with an Eton scholarship thrown open on this occasion. In 1885 he was Third Wrangler in Parts 1 and 2 of the Mathematical Tripos, and he was placed in Division I of Part 3 of the same Tripos six months later. He was elected a fellow of King's in 1888, and remained a fellow for the rest of his life. He was lecturer in mathematics at King's from 1891 until 1927, and University lecturer at Cambridge during 1901-19 and again during 1926-28. He was elected a fellow of the Royal Society in 1911. He was president of the London Mathematical Society for 1920-22, and he received the honorary degree of LL.D. from St. Andrews in 1923.

Richmond's mathematical interests lay chiefly in the fields of pure and algebraic geometry. He has left it on record that the side of geometry that appealed to him and fascinated him, in his undergraduate days and later, was the algebraic geometry of Steiner, Hesse, Cayley and Salmon—the geometry of cubic and quartic curves and surfaces worked out by methods of elementary algebra. This (he went on) was not exhausted, but was largely worked out, as he discovered when he went on to research, although a new field of research was opened up in geometry of four dimensions. Richmond's skill lay in the discovery of relations between apparently dissimilar groups of theorems, and his papers achieved much with notable economy of effort. He never failed to be interested in chains of theorems in plane geometry; but he also took pleasure in deducing theorems in the theory of numbers by geometrical methods. He was wont to consider the modern pure mathematician's restriction of interest to the *positive* integers as artificial and as reducing the geometrical implications of such theorems as Waring's. He continued his output of original work up to shortly before his death.

Richmond had a deep love for music—he devoted himself to this for a period after taking his degree. He also took a keen delight in all living creatures, and he was no mean naturalist. In his earlier days he went regularly to the Orkneys and Shetlands to photograph sea-birds and their nests. He had served on the Committee for Wicken Fen. But no bare record of his interests and achievements can do justice to the true qualities of the man. He had a rare genius for friendships with men of all generations, and in spite of his shyness he made a point of being helpful to men who came up from the lesser known schools without friends or influence. His modesty was terrific—that adjective alone fits. One recalls also his engaging humour, his humanity and his impatience with anything pretentious or shoddy. It was lovely to know him. His death robs Cambridge of a retiring but much-loved character.

E. A. MILNE

Prof. P. A. C. Dangeard

PIERRE AUGUSTIN CLEMENT DANGEARD was born at Ségrie-Vernie (Sarthe) on November 23, 1862. The son of a peasant stock, from which he doubtless inherited his individualism and determination, he entered l'Ecole Normale Primaire d'Alençon in 1878, becoming a school-teacher three years later. In 1883, his botanical aptitude having attracted the attention of Morière, then professor of botany at Caen, he was appointed demonstrator there, and lecturer in 1886. He moved to Poitiers in 1891, and was promoted professor in 1894. In 1908 he left Poitiers for Paris,

where, in 1924, he succeeded G. Bonnier in the chair of general botany at the Sorbonne. He retired to the family property at Ségrie in 1944, and, after two years of troublesome illness, died there on November 10, 1947.

Dangeard was elected to the Académie des Sciences, Paris, in 1917. In 1931 the University of Cambridge conferred the honorary doctorate of science on him (family illness had prevented him from attending the Fifth Botanical Congress in 1930). The Linnean Society of London elected him a foreign member in 1935. Dangeard was awarded his doctorate by the Faculté des Sciences, Paris, for his "*Recherches sur les organismes inférieurs*" (1886), a contribution to botany which brought him the support of the algologist Bornet, and the Prix Desmazières (1887), and which laid down the main lines of many of the investigations which occupied him for the rest of his life. Developments and extensions brought further important publications (1896, 1903, 1904), on the cytology and sexuality of the fungi; these were recognized by the Grand Prix des Sciences Physiques de l'Institut de France. These contributions not only extended his own work, but they later generated a great volume of research by numerous workers all over the world on subjects which still claim the active attention of a number of botanists. Dangeard's demonstration of the nuclear fusions in young asci and basidia stands as a solid addition to our knowledge, though perhaps because investigations by other workers in the same field may have been over-valued, especially outside France, recognition was slow in coming to him.

In 1887 Dangeard began to issue *Le Botaniste*, a periodical supported from his own resources, which eventually ran to thirty-one volumes of some three hundred pages each, very many written by Dangeard himself. In the first issue, he explained that he had founded *Le Botaniste* so that he might have a means of publication which was wholly under his own control, in which he could express freely and defend adequately his own ideas, and in which he could assail freely any views which he deemed to be faulty. This explanation, and the contents of the periodical, illustrate the character of the man. He was extremely independent in his outlook, a tireless and accomplished observer, and a bold expositor of wide generalizations. With all that, and with a periodical completely his own, he was a fair controversialist. Throughout his life, Dangeard was greatly interested in those organisms which lie on the boundary between the plant and animal kingdoms, and in their relatives. He described a great number of new genera and species, he made detailed studies on the structure and physiology of the cell, and he put out a very clear exposition of the nature of sex, stripping that much-debated matter of morphological complications. At times, his wide outlook and his genius for broad generalizations may have put his conclusions in advance of his evidence, but his conclusions were certainly not sterile, for they led to renewed research. As we always expect from a Frenchman, his writings are clear and brilliantly luminous, so easy to read that a careless reader is in danger of missing a great deal that lies in the background.

P. A. C. Dangeard has left, in *Le Botaniste* and elsewhere, a noble record of a long life of active devotion to his subject. May that record stimulate those now working in his field, for the lower organisms and the cell have not yet yielded all their secrets.

B. BARNES