

the least term, and neglect the divergent part. He had the happy knack of discovering the form of 'converging factors', which, when multiplied by the least term, gave the effect of the divergent terms; in this way he was usually able to double the number of decimals that could otherwise be obtained.

Another phase of Airey's activity was his association with the production of the *Philosophical Magazine*, which goes back many years. In 1933 his name first appeared on the journal as a joint editor, and from that date onwards he read and passed for press every article. Although not a frequent contributor in recent years, his last task was the reading and correction of an article by himself, which will appear in a future number.

Airey was a fellow of the Royal Astronomical Society, the Physical Society and the Edinburgh Mathematical Society. He will be remembered as an inspiring colleague, and a friend who was always generous with his help. He is survived by a widow and a daughter.

L. J. COMRIE.

Mr. W. B. Ferguson, K.C.

WILLIAM BATES FERGUSON, who died on Thursday, October 7, in his eighty-fifth year, was educated at Manchester Grammar School and Merton College, Oxford, where in 1874 he graduated with first-class honours in natural science. At this time it was apparently his intention to enter the medical profession, but after another year or two engaged in study and lecturing, during which he became one of the original fellows of the newly founded Institute of Chemistry, he qualified for the Bar, to which he was called in 1882. He practised for some eighteen years and took silk in 1900, but then on urgent medical advice had to give up his profession and retire for several years to Arosa in Switzerland.

Ferguson was already keenly interested in photography, and having become a member of the Royal Photographic Society in 1895, was elected a fellow in 1900, in which year he published a paper on toning prints and slides with copper compounds. While at Arosa, in collaboration with B. F. Howard, he studied the influence of temperature on the rate of development of dry plates and devised his time-temperature system of compensating therefor, which has proved of permanent value. He was a close student of Hurter and Driffield's epoch-making researches, and the design of photometers for the measurement of photographic densities became one of his hobbies. His outstanding contribution to photographic science was undoubtedly the Hurter and Driffield memorial volume, in which he not only collected together in conveniently accessible form all their important papers, but also gave us the results of a painstaking study of their apparatus, laboratory notebooks and correspondence, a labour of love which occupied him for fully two years.

Ferguson's striking figure and charm of manner will not soon be forgotten by members of the Royal Photographic Society, and many are indebted to him for his unflinching interest and kindly encouragement in their work. Although repeatedly invited to become

its president, his precarious health always compelled him to decline, but on the Council and in numerous committees he served the best interests of the Society for many years. He was awarded the Society's honorary fellowship and the Progress Medal in 1914, the Hurter and Driffield Memorial Medal in 1918 and the Davanne Medal of the Société Française de Photographie in 1925, in recognition of his scientific work, and was throughout its existence a vice-president of the British Photographic Research Association. All who knew him will mourn the loss of a good friend and an outstanding personality, and will deeply sympathize with his wife and family in their sorrow.

F. F. R.

Dr. Carl Spengler

By the death on September 16 of Dr. Carl Spengler in his seventy-seventh year, one of the pioneers of tuberculosis research and treatment has passed away. He lived and died at Davos, and was one of those who made Davos the first, and for a time the chief, centre for the Alpine treatment of pulmonary tuberculosis.

Carl Spengler studied medicine at Heidelberg and Zurich, afterwards worked at bacteriology under Profs. von Stilling and de Bary, and from 1886 until 1889 was assistant physician in the University of Strassburg. He then returned to Davos in order to specialize on tuberculosis, and his work attracted the attention of Robert Koch, with whom he collaborated for a time, originating the preparation of tuberculins from the bovine type of bacillus, and devising the method of administering tuberculins now in general use. He also devised a special technique for demonstrating the tubercle bacillus, which still remains one of the best of the staining methods, and described the presence in tuberculous materials of spheroidal bodies derived from the tubercle bacillus, which he termed 'splitter' bodies, and the appearance of which he regarded as being of favourable import as indicating disintegration of the tubercle bacilli.

In addition to developing the climatic and open-air treatment of tuberculosis, Spengler also sought to discover an agent which would exert a curative action upon tuberculosis by the possession of lytic and antitoxic properties towards the tubercle bacillus. This he claimed to have done, and evolved his *I.K.* (= *Immun Körper*) treatment for the disease. He believed that the red blood corpuscles (and not the serum) of a specially immunized animal carry the bulk of the immunizing substances, and devised his *I.K.* remedy for treatment, which consists essentially of a solution of the anti-tuberculous immunizing bodies derived from the red blood corpuscles of a treated animal. He also applied the same methods in the treatment of other diseases, and during his last years devoted much time to research on cancer.

R. T. HEWLETT.

We regret to announce the death of the Right Hon. Sir Herbert Maxwell, Bt., K.T., F.R.S., chairman of the Royal Commission on Ancient Monuments (Scotland) in 1908-34, on October 30, aged ninety-two years.