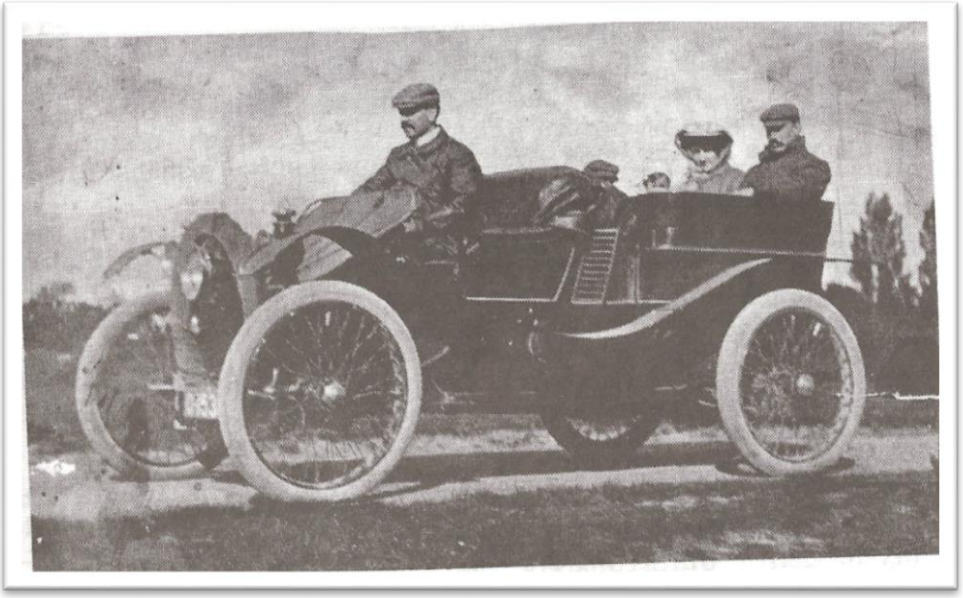
F. W. Lanchester, LL.D., F.R.S.

Frederick William Lanchester was born in Lewisham on 28th October, 1868 the son of Henry Jones Lanchester, an architect, and Octavia Devis, the eighth child of an artist. Fred had four brothers and three sisters all of whom were clever, but their father wondered "Why are my five sons so brilliant and my three daughters so unbalanced?"

After school at Brighton, Lanchester was educated in Southampton and London. In 1889 he came to Birmingham and, except for the years from 1917 to 1924, lived here until his death on 8th March, 1946. Between 1897 and 1917 he lived at 53 Hagley Road, Five Ways, and on his return in 1924 he lived at Dyott End, Oxford Road, Moseley.

Coming to Birmingham at the suggestion of an uncle in the gun trade, F. W. Lanchester worked as Works Manager and Designer for the Forward Gas Engine Company of Scholefield Street, Bloomsbury, where he invented improvements for gas engines. While there he built an experimental motor car in a shed on the works land. Then, in 1897, with his youngest brother George, he moved to Ladywood Road and started the Lanchester Engine Company. Later they moved to a works in Montgomery Street and were joined by their brother Frank. In 1904 the company went into liquidation. On obtaining new backing the name was changed to Lanchester Motor Company.

Lanchester motor cars included many features which are now considered essential to any motor, but which were invented and patented by F. W. Lanchester. One of these is the foot operated accelerator (a name which he invented). He also introduced methods of manufacture which have since become widely adopted, such as complete interchangeability of parts, including the body. In 1909, while still designing motors for the Company, he left the running of Lanchester Motor Company to his brothers and worked as consulting engineer and technical advisor to the Daimler Company, for whom he invented many features to improve their motor cars, initially designing a vibration damper to reduce the excessive vibration which Daimler's six-cylinder engines suffered at that time. Lanchester retained this post for twenty years.



