

# ELIHU THOMSON

**E**LIHU THOMSON was born in Manchester, England, in 1853.

His father was Scotch and mother English, and they came to the United States in 1858, settling in Philadelphia. He was educated in the public schools of that city and graduated from the Central High School early in 1870. He entered a laboratory as analyst, but was appointed Assistant Professor of Chemistry in the High School later in the same year. In 1876, when twenty-three years old, he was given the Chair of Chemistry in the same school. This position was retained until 1880, when, having become deeply interested in the future applications of electricity, he resigned to take up the work which he has continued ever since. He had always had a fascination for physical and chemical studies, and especially for electricity. He had constructed, when eleven years old, a frictional electrical machine from the traditional wine bottle. This, with similar apparatus, was followed by batteries, electro magnets, and telegraph instruments in which the bare wire was insulated by the laborious winding of thread by hand around the wire.

Possessed of a natural aptitude for construction and the use of tools, the time he spared from other duties was given to making such apparatus as he needed. In this way, while in his teens, there were built induction coils, electro magnets, cameras, chemical balances, and the like. In his early twenties, he constructed lenses, such as achromatic microscope objectives and oculars, and the microscope stand itself, and also built a pipe organ with electrical action, making pipes, winchest, bellows, keyboard, and all other parts. This work, coupled possibly with a hereditary aptitude, gave him insight and skill, and naturally led to invention. It also gave him a facility in laying out work for the factory and following it through to completion.

In recent years this taste for construction has found an outlet in the construction of lenses for refracting telescopes, a ten-inch glass being mounted in his private observatory at his home in Swampscott, Mass. By way of contrast to this larger work, demanding great care and skill, he has made photographic lens combinations, and even oil immersion wide-angle high-power microscope objectives.

When he left his professorship, in 1880, it was to take charge of the development commercially of the Thomson Houston arc-lighting system based on his patents, some few of which were joint with his former colleague at the High School, Professor E. J. Houston. The business was begun at Philadelphia in 1879, and was removed to New Britain, Conn., in 1880. Mr. E. W. Rice, Jr., now the President of the General Electric Company, accompanied him as assistant. In 1883 the modest works at New Britain were removed to Lynn, Mass., a Lynn syndicate having bought control. Here it was that the great development of the Thomson-Houston Electric Company began, due in large measure to the enterprise of its managing heads, chiefly Mr. C. A. Coffin, afterwards for many years President of the General Electric Company, and to the success of its engineering undertakings and achievements. During these pioneer years, Professor Thomson was electrician and chief engineer, and many of the fundamentally important inventions upon which the business was based were due to him.

In 1892 the Thomson-Houston Electric Company and the Edison General Electric Company were merged under the title of the General Electric Company, which now possesses huge works in Schenectady, N. Y.; at Lynn and Pittsfield, Mass.; at Harrison, N. J.; Fort Wayne, Ind.; Erie, Pa.; Cleveland, Ohio; together with offshoots in France, England, Germany, and other countries. In connection with

the newer problems arising in this great industry, the subject of our sketch is still actively engaged. As a record of his inventive work there are about six hundred patents in the United States alone, many of the inventions being of such importance that they have gone into extensive use in lighting, railways, power transmission, etc. The Thomson Electric Meter, as an example, which received first prize in a meter competition in Paris in 1890, is now numbered by millions in use. His pioneer discoveries and inventions in alternating currents are well known. It is not so well known that he is the inventor of the electric air drill as used to-day.

He was pioneer also in high frequency work, upon which in later years wireless methods have been based. He was the originator of the art of electric welding by the resistance method, a process which is being more and more extensively applied to metal manufactures, and which in fact is essential to many of them.

As a writer and lecturer on scientific and technical subjects, he has attained an exceptional standing for clearness of statement. This, together with his intimate knowledge of the electrical art, gives him unusual power as a witness in contested cases. His ripe experience is readily available to the younger men with whom he is associated. His attitude to people generally in need of information which he can give is that of the teacher, a generous giving out of the information he may possess being based on the desire that others may know and carry along that which he has acquired.

Professor Thomson, as was natural, has been the recipient of many honors. In 1889 he was decorated by the French Government for his electrical inventions, being made Chevalier et Officier de la Legion D'Honneur. He has received the honorary degree of A.M. from Yale (1890). Tufts College in 1892 gave him the degree of Ph.D., and in 1899 D.Sc. from Harvard. He has received the Rumford Medal, and was awarded the Grand Prix at the Paris Expositions of 1889 and 1900. He is Past President of the American Institute of Electrical Engineers; Member of the Institution of Civil Engineers, London; Fellow of the American Academy of Arts and Sciences, Boston; Member of American Philosophical Society, of the American Physical Society, Chemical Society and the National Academy of Sciences, and of many other societies here and abroad. He was official United States delegate to the Chamber of Delegates, Electrical Congress in Chicago in 1893. He was chosen President of the International Electrical Congress at St. Louis in 1904, and also President of the International Chamber of Official Delegates at said Congress. Also in 1904 he was elected Honorary Member of the Institution of Electrical Engineers of Great Britain, and in 1909 was chosen President of the International Electrotechnical Commission, the general meeting being in Turin, Italy, in 1911.

Professor Thomson was the first recipient of the Edison Medal, and more recently received the award of the Elliott Cresson Gold Medal by the Franklin Institute at Philadelphia, having before that twice received the John Scott Legacy Medal for electrical inventions.

In November of 1916, Professor Thomson was awarded the Hughes Medal by the Royal Society of Great Britain for Experimental Researches in Electricity; and in December, 1916, was presented with the John Fritz Medal, which was awarded in January of the same year.

Having been always interested in education, it may be added that he is now, and has been for many years, connected with the Managing Corporation of the Massachusetts Institute of Technology,

*and was acting President of the Institute from 1920 to 1922 inclusive.*

*Prof. Thomson was awarded the Kelvin medal for 1923 by a Board of Principal Engineers, Electrical Societies of Great Britain, in connection with their in the selection of the recipient of the medal.*