one of Ricardo's Cambridge contemporaries and student of Hopkinson (q.v.). Having served as a scientific officer attached to the Royal Flying Corps in the latter part of World War I, he returned to lecture at Cambridge University, where he met Tizard (q.v.). In 1925 he was appointed deputy director of scientific research at the Air Ministry under Wimperis, whom he succeeded as director in 1937. In this capacity he became involved in the early development of the gas turbine. His two-volume treatise *The Internal Combustion Engine*, published in the early 1930s, became a standard text. After World War II he was active in engineering education policy, and was Provost of University College, London, until 1951.

Royce, Sir Henry
Henry Royce was the engineer of the Rolls-Royce partnership. He was apprenticed to the Great Northern Railway when he was 14, then worked in gun manufacture and electric lighting while studying at Finsbury Technical College, North London. At the age of 21 he set up a firm to manufacture electrical equipment but soon became interested in the prospects for the motor car, and in 1906 established the famous firm with C.S. Rolls. The reputation for quality was established before World War I, when the demand for aircraft engines determined the future of the company, leading from the Eagle to the Merlin, and to the first allied jets. Royce was noted particularly for the high engineering standards he set. To Ricardo he was "... the great perfectionist."

Stanton, Sir Thomas
"... we had the whole-hearted co-operation of Dr Stanton of the National Physical Laboratory ..." wrote Harry Ricardo (p. 213). Dr Thomas Stanton was in fact the founder in 1901 and first superintendent of the engineering department of the NPL at Teddington, West London. Here he remained until his retirement in 1930, contributing much to the knowledge of friction and lubrication, including his classic text *Friction*, published in 1923. Before his tenure of office at the NPL, Stanton had worked as demonstrator at the Whitworth Engineering Laboratory un-
der Professor Osborne Reynolds, of Reynolds' Number fame.

Stanton was knighted for his services to engineering science. He died in 1931.

**Tizard, Henry**

Henry Tizard, researcher and administrator, rose to become one of the most powerful figures in British research and development in the inter-war years, and through World War II. He came from an engineering family and was son of Thomas Tizard, hydrographer of the Royal Navy. He read science and mathematics at Oxford University, and went on to Berlin to study under Nernst. It was here that he met Lindemann (later Lord Cherwell, Churchill's scientific advisor).

In 1911 he was demonstrator in Oxford University's electrical laboratory under Sir Ernest Rutherford, and was travelling to Australia with Rutherford for a scientific meeting when World War I broke out. He returned, enlisted in the Army, was recognised for his methods of training recruits, and transferred first to the Central Flying School at Upavon, and then to work on bombsight design for the Royal Flying Corps under Hopkinson (q.v.). Hopkinson was sufficiently impressed to recommend Tizard for work at the new Martlesham Heath experimental field, and then to join him at the headquarters of the Ministry of Munitions. It was while he was at Martlesham Heath that Tizard met Ricardo. When Hopkinson met his death in 1918, Tizard took over Hopkinson's work.

Tizard then returned to Oxford where he worked on problems of fuel compatibility and detonation with Ricardo and Pye, supported by Shell, under Sir Robert Waley Cohen.

With the worsening political situation in Europe in the mid 1930s, the Tizard Committee was set up to provide scientific backing to Britain's air defence. Two of the Tizard projects that were to play a decisive role in the war were RDF (later called radar), and the support for Whittle's work on the jet engine. In 1940, one year into the war in Europe, Tizard organized the joint British/Canadian scientific mission that brought details of British secret research to the USA, including work on the cavity magnetron that made possible centimetric wavelength radar,
and less than a year later details of jet propulsion.

After the war Tizard remained involved in defence policy, but gave more of his time to the teaching of engineering, and the expansion of engineering facilities at universities in Britain and the Commonwealth. He died in 1959.

**Wallis, Sir Barnes**

Harry Ricardo encountered Barnes Wallis in the 1920s when Wallis was working on the airship developments so vividly related by novelist Nevil Shute in his autobiography *Slide Rule* (Heinemann). "... we came to look upon him as a tower of common-sense, sound judgment and ingenuity" is how Ricardo recalls Barnes Wallis.

Barnes Wallis was trained as a marine engineer at Cowes, Isle of Wight, but turned to aviation soon after joining Vickers, remaining with that company for most of his life. He was particularly noted for his work on aircraft structures, and for the development of the geodetic, lattice-like framework that culminated in the structure of the Wellington bomber of World War II. He also turned his attention to bomb design, including the 10 ton Grand Slam and the bouncing bomb that was used successfully against German dams.

After the war Barnes Wallis became a leading advocate of supersonic flight and variable geometry wings, and remained in the forefront of aeronautical thought until he retired in 1971.

**Wilson, Major W.G.**

Major Walter G. Wilson was first and foremost a transmissions engineer who is best remembered for the Wilson Gearbox, the semi-automatic epicyclic transmission and forerunner of the automatic transmission that was used for many years and continues in use on London buses and other transport applications.

Wilson's first successful involvement in motor vehicle transmission goes back to the Wilson and Pilcher car of the early 1900s, built after Pilcher had been killed in a gliding accident in 1899, and plans for an engine for powered flight had been dropped. During the World War I Wilson was engaged as chief of design for the mechanical warfare department of the War
Office. He was in charge of the very first tank trials. It was while involved in the design of the transmission system for the first tanks that he first met Harry Ricardo.

He was an active member of the Institutions of Automobile Engineers, Mechanical Engineers, and Civil Engineers. He died in 1957.
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