A 21HP Lanchester Motor Car in Moseley:
Mr Frank Wing Parsons being driven on a family outing by permission of Miss H R Parsons

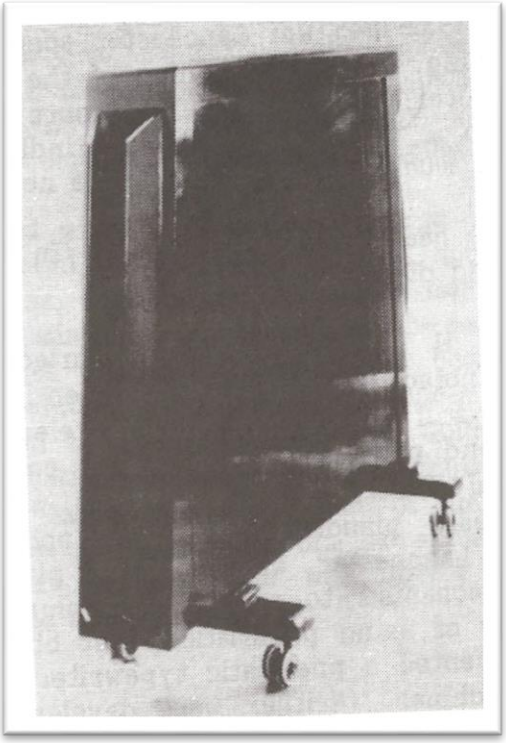
The problems of flight using heavier-than-air machines had always interested him and by 1894 Lanchester had formulated a theory of flight which he proved by the use of model gliders and elastic-

motored self-propelled airplanes. In 1907 and 1908 this work was published in two books on the theory of flight. As a result he was invited to join the Advisory Committee on Aeronautics when it was set up by the Government in 1909. He remained on the Committee until it was reorganized in 1920, doing valuable work in this field for which he received no official recognition. Indeed, Lanchester's work was appreciated far more by German than by English aircraft designers, his work on the lift of aeroplane wings having been developed into a mathematical theory by Ludwig Prandtl, known (and still used) as the "Lanchester-Prandtl theory".

Fred Lanchester was also interested in music and took singing lessons from E W Stevenson, organist at Birmingham Cathedral, although this was partly to improve his speech. While visiting Stevenson's house for lessons, Fred met Dorothea Cooper, Stevenson's niece, whom he later married.

Towards the end of the 1914-18 War Lanchester moved to London to save travelling to and from meetings. He was also able to pursue his pleasure in music by attending more concerts. In 1924 Lanchester was invited to act as consulting engineer for Wolseley Motors which resulted in many visits to Adderley Park for about twelve months.

At about this time, having married Dorothea Cooper in 1919, Lanchester decided to return to Birmingham and to build a house in Oxford Road, Moseley, on a plot of land at the end of the garden of his brother George's house in Dyott Road. He asked his elder brother Henry, who was an architect, to design the house but he did not like the plans so he made his own. (The house is now four houses, 128A-D Oxford Road)



Lanchester's "Euterpephone". a loudspeaker for concert halls

In 1925 Lanchester's Laboratories Limited was founded to undertake development and research work which would benefit Daimler and others who were more concerned with production. Unfortunately, there followed much controversy over financial backing from Daimler and internal matters there and in 1929 F W Lanchester's connection with Daimler was severed. He now decided that Lanchester's Laboratories Limited should manufacture high class acoustic products, for some of which he had already taken out patents. Lanchester was particularly interested in the reproduction of gramophone records and designed a special loudspeaker, which he called the "Euterpephone", with a tone control circuit intended particularly to overcome problems with the recording and reproduction of high and low notes. Because of the depression and some errors of policy the venture was not a success, and when his health gave way in January 1934 the Laboratories closed down and the equipment had to be sold.

