his contemporaries dropped out and passed away; declining health seemed to him as due to lack of resolution. He was an enthusiastic gardener, and when well past his ninetieth birthday engaged in all the manual toil incidental to the care of a large garden; after this work had become too heavy he took his exercise by walking, and, in fact, his last illness resulted from a collision with a cyclist. His memory of long-past events was remarkably clear until quite recently, but he sometimes forgot that others could not reach so far back into the past; a few months ago, whilst still in full mental vigour, he expressed surprise that I had not noticed the splendour of Donati's comet—in 1858.

Liveing shirked publicity and rarely spoke in the Senate House because, as he said, he feared being betrayed by provocation into expressing his views—formed with care and then held tenaciously—in terms which might flavour of exaggeration. But whilst others wrangled, Liveing worked, and he will be remembered as the last of that small band of Victorians who possessed themselves of a secluded and conservative institution with splendid traditions and passed it to their successors as a great modern University. A further reason for the rarity of his public utterances lay in the meticulous conscientiousness with which he carried out any duty undertaken; he attended every meeting of the numerous committees and councils of which he was a member, and the sheer labour which he devoted to the study of the questions concerned left him with little leisure or desire to influence others by the spoken word. But the counsels of one so wise, so prudent and so experienced were often sought and were always given in careful and measured terms. With the death of Prof. Liveing, the University has lost one of its most devoted servants, science has lost a pioneer whose early work will long serve as a starting-point for fresh advances, and a great gentleman has passed away.

W. J. POPE.

MR. W. WHITAKER, F.R.S.

THE death of William Whitaker on January 15, though for some weeks it had been clearly imminent, will be felt none the less as a deep personal bereavement by his many friends. The picturesque figure so familiar at the meetings of the British Association, the alertness in body and mind, even after fourscore years and more had laid their burden upon him, but, above all, the geniality which endeared him to all he met, will long be remembered. As a geologist he was a pioneer in the elucidation of the Tertiary strata and the superficial deposits of the south and south-east of England, second only to Prestwick in that branch of the science.

Born in London on May 4, 1836, Whitaker was educated at St. Albans Grammar School and University College, London. At the age of twenty-one he was appointed to the Geological Survey, and continued in that service until 1896. His work lay almost wholly in the London Basin and in the neighbouring counties. The original one-inch geological maps were largely the work of his hands, but he was indefatigable also in collecting records of artificial sections, wells, boreholes, and the other openings which abound in and around London. His labours culminated in the production of the Geological Survey Memoirs on "The London Basin," "The Geology of London and Part of the Thames Valley," and other smaller works. These volumes form standard works of reference and provide the basis on which much of the later literature is founded.

Among other records collected by Whitaker were those relating to the first deep borings that reached Palæozoic rocks under the Tertiary and Secondary strata of the south of England. By their aid he was enabled to trace variations in the development of these strata and to sketch broadly the form of the Palæozoic floor and the distribution of the rocks forming it. The possible existence and situation of concealed coal-fields had come up for consideration, and so long ago as 1889 he wrote "that Coal Measures are likely to occur somewhere along the line of the Thames Valley, or in neighbouring tracts. . . . It is rash to attempt to foretell the future; but it seems to me that the day will come when coal will be worked in the south-east of England" ("Geology of London and Part of the Thames Valley," p. 46).

Whitaker retired from his official post at the age of sixty, in order to pursue economic geology. As a consulting geologist on sanitation generally, and on questions of water-supply especially, he attained a high reputation. But he still took pleasure in rendering service to the Geological Survey. A long series of memoirs on county water supplies from underground sources testifies to the diligence with which he collected records of wells and springs, and to the skill with which he interpreted them. This work he continued almost up to the last.

The history of the literature of geology occupied much of Whitaker's spare time. For some years he made "The Geological Record" his especial care, and he also compiled many lists of geological books and papers relating to counties, a task that might have proved tedious to one of less pronounced bibliographical tastes. Though much of his work was of this more or less statistical character, there stands to his credit a great record of original research. In addition to the many official memoirs of which he was author or part-author, his papers on Subaerial Denudation, on the Chesil Beach, and on Water Supply from the Chalk may be selected for mention. He was not given, however, to theorising and was never drawn into controversy.

The high esteem in which Whitaker was held by his fellow-workers is shown by the offices he was called upon to fill and the honours he received. Elected to the Geological Society in 1859, he served on the Council in 1873 and many years after, as president in 1898–1900, and as vice-president, 1901–2. In 1886 he was awarded the Murchison Medal, and in 1906 was the second recipient of the lately founded Prestwick Medal, a particularly appropriate recognition of his work in the field in which the founder of the medal had laboured. In 1923 he received the Wollaston Medal, the blue ribbon of British geology. He was elected to the Royal Society in 1887, and served on the Council in 1907–9. He presided over Section C of the British Association at Ipswich in 1895 and gave an illuminating address on the underground geology of that part of England. He was president also of the

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Geologists' Association and of other societies. At the time of his death he was an honorary member of the Geologists' Association, of the Geological Societies of Liverpool, Manchester, and Yorkshire, of the Philosophical Society of York, of the Belgian Society of Geology, and correspondent of the Academy of Natural Science of Philadelphia.

