

industry, and his descendants are among the premier alum manufacturers of the world. The preface of Dr. Singer's book, by Mr. Derek Spence, explains how it was wished in 1946 to celebrate the hundredth anniversary of the company by a lasting memorial to Peter Spence, and the present splendid volume is the result. In achieving their object they have at the same time, thanks to the unrivalled knowledge and literary skill of Dr. Singer, added a lasting contribution to the history of science for which they deserve the warmest thanks of all those interested in its welfare. This book will take its place among the great classics of the subject.

J. R. PARTINGTON

OBITUARIES

Dr. A. D. Imms, F.R.S.

AUGUSTUS DANIEL IMMS, who died on April 3, 1949, at the age of sixty-eight, was well known to zoologists and entomologists throughout the world, and there are few, if any, modern zoological text-books with a wider circulation than his famous "General Text-book of Entomology". Imms graduated at Birmingham in 1903 and shortly afterwards went to Christ's College, Cambridge, as an 1851 Scholar. Here he obtained a B.A. degree by research in the days before the institution of the Ph.D., and came much under the influence of Dr. David Sharp and Sir Arthur Shipley. From being an assistant demonstrator in zoology under Prof. Gamble at Birmingham, he went to India in 1907 as professor of biology in the University of Allahabad. Later he was for three years forest zoologist to the Government of India.

These seven years in India influenced profoundly his further development as a zoologist, adding to his sound morphological attainments breadth of view in biology and an understanding of the complexity and urgency of the problems of agricultural and economic zoology in the tropics. While in India, Imms produced his best research work, among his papers at this time being a fine study of the morphology and biology of *Archotermopsis*, a primitive member of that most fascinating group of insects, the termites, the stupendous colonies and elaborate social organisation and caste system of which have been the marvel of zoologists since the end of the eighteenth century when entomologists first began to explore systematically the faunal riches of the tropics.

But it was not as an original investigator that Imms was to make his real mark. In 1913 he returned to England as reader in agricultural entomology in the University of Manchester, and he there commenced work on the great "General Text-book" already referred to. This was held up by the First World War and was not finished until 1925, by which time its author was chief entomologist at the Rothamsted Experimental Station. The text-book, a monumental work, has gone through many editions; it is in every way comparable with and in many respects superior to its famous predecessors, Packard's "Text-book of Entomology" (1898), Henneguy's "Les Insectes" (1904) and Berlese's "Gli Insetti" (1909). In this book Imms found full scope for his particular combination of qualities: an encyclopaedic knowledge of his subject, a meticulous accuracy, a sound morphological insight and a well-balanced critical faculty. Indeed, it is the critical acumen and the balance of the book which are perhaps its most

outstanding features, although the balance was somewhat upset in later editions by the immense growth of physiological investigation, a field in which Imms was less especially interested and which he left to others to summarize in text-book form. Imms was also the author of other valuable books, notably "Recent Advances in Entomology" (first edition 1930) and "Insect Natural History" (1947), and he produced the excellent articles on entomology in the "Encyclopædia Britannica".

Imms was elected a fellow of the Royal Society in 1929, and in 1931 he went to the Department of Zoology at Cambridge as first incumbent of the newly created readership in entomology. Here he built up a new sub-department and, during his time as reader, served on the Council of the Royal Society. He was president of the Royal Entomological Society of London and of the Association of Economic Biologists. When the main burden of text-book writing and the work of organising the sub-department was ended, Imms returned once more to personal research, and produced some valuable memoirs bearing particularly on morphological problems fundamental to questions of the ancestry of insects and phylogenetic relationships of the main orders. These included work on the growth processes in insect antennæ, on the constitution of the maxillæ and labium in the Mecoptera and Diptera—a study which throws a great deal of light on the relationships of the latter order—and an admirable short