

a disastrous effect on human tissue. But the conditions of danger and the means of avoiding them were gradually ascertained, and recently, thanks to the recent work of the X-ray and Radium Protection Committee, under the chairmanship of Sir Humphry Rolleston, president of the Royal College of Physicians, the necessary precautions have been widely circulated. In the light of a fuller knowledge the destructive effect of the rays has been turned to account by taking advantage of their selective action when applied to superficial and deep-seated growths in the tissue.

The X-rays have also found extensive industrial application to detect flaws and impurities, and in many other directions.

As already mentioned, the X-rays have proved of the greatest importance in recent developments of fundamental physics. We owe to them Moseley's arrangement of the elements in the order of their atomic numbers, a quantity determined by the atomic nucleus. The wonderful results of Sir William Bragg and his son on crystalline structure rest wholly on X-ray measurements. Much of the work which under Sir J. J. Thomson and Sir Ernest Rutherford has made the Cavendish Laboratory world-famous has dealt with X-ray and kindred phenomena.

At the close of Röntgen's life, we may well pause to survey the goodly harvest that science has reaped from the event with which his name will be for ever associated. Hard on the heels of his discovery came that of the electron by J. J. Thomson and of radioactivity by Becquerel. The new chapter of physics which was thus unfolded has already had the most profound effect on everyday life. G. W. C. K.

MR. BERNARD BOSANQUET.

MR. BERNARD BOSANQUET, who died on February 8, after a short illness at his home at Hampstead, to which he had moved a few months ago, has occupied for more than a generation a foremost place in English intellectual life. For the last ten years his health has required him to refuse public engagements, but he continued to be as assiduous in literary productions as during any period of his active life. He was at work till the end, and we are told that he left an uncompleted book on his desk, of which, however, three chapters are finished. The intended title was "What is Mind?" He was an ardent philosopher, who cared little for the brilliance of a speculation and nothing whatever for originality or ownership of ideas, but sought the truth concerning human life and the meaning of experience with an earnestness which seemed like the devotion of a religious mission.

Born in 1848, Mr. Bosanquet was educated at Harrow and at Balliol College, Oxford, and after graduating spent ten years at Oxford as fellow and tutor of University College. In 1881 he came to London and threw himself ardently into the work of the Charity Organisation Society and the Ethical Society, and also lectured on ancient and modern philosophy for the University Extension centres in London.

His "Logic, or Morphology of Knowledge" is a classic. It was published in 1888, and carried out with systematic thoroughness the new principle of an inner activity of thought which had already found expression

in Mr. F. H. Bradley's polemic against the formalism and associationism of the empirical school. The next large work was "A History of Æsthetic" in 1892. In 1912-1913 were published the two volumes of Gifford Lectures, the first on "The Principle of Individuality and Value," the second on "The Value and Destiny of the Individual." It was in these lectures that he worked out his philosophical theory of the meaning of life. "This universe," he said, borrowing a phrase from Keats, "is the vale of soul-making." These volumes constitute one of the profoundest works of pure philosophy of the modern period.

Mr. Bosanquet was a man of great personal charm. Dialectic, in the Socratic meaning, was the joy of life to him, but he was always sympathetic to the opposer, genuinely eager to understand his point of view, and always anxious to appreciate its value. Yet no one was firmer or more tenacious in argument. He never expounded any theory or defended any position unless his whole heart was in it, and unless he was convinced of its truth.

Mr. Bosanquet kept himself fully abreast of all the intellectual movements of his time. He was thoroughly acquainted with the philosophical thought of Germany, and he was deeply interested in the new movement in Italian philosophy, the idealisms of Croce and Gentile, though dissenting from them on essential points. His knowledge of Italian was thorough, and only a few months ago he contributed an article in Italian to Prof. Gentile's *Giornale critico*. He was not attracted by the modern French philosophy, which he could never come to regard as other than superficial. The reason for this, no doubt, was that the approach to philosophy through the problems of science, the fundamental questions of mathematics, physics and physiology, which is especially distinctive of French philosophy, seemed to him less important and less compelling than the ethical approach.

Besides the important works mentioned, Mr. Bosanquet wrote numerous smaller books, many of striking originality and value; of these we may mention "The Philosophical Theory of the State" and two quite recent books, "The Meeting of Extremes in Contemporary Philosophy," 1921, and "Implication and Linear Inference," 1920.

For five years, 1903-1908, Mr. Bosanquet was professor of moral philosophy at St. Andrews. He was an original fellow of the British Academy, and was president of the Aristotelian Society from 1894 to 1898. He received the honorary degree of LL.D. from the University of Glasgow, and of D.C.L. from the University of Durham.

Mr. Bosanquet married, in 1895, Miss Helen Dendy, a sister of Prof. Arthur Dendy, of King's College, London. Mrs. Bosanquet served on the Royal Commission of Inquiry into the Poor Law. She is the translator of Sigwart's "Logic" and the author of several books on social and economical questions.

DR. A. H. FISON.

THE staff of Guy's had subscribed money for a wireless installation to illustrate Dr. Alfred Henry Fison's lectures, and for the use of the hospital in other ways. On February 1, when on the roof by himself, attaching

an aerial, Dr. Fison fell through a skylight to the floor below. Three days later he died without regaining consciousness.