Whitaker made many a friend, but never an enemy. Indeed, it is impossible to suppose that with so kindly a nature he could speak an unkind word. To the younger generations of geologists he never failed to lay open his stores of knowledge, or to impart the enthusiasm with which he had himself been inspired. The attainment of the truth was the dominant motive with him, and it gave him as much pleasure that it should be attained by others as by himself. Unselfishness, transparent honesty, and kindliness were the conspicuous features of his truly lovable character.

A. STRAHAN.

THE death on October 29 of Dr. Ernst König, of the famous dyeworks at Höchst-am-Main (formerly Meister, Lucius, and Brüning) at the early age of fifty-five, is recorded by the *Chemiker-Zeitung*. König's reputation rests securely upon his well-known researches in the field of photochemistry. Born at Flensburg in Schleswig, he graduated at the University of Leipzig, where for a very brief period he acted as assistant to Prof. Stohmann. In 1893 he entered the service of the dyeworks at Höchst, where he eventually attained a position of the highest responsibility. At first he undertook the investigation of new coal-tar colours, but his chief interest lay in their application to photographic processes. In 1902 a photographic department of the works was formed under his direction, and two years later a new kind of three-colour collodion process, the *pinachrome* process, was invented. This was followed by the application of dyes to chromate-gelatin emulsions and the development of the *pinatype* process. He also devoted much attention to the production of various light-filters and desensitisers. One of the most important of his discoveries was that of the panchromatic plate. The problem of extending the region of sensitiveness of the emulsion beyond the yellow into the red and even far down into the infra-red region was solved by employing as sensitisers derivatives of quinoline, containing auxochromic groups in the benzene nucleus. König was also the author of numerous scientific papers and books on photographic subjects.

WE regret to announce the following deaths:

Mr. G. Abbott, well known for his geological studies, and one of the founders of the South Eastern Union of Scientific Societies, on January 12, aged eighty.

Right Rev. L. C. Casartelli, Roman Catholic Bishop of Salford, and formerly president of the Manchester Egyptian Association, of the Manchester Egyptian and Oriental Society, and of the Manchester Statistical Society, and the author of numerous papers in oriental journals and in the proceedings of the Manchester Statistical and Geographical Societies, on January 18, aged seventy-two.

Dr. Clement Dukes, for thirty-seven years physician to Rugby School, and author of "Essentials of School Diet" and "School Health," on January 18, aged seventy-nine.

Dr. J. McT. E. McTaggart, fellow of Trinity College, Cambridge, since 1891, and the author of "The Nature of Existence," on January 18, aged fifty-eight.

Dr. Julius Morgenroth, a professor at the Robert Koch Institute for the study of infectious diseases in Berlin, and a former student and colleague of Paul Ehrlich, known for his work on immunity, on December 20, 1924, at the age of fifty-three.

Current Topics and Events.

GREAT encouragement for industrial research is contained in a notification just made to the chairman of the British Cotton Industry Research Association to the effect that 65,000*l.* is to be received by the Association as an addition to its present income—most welcome aid towards the maintenance of the laboratories at the Shirley Institute, Didsbury. The trustees of the Cotton Trade War Memorial Fund, acting on a recommendation from the Cotton Reconstruction Board, have decided, subject to the approval of the Board of Trade, to make this grant in instalments, 5000*l.* for the year ending June 30, 1926, and 20,000*l.* for each of the three years ending June 30, 1927, 1928, and 1929. Some four years ago the Cotton Reconstruction Board made a grant to the British Cotton Industry Research Association of 200,000*l.*, a sum from which a large part of its income has ever since been derived, and the fact that the trustees have now decided to continue their help shows their great confidence in the ultimate benefits that will accrue to the cotton trade as the result of scientific research. Nothing could more strongly signalise the value of science to the industry than a gift such as this; and their appreciation of what they describe as "the good work being carried out by the Shirley Institute" is bound to encourage not only the staff there but industrial research workers throughout Great Britain. Further, they feel that this work should be made even more widely known to the trade and to the workpeople themselves, showing that the real importance of applied science is now being more fully realised. Thus the labours of chemists, physicists, botanists, and engineers on the fundamental problems presented by cotton are being justified.

THE Dominion of Canada, which extends in an irregular way on a 3000-mile base line, with a scattered population and cities widely separated, will benefit largely by radio communication. In accordance with the agreement made between the Marconi Co. and the British Post Office, the Canadian Marconi Co. has begun to construct a "beam" station in Canada for communication with the stations which the Marconi Co. is to erect in England. The transmitting station is being erected at Drummondville, 50 miles east of Montreal, where the main office is situated, and the receiving station is at Yamachiche, which is about the same distance from headquarters. Both sections

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