Lanchester never fully recovered his health, but intellectually he was as powerful as ever. He published books on relativity, followed by an engineering text book, besides articles and papers to engineering institutions. He also wrote and published poetry besides unpublished (and often satirical) limericks. In 1937 he gave a largely autobiographical lecture to the Institution of Mechanical Engineers describing the development of the internal combustion engine from the heavy gas engine to the light airplane engine. Further technical papers and articles followed, including one on rocket propulsion. He also wrote a book entitled The Musical Scale in which he deals with the history of musical scales and their differences in frequency intervals. Because of the lack of money and also war-time

restrictions on paper, the book was published in a limited number of duplicated copies, the stencils being typed by Lanchester himself.

Because of the financial loss on the closure of his laboratories, in his later years Lanchester could not afford to own a motor himself. In 1938 the Society of Motor Manufacturers and Traders took over the mortgage on Dyott End and gave him an annuity of £200.

During the 1939-1945 war Lanchester spent time in writing and in gardening. At the beginning of the war he, with the help of a labourer, dug up the tennis court at Dyott End and turned it into a vegetable garden. Finding that using a barrow wasted much effort he designed a new one.

Lanchester's health declined further. In 1946 he suffered two strokes and died on March 8th.

Some of F W Lanchester's very varied interests have already been noted. He turned his inventive mind to many things. While still at college he built a telescope and in 1895 he invented and patented a process for colour photography with a special camera, which was also used to view the pictures. Early pianolas played all notes at the same intensity, but Lanchester, working for a piano manufacturer, designed a mechanism to enable the volume to be varied. The possibility of using pneumatic power obviously intrigued him, so he invented a pneumatic typewriter and a pneumatic calculating machine. (Neither were developed commercially). Shortly before the 1939 War he wrote a detailed paper on the defence of Gibraltar which he sent to his M.P. and later, having no reply from him, to the Minister of Defence.

Fred had a keen sense of humour, although he was inclined to be heavy -handed, and often upset people. He and his brothers George and Frank were fond of playing practical jokes. When they were living together for a time in lodgings in a large building in Birmingham, visitors would sometimes be taken to the lodgings by a circuitous route, up and down stairs and along passages, although the lodgings were not far from the entrance. (Eventually on one occasion a visitor realized he had passed a certain point twice already!).

F W Lanchester was a brilliant engineer. He has been called “A Star of the First Magnitude". His brother George said that he had a capacity for grasping fundamentals, going straight to the root of the matter. But he was intolerant of fools and showed no mercy to anyone making the same mistake twice. He would storm into the works, upsetting everybody by demanding to know why jobs were not done; then leave George to calm everyone down after he had gone. Despite this, Lanchester was kind, sympathetic and trustful; the latter often to his disadvantage. He was fond of children, and would show a young boy who had been invited to Dyott End with his parents the drawings of jobs he was working on at the time. Unfortunately, Lanchester preferred to work alone and this, together with his intolerant attitude and a habit of using his own terminology, resulted in his work not being accepted as widely as it should.

Because he had given up a mining course because it was not what he wanted to do, and had then not completed an engineering course, Lanchester had no formal qualifications, but in 1919 Birmingham University conferred on him an Honorary Degree of Doctor of Laws. other honours bestowed on him later included being made a Fellow of the Royal Society and given the Daniel Guggenheim Gold Medal in the U.S.A. for contributions to the science of flight. In 1945 he was awarded the James Watt Gold Medal of the Institution of Mechanical Engineers, which gave him more pleasure than all the other honours, although he was unable to receive it personally because of ill-health.

Roy Thomas

Sources of information:

F W Lanchester's papers in Proceedings of the Institution of Automobile Engineers and Proceedings of the Institution of Mechanical Engineers;

G H Lanchester, F W Lanchester, LL.D., F.R.S., His Life and Work in Transactions of the Newcomen Society, Vol. 30, (1955-57);
P W Kingsford, F W Lanchester, (1960);
A Bird and F Hutton-Stott Lanchester Motor Cars, (1965);
Lanchester Cars, 1895-1956, Academy Books (1990).
Notebooks, sketchbooks, correspondence, articles, patents in the Lanchester Collection at the Lanchester Library, Coventry University, and in the library of the Birmingham Museum of Science and Industry.