Silvanus Philipps Thompson, F.R.S.

The Noted Electrical Engineer and Physicist

By P. F. Mottelay

THE usual series of Christmas lectures at the Royal Institution of Great Britain has this year been delivered by Prof. S. P. Thompson, whose extended scientific investigations and discoveries have earned him a world-wide reputation. The subject which he has chosen for this year's lectures is that of "Sound, Musical and Non-Musical."

Prof. Thompson, of whom the accompanying original photograph was especially taken last month for this publication, is a native of York, where he was born, of Quaker parentage, June 19th, 1851. In 1881 he married Jane, eldest daughter of the late James Henderson, of Pollokshields, a lady of considerable musical and literary ability, who has in late years contributed many highly creditable articles to magazines mainly in the form of translations from the Italian and the German.

Silvanus Thompson was educated at the famous Friends' school in York, which he left in order to attend the Flounder's Institute, Pontefract; afterward he followed courses at the Royal School of Mines, and continued his studies at the University of Heidelberg. His extraordinary proficiency in learning and his indefatigable researches won him many notable distinctions at the very outset of his career, and the progress which he has made since he entered the field of electrical engineering, in which he has so markedly distinguished himself, is a record to be envied by many, but reached by only a few. He received from London University the degree of B.A. in 1869, B.Sc. in 1875, and D.Sc. three years later, and he has since been made an LL.D. at Birmingham, as well as an honorary M.D. of Koenigsberg. He is a fellow of the Royal Society, of the Royal Astronomical Society, and of other learned bodies, also member of the Royal Institution of Great Britain, of the Royal Academy of Sciences of Stockholm, and of the American Philosophical Society, and has been senator as well as examiner of London University, in the organization of which latter he took a very prominent part.

The extraordinary command of languages possessed by Prof. Thompson enabled him to personally deliver two admirable foreign lectures—one in Italian on "Magnetic Images and Their Application in the Theory of the Rotatory Field Motor," before the Volta Centenary Congress at Como, which he attended as a delegate in 1899, and the other in German on "Michael Faraday," before the Urania Society of Berlin, during January, 1901. In the month of June of the same year he delivered, at Oxford, the Boyle lecture on "Magnetism in Growth." Among his numerous other important papers should be singled out those forming the subject of the Cantor Lectures of 1883, 1890, and 1895. The first, it has been truly said, established his reputation of being a leader in the special study of the construction, theory and mode of working of electro-dynamic machinery. The second, in 1890, was on the electro-magnet, a subject to the study of which he had given much of the previous seven years, while the third, in 1895, was entirely devoted to the arc light. Other lectures worthy of particular notice are

those of 1887 and 1888 before the Institution of Electrical Engineers, one on his telephonic investigations, and the other on the influence machine; of 1898, on rotatory converters; of 1905, before the Society of Arts, on high speed electric machinery, with special reference to steam turbines, dynamos and alternators, and the first Kelvin lecture delivered at the Institution of Electrical Engineers during 1908. He has contributed many papers to the leading scientific publications, among the most important of these being a communication to the Physical Society, "On Physical Optics and on Geometrical Optics," and another to the Society of Arts, "On the Mercurial Air Pump."

He is the author of numerous valued works which have placed him foremost in the fields of both pure and applied science. He began in 1884 the publication of his treatise on "Dynamo-Electric Machinery," which is now in its eighth edition, and which has been translated into French and German. He published his book on "The Electro Magnet" (a greatly enlarged reprint of the 1890 Cantor lectures), of which there were French, German, and Russian editions. He rewrote and considerably enlarged his "Elementary Lessons in Electricity and Magnetism," which had run into 40,000 copies in eight

Reis," who invented a telephone, 1860-1863 (1883), "Michael Faraday—His Life and Work" (1893), and he is at present reaping the benefits of the three years he devoted to the preparation of "The Life of Lord Kelvin," which has just been issued through London publishers in two large attractive octavo volumes.

Dr. Thompson was one of the founders of the Gilbert Club, organized for the express purpose of rendering into English a work published in 1600 under the title *De Magnete*. He took a very prominent part in the translation, and published an admirable and very valuable series of notes thereon, following them up with numerous lectures on the life and work of the first electrician. To the above he added a translation of the 1269 *Epistola* of Petrus Peregrinus, which he had printed by the great Chiswick Press in right royal form for private distribution. In the preparation of the notes, the lectures and numerous articles on these early writers that followed, Prof. Thompson was very fortunate in commanding the resources of his profuse private library of electrical literature. His collection of early editions, known to the writer of the present article, is, without question, the largest in existence, far surpassing the Ronalds and the Latimer Clark libraries, not only in number and in separate issues, but in the excellence of the bindings.