Dr. Fison's life-story is that of a teacher whose enjoyment in knowing was so vivid that no delight could equal that of passing his knowledge on. In his earlier life he had for twenty years lectured for the Oxford University Extension Delegacy; and this is a school in which the spirit of enthusiasm for knowledge is engendered. If an extension lecturer be not in complete sympathy with his audience, if he has not the instinct for detecting want of harmony between his mind and theirs, his lectures are a failure; his thought-waves must be of the length for which his auditors' receivers are tuned.

From 1912 until his death Dr. Fison was Secretary to the Gilchrist Trust. Each year in the spring he visited various parts of Britain to inspire enthusiasm and to organise local arrangements; in the autumn and winter to deliver lectures. His efforts to fill successfully the gaps caused by death in the Gilchrist staff discovered to him how very rare are the men who have the gift which he possessed of securing in their first few sentences the complete confidence of their audiences and retaining their strained attention for eighty or ninety minutes—halls crammed with people of all sorts and conditions, from the clergy, doctors, and schoolmasters of the town to miners and mill-hands—sending them away with the feeling that the evening which had closed a long day's work had altered their views of the world and had, at the same time, entertained them hugely.

In 1906 Dr. Fison was appointed lecturer in physics to Guy's Hospital, and somewhat later to the London Hospital also. Although his teaching work was elementary, he held that no teacher can be efficient who does not follow the most recent developments of his subject. He was a sound scholar—in the sense in which the expression is used by students of the humanities who are disposed to arrogate it to themselves. The very large gathering of students at the memorial service in the Chapel of Guy's was a measure of his success. Shortly before the accident brought his activities to a sudden close he talked to the writer of these notes of his plans for an early retirement and the devotion of his remaining days to investigations for which his duties as a teacher had left him but scanty leisure, and the publication of his reflections—his bent was ever towards philosophy—upon various aspects presented by the problems of physical science. His best-known contributions are "Recent Advances in Astronomy" (1898) and "A Textbook of Practical Physics" (1911, rewritten 1922).

MR. RAWDON LEVETT.

THE death at Colwyn Bay on February 1 of Mr. Rawdon Levett, at seventy-eight years of age, will be regretted by none more than by the members of the Mathematical Association, of which, under its old name of the Association for the Improvement of Geometrical Teaching, he was one of the original founders. From his pen, in *NATURE*, of December 29, 1870, p. 169, first came the suggestion that such an Association should be formed, and the first conference was held at University College,

London, on January 17, 1871. Levett possessed much more than the driving power and organising capacity which made him so successful a secretary in the first twelve years of the Association. Unlike most of his contemporaries he had familiarised himself with the continental text-books and with the methodology of his subject as taught in France, Germany, and Italy. The ideas of non-Euclidean geometry found in him an apt exponent to any who cared in those days to listen to him, and in the revolution that was to come in the fields of geometry and analysis he played for a time a prominent part. His "Elements of Trigonometry," which he brought out in collaboration with Dr. Davison in 1892, shows how much he had been influenced by De Morgan, by Cauchy and the continental school, and by Chrystal—and in that case the influence had been reciprocal.

The name of Canon J. M. Wilson has stood for half a century with that of Rawdon Levett on the list of officers or of vice-presidents of their Association. Both were at St. John's; Wilson was Senior in 1859; Levett was 11th Wrangler in 1865 (Rayleigh's year). Both were schoolmasters, Wilson in those days at Rugby, and Levett at King Edward's School, Birmingham. Both have retained their interest in the work of the Association, though ill-health had for many years past prevented Levett from taking any active part in its later history. The interests of neither were restricted to the sphere in which their academic honours were won.

Levett was a man of wide reading and general culture. By many his name was probably seen for the first time on the dedicatory page of "John Inglesant"—"I dedicate this volume to you that I may have an opportunity of calling myself your friend." The spiritual kinship that knit together men like Levett and Short-house indicates but one of the intellectual influences that brought to the Birmingham schoolmaster intimate relations with a wide circle of men who appreciated to the full his noble character, rare judgment, and fine literary instinct. Birmingham was the poorer by his loss when the shadow of the White Scourge fell upon him in 1903, and he retired to his Welsh home at Colwyn Bay. Now he is gone, and the only founders left are Canon Wilson, Mr. A. A. Bourne, Sir Thomas Muir, the Rev. E. F. M. MacCarthy (secretary for seven years), and the Rev. W. H. Laverty. W. J. G.

PROF. GASTON BONNIER.

WE regret to announce the recent death at Paris of Prof. Gaston Bonnier, professor of botany at the Sorbonne, member of the Institute (Académie des Sciences), of the Academy of Agriculture and the Council of the University of Paris, Officier de la Légion d'Honneur, foreign member of the Linnæan Society of London, and member of many other scientific bodies.

Prof. Bonnier was the president of the Société Botanique de France, and editor of the *Revue générale de Botanique*, founded by him in 1889. Among his numerous botanical publications that have become classic may be particularly mentioned his "Cours de botanique," "Géographie botanique et la botanique descriptive," "Flore complète de la France," "Nouvelle Flore des environs de Paris," and "Flore du nord