

at the University of London in 1879 he was nominated C.B.

It is impossible to do justice to Dr. Carpenter's character as a scientific man in a few lines: here no attempt has been made to do more than indicate in subjects like chronological order and connection of subjects the vast amount of work which he accomplished.

Upon the present writer, whose father was his fellow-student at University College, and who has enjoyed since boyhood the privilege of his friendship, Dr. Carpenter always produced the most vivid impression of a man of indomitable energy, who had accepted as the highest duty and keenest delight of his life, the promotion, whether by advocacy or by research, of true knowledge. The tenacity and vigour with which he was wont to expound his views on such matters of research as at the time occupied his thoughts, and the importance and respect which he assigned to all genuine research, were evidences of an earnest and just nature which evoked sympathy and esteem in all men of kindred pursuits.

In reference to Dr. Carpenter's private life and tastes, the following extract from a weekly contemporary states, with the authority of a member of his own family, what might, in its absence, have been here less completely indicated. The journal to which we are thus indebted is an organ of the Unitarian Church, of which body Dr. Carpenter was, throughout life, an active and orthodox member, a fact which may or may not be brought into connection with the fact of his incomplete acceptance of the leading doctrines of Darwinism, though the latter would by no means necessarily follow from the former.

"He was well versed in literature, and turned for refreshment in hours of weariness to his favourite Scott. Political memoirs of his own time were read with the keenest relish, for he had early learned from his father, Dr. Lant Carpenter, to take a high view of a citizen's obligations, and the Bristol riots, which he had witnessed, made a life-long impression upon him. A brief sojourn in Italy called forth a susceptibility to the enjoyment of art, which was a surprise even to himself; and in music, from the time that he had taught himself as a young man to play on the organ, he found unending recreation. Nature, likewise, in her vaster as well as her microscopic forms, was for him full of charm and delight, and from every excursion he carried back memories which remained singularly vivid and distinct. In society his immense stores of information, his sympathetic interest in others, his thorough enjoyment of humour though he felt unable to originate it, made him a genial and ever-welcome companion, while his friends learned how strong a confidence might be placed in his faithfulness. Many young men found unexpected help and encouragement in him, and he rejoiced when he could open a way to those who were involved in the struggles through which he had himself once passed. The dominant conception of his life—as was fitting in one of Puritan descent—was that of duty. And if this sometimes took austere forms, and led him to frame expectations which others could not always satisfy, an enlarging experience mellowed his judgment and enabled him to apprehend their position from their point as well as his own. Released from the pressure and strain of earlier life, he was able to give freer play to his rich affections; and in his own family they only know what they have lost who will never again on earth feel his support as husband and father, brother, and friend."

E. RAY LANKESTER

WALTER FLIGHT, D.Sc., F.R.S.

THE close of this year has witnessed the termination of another bright and promising life, ended all too soon for the hopes and expectations of his many friends.

Walter Flight was the son of William P. Flight, of

Winchester, in which city he was born on January 21, 1841. He was sent, after a period of pupilage at home, to Queenwood College, Hampshire, in the days when George Edmondson was head master, and Tyndall and Debus were the teachers of science. From Queenwood he went to the University of Halle, where, in the laboratory of Prof. Heintz, he pursued his chemical studies during the winter session of 1863-64. During 1864 and 1865 he entered the University of Heidelberg, where, in the laboratories of the celebrated Profs. Bunsen, Kopp, and Kirchhoff, he applied himself early to acquire that thorough knowledge of the various branches of theoretical and practical chemistry, and that marked facility for overcoming experimental difficulties which characterise the practised and careful worker. From Heidelberg Flight passed to the University of Berlin, where he remained until 1867, studying and working in Prof. Hofmann's laboratory, and for a time filling the office of his Secretary and Chemical Assistant.

Returning to England in 1867, he graduated D.Sc. in the University of London, and in the following year was appointed by the Senate to the office of Assistant Examiner under Prof. Debus (his former teacher at Queenwood). On September 5, 1867, Dr. Flight was appointed an Assistant in the Mineralogical Department of the British Museum. Here, under the direction of Prof. Maskelyne, the Keeper of Mineralogy, he commenced a series of researches into the chemical composition of the mineral constituents of meteorites and the occluded gases they contain. Many of the methods by which he carried out these investigations were originated by him in the course of the research, and displayed in a remarkable degree his skill and ingenuity in chemical manipulation.

He was shortly after this date appointed Examiner in Chemistry and Physics at the Royal Military Academy, Woolwich, and in 1876 Examiner to the Royal Military Academy, Cheltenham.

For several years Dr. Flight served on the Luminous Meteors Committee of the British Association, to which he lent much valuable assistance.

Between the years 1864 and 1883 he was author of twenty-one original papers, including "A Chapter in the History of Meteorites," which appeared in a succession of twenty-three articles in the *Geological Magazine* in 1875, 1882, and 1883. He was also joint author or contributor of results to many other papers, chiefly on the chemical composition of minerals. His important memoir on the Cranbourne, Rowton, and Middlesbrough meteorites was read before the Royal Society in 1882, and he was elected a Fellow in the following year.

In 1884 he was seized by illness which prostrated his mental powers, and rendered it needful for him to resign his appointment in the British Museum in June last, and notwithstanding every care which medical skill or affection of friends could devise, he succumbed on November 4, leaving a wife and three young children to deplore his early loss.

#### ON RADIATION OF HEAT FROM THE SAME SURFACE AT DIFFERENT TEMPERATURES

FOR some time past I have been engaged in experimenting on the radiation of heat from the surfaces of wires in air and in vacuum, and I have obtained results which have been partially communicated in papers to the Royal Society (1884) and to the British Association at its last two meetings. I am at present preparing to publish further determinations of emissivities in absolute measure. In the meantime, however, I have obtained a result of some importance which may be of interest to the readers of NATURE.

Stefan has given a law, which is well known, as to the