The singular versatility of Dr. Thompson is evidenced by his admirable water colors of Alpine mountain glaciers and of Canadian scenery, as well as his sketches in black and white, his card illuminations, his etchings of portraits, among which is one which he prepared with his own hand for his work on Michael Faraday, and his rubrications of the 1269 Petrus Peregrinus translation.

The accompanying photograph is an excellent likeness of Professor Silvanus P. Thompson as he appears at the present day. As he stands before us, we find him to be a man of average height and of good build, well groomed, hale and hearty. His head, well poised upon strong shoulders, is tinged with gray. The brow is wide and the eyes are clear and well set, denoting quick, intelligent perception. In manner, he is alert, very genial, frank and open. His voice is sympathetic and very clear, while his enunciation is remarkably distinct. The general impression of his personality is very attractive. To this fact and to the peculiarly comprehensive manner in which his teachings are presented, may be attributed the wide popularity he enjoys among his students, as, indeed, he is highly esteemed by all those who have listened to any of the numerous addresses to which we have already made allusion. A great deal has been said, and deservedly, in praise of the careful, methodical preparation of his lectures, evidencing as they do laborious bibliographical

and statistical and experimental research. He is very patient, painstaking, anxious to develop the bent of his many students, and it has been truly said that, as a teacher and trainer of young men, more especially in electrical engineering, he is believed to have no superior throughout Great Britain.

Photograph by Hoppé.

PROF. SILVANUS PHILIPPS THOMPSON

years, and which appeared in French, German, Italian and Polish. In 1896 he issued the first edition of "Poly-phase Electric Currents and Motors" (second edition, 1899), which was translated into French and German, and during 1897 published a volume on "Light Visible and Invisible." He further wrote "The Life of Philip

The Southernmost Meteorological Station of the World

THE Bulletin of the Mount Weather Observatory publishes a report from Vice Consul-General C. L. Chandler, stationed at Buenos Aires, on the meteorological station of the Argentine government at Amond House, Laurie Island (Scotia Bay), in the South Orkney group of islands—the southernmost permanently inhabited spot in the entire world, situated in 60 deg. 40 min. south latitude, and 44 deg. 39 min. west longitude. The station was established by the Scottish Antarctic Expedition, headed by Dr. W. S. Bruce, on the 25th of March, 1903, and was taken over by the Argentine government on the 21st of February, 1904, since which date it has been administered by the Argentine Ministry of Agriculture, which maintains a staff of four men—three observers and a cook—at this isolated place, the nearest inhabited place to the south pole.

Although the South Orkneys were discovered by Powell in 1821, and visited by Weddell in 1823, Dumont d'Urville in 1838, and Larsen in 1893, they remained practically unknown until the return of Dr. Bruce's Antarctic expedition in 1904. The chief islands are Laurie and Coronation. Communication between the South Orkneys and the

outer world is maintained by an Argentine naval vessel, which, leaving Buenos Aires in January to relieve the staff at that lonely outpost, arrives there after a three weeks' voyage, in February, and after a short stay returns to Buenos Aires, arriving there in March. Stops are sometimes made at points of interest en route.

The Argentine meteorological service has also maintained, since 1906, a station at South Georgia island, and stations are contemplated on one of the Sandwich group, from which Filchner expects to make his advance into Weddell Sea next year, and at Wandel Island, in 65 deg. 4 min. south latitude, where the French expedition under Charcot wintered in 1904-5.

It is hoped that the results obtained by these stations will be of practical as well as scientific utility, in increasing our knowledge of the winds and storms around Cape Horn, and indicating the safest routes for mariners in that dangerous region.

The Physiology of Marching

THE reputation of Germany as a country where life is regulated as much as possible in accordance with the principles of science is borne out by the regulations of the German military authorities concerning the march-

ing and physical training of troops. The "physiology of marching" has been the subject of careful investigation, and the results obtained are taken advantage of for the benefit of the German army. Among the conclusions reached is that during continuous heavy marching the rations supplied are not sufficient to replace waste of carbohydrates, and that a day's rest is required after every three days' marching, to enable the body to recover its normal power.

Velocity of Meteors

AN amateur astronomer has devised a simple and ingenious method of measuring the velocity of meteors, or "shooting stars." He photographs the meteor through a wheel with alternate opaque and transparent sectors, which is mounted in front of the camera and turned, by an electric motor, at a rate of from 30 to 50 revolutions per minute. The velocity of the meteor at right angles to the line of sight can be calculated from the interrupted line which it traces on the photographic plate, when the speed of the wheel and the width of the sectors are known. This method takes no account of the obliquity of the meteor's paths and consequently gives merely its transverse, not its actual velocity.