

by Colonel Watson, R.E., on "Schools of Modern Oriental Studies"; by Mr. A. Montefiore Brice, on "The Results of the Jackson-Harmsworth Expedition"; a course of three lectures, by Dr. J. L. W. Thudichum, on "The Nature and Manufacture of Wine, with special reference to Colonial Wines"; by Mr. J. Norman Lockyer, C.B., F.R.S., on "How the British Empire aids in Solar Inquiries"; by Prof. W. E. Ayrton, F.R.S., on "Sixty Years of Submarine Telegraphy"; by Mr. Spencer Pickering, F.R.S., on "The Woburn Experimental Fruit Farm." These lectures are open to Fellows of the Institute, and to persons introduced by them.

We warmly congratulate the Executive Council on the new departures. The acknowledgment of the importance of science on the part of the Governing Body comes none too soon.

Much remains to be done in this direction before the Institute can be held to fill the place which many of its best wishers consider it ought to occupy.

FRANCOIS FELIX TISSERAND.

IT is impossible that we should have learnt the death of an astronomer so eminent as M. Tisserand, the Director of the Paris Observatory, without feelings of the deepest regret, yet its terrible suddenness lends an added note of pathos to the melancholy event. From the report of the Paris correspondent of the *Times*, it appears that on the evening of Monday, October 19, M. Tisserand was present at the dinner celebrating the signing of the marriage contract of the son of the late Admiral Mouchez. On the following morning, apparently without the slightest warning, M. Tisserand expired, the cause of death being congestion of the brain. Astronomy, not only in France, but wherever the science is studied, has thus sustained a tremendous and irreparable loss, and especially will sympathy be extended to the members of the staff of the Paris Observatory, who, twice within a few years, have been deprived of their chief.

François Felix Tisserand was born in the department of Côte d'Or on January 15, 1845. He entered the Normal School at Paris in 1863, and in 1868 gained his Doctorate in Science. Although elected an *agrégé* in 1866, he did not take up the duty of giving instruction, but joined the staff of the Imperial Observatory as assistant astronomer. In 1873, the astronomical service was reorganised by M. Le Verrier, and M. Tisserand was nominated Director of the Toulouse Observatory, and Professor of Astronomy in the Faculty of Sciences of the same town. Subsequently he became Professor of Theoretical Mechanics at Paris, but was transferred, in May 1883, to the chair of Mathematical Astronomy. In this year he began that series of lectures at the Sorbonne, the delivery of which has been attended with the happiest results, for these lectures, given first as the deputy, and subsequently as the successor to M. Puiseux, led eventually to the preparation of that great work with which M. Tisserand's name will ever be connected, the "*Traité de mécanique céleste*." Though engaged for some twenty years on this work, and necessarily much occupied with official duties, his energy was not exhausted, nor his services to science limited by this task, which few men could have undertaken and brought to a successful issue. In 1874, he accompanied M. Janssen to Japan for the purpose of observing the transit of Venus, and a few years later he was charged with the duty of completing Delaunay's "*Théorie de la Lune*." Some of the results of this close study of Delaunay's work are shown in the third volume of the "*Traité*," in the chapters entitled "*Réflexions sur la théorie de Delaunay*."

M. Tisserand's original memoirs and papers, the most important of which were contributed, though not exclusively, to the *Comptes rendus*, indicate a remarkable

activity, and even an exceptional versatility, if that be possible within the range of astronomical science. These papers are far too numerous to mention in detail, but among them are valuable contributions on the theory of interpolation, on problems presented by the minor planets and meteors, on observations of sun spots, &c. While at Toulouse, M. Tisserand made a collection of exercises in the infinitesimal calculus, which he published in 1876. But the subject with which M. Tisserand's name will always be associated is Celestial Mechanics. The first volume of his "*Traité de Mécanique céleste*" appeared in 1888; the fourth, which was understood to be the last, has very recently been placed in the hands of astronomers. This is not the place to attempt any analysis of that great work, of which perhaps it is not too much to say, that it will render a similar service to the astronomers of the next century, that the work of Laplace did to those of the last. Herein will be found a unique collection of methods, exhibiting great elegance in the mathematical formulæ, and everywhere enriched by critical and historical reference to the original work of other masters in particular departments. This work will always stand as a worthy monument to the memory of its author.

In 1892, on the death of Admiral Mouchez, M. Tisserand was selected to fill the position of Director of the Paris Observatory. This appointment carried with it, almost of necessity, that of the Presidency of the *Comité permanent*, to whom is entrusted the details connected with the preparation of the *Carte du Ciel*. How loyally he has struggled to give impetus to the scheme that his predecessor had so much at heart, is shown by the various reports which he has presented to the Council of the Observatory, and of which summaries have appeared from time to time in NATURE. Under his auspices, a bureau for the measurement of negatives has been established or extended, additional instruments have been provided for measurement, and energy and progress have everywhere marked his short rule. He has struggled manfully with the arrears of meridian observations, and had schemed a plan of publication reaching as far as 1899. While thoughtful of the necessities of the old astronomy, he has not been unmindful of the new, as the free hand given to M. Deslandres, and the work emanating from the spectroscopic department, abundantly prove. Cut off at the early age of fifty-one, and after so short an occupancy of the post of Director, he has perhaps not had full opportunity to declare his capacity in many directions, but he has done more than enough to justify his selection to the important post he filled, and to furnish a model to his successor. For he worthily upheld the traditions of the institution; and it is not saying too much, although it is saying a very great deal, when we affirm that he was a worthy successor in the line of illustrious astronomers who had preceded him in the control of the Paris Observatory. He had received an abundance of honours, too long to fully enumerate, for the scientific societies of all nations were proud to enrol him among the list of their honoured associates. He was decorated with the Legion of Honour in 1874, and four years later succeeded Le Verrier among the full members of the Academy. He was a member of the Bureau des Longitudes, and held other positions of dignity and credit. The St. Petersburg Academy voted him the *Prix Schubert*, and the Royal Astronomical Society elected him a Foreign Associate in 1881.

W. E. P.

DR. HENRY TRIMEN.

THE friends of Henry Trimen who saw him during his last visit to England—a twelvemonth ago last summer—would not be altogether unprepared for a serious turn in the malady, or rather maladies, from which he suffered; yet the news of his death on the