

THURSDAY, AUGUST 20, 1874

## SCIENTIFIC WORTHIES

IV.—JOHN TYNDALL

IN the valleys of Gloucestershire may still be seen a few clothiers' mills, the residue of a once extensive industry. Almost exactly two centuries ago some members of the Tyndall family inhabiting these valleys, and engaged for the most part in this industry, crossed over to the opposite coast of Ireland. This fact, the date of which is fixed by Mr. Greenfield, coupled with family tradition, points to the origin of Prof. Tyndall. In Ireland the Tyndalls fared variously, dividing themselves into magistrates, aldermen, medical men, farmers, and tradesmen. To the last, and indeed to the poorest of the last, Prof. Tyndall's father belonged. He was a man of singular force of intellect and independence of character, and he kept his son at school until his nineteenth year. In accordance with transmitted family habit, Prof. Tyndall, when young, was exercised in all the subtleties of the controversy between Protestantism and Catholicism. In 1839 he quitted school to join a division of the Ordnance Survey, with which he remained connected for nearly five years. His excellent chief, now his intimate friend, General George Wynne, R.E., gave him an opportunity of mastering all the details of the survey, in the office and in the field. For four years subsequently he was engaged on railway work; and while thus employed met Mr. Hirst, who is now the Director of Studies in the Royal Naval College, Greenwich, who afterwards joined him in Marburg, and with whom his relations are more those of a brother than a friend. In 1847, with a view to self-improvement, he accepted a post in Queenwood College, Hampshire, where Dr. Frankland was chemist; and in 1848 they went together to the University of Marburg, Hesse Cassel. Bunsen and others had rendered the little University celebrated; and to Bunsen, whose lectures he attended and in whose laboratory he worked, Prof. Tyndall owes obligations never to be forgotten. He found in Germany a second home. With Stegmann he studied mathematics; he heard Gerling lecture on physics, and subsequently Knoblauch, who, preceded by a distinguished reputation, and accompanied by a choice collection of instruments, came to Marburg as Extraordinary Professor when Tyndall was there. Prof. Knoblauch, in conjunction with whom Tyndall subsequently conducted various inquiries on diamagnetism, supports his old friend and pupil in Belfast; Wiedemann is also there, and Bunsen would have been there if he could. Tyndall subsequently worked in the laboratory of Prof. Magnus in Berlin. In 1851 he accompanied Prof. Huxley to the meeting of the British Association at Ipswich, and thus commenced a friendship which has never faltered to the present hour. Dr. Bence Jones heard of Tyndall in Berlin, and, always alert in the promotion of science and in aiding those who pursued it, had him invited in 1853 to give a Friday evening lecture at the Royal Institution. Soon afterwards, on the proposal of Faraday, Tyndall was appointed Professor of Physics in the Institution, where he still remains.

In 1852 he was one of the secretaries of the Physical

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Section of the British Association, which then met for the first time in Belfast. Its president was Col. Sabine, to whom Tyndall was indebted in those days for various acts of kindness and encouragement, and who took, unsolicited, charge of his candidature for the Royal Society. But Tyndall's earliest scientific memory happens to be associated with Belfast. In the school to which he was sent in his childhood three different arithmetical treatises were made use of, one written by Gough and another by Voster; but young Tyndall was the only boy in the school who could speak of his *Thomson*. The first germ of science was dropped into Prof. Tyndall's mind by the father of Sir William Thomson, who was then Professor of Mathematics in the Belfast Institution. He also remembers distinctly, many years afterwards, reading in a Glasgow magazine about Davy's experiments on Radiant Heat, and the longing which they excited in him to be able to do something of the kind. With the very apparatus there figured Prof. Tyndall now illustrates his own lectures. In the "Kildare Street Schools," to which he was sent when a little boy, he learned very little, being, indeed fonder of play than of school. His first serious application to study was under a clever teacher of a national school named John Conwill, with whom he mastered Euclid, some algebra, conic sections, and plane trigonometry. Prof. Tyndall is now about fifty-four years of age. He was born in 1820 in the village of Leighlin Bridge, County Carlow, situated on the Barrow, but a fragment of which only now remains. When a boy he was expert at climbing trees; he was a good swimmer, a good runner, and though not unfrequently thrashed by an antagonist, a fair fighter. His first mountain experience was among the hills of Westmoreland eight-and-twenty years ago; his first visit to the Alps was in 1849; his second visit, in company with the present President of the Royal Society and Prof. Huxley, was in 1856; and he has continued to visit them every year since. In 1859, having paid his summer visit, he reached the Montanvert at the end of December and determined the winter motion of the Mer de Glace. At the Bel Alp, this year, he prepared his address to the British Association.

That our readers may have the opportunity of knowing the opinion of an eminent continental physicist as to the importance of good popular expositions of scientific subjects, and as to the special talent which Prof. Tyndall has shown in this direction, we give some extracts from a preface to the recently published German translation of Tyndall's "Fragments of Science," which the writer, Professor Helmholtz, has been good enough to revise and send to us for that purpose.

The awakening desire for scientific instruction, ever finding new expression among the educated classes of all European countries, we must consider not merely as a striving after new forms of amusement, or a mere empty and barren curiosity; it is rather a well-justified intellectual necessity, and is in close connection with the most important springs of mental development in these times. The natural sciences have become a powerful influence in the formation of the social, industrial, and political life of civilised nations, not only from the fact that the great forces of nature have been subordinated to the aims of man, and have supplied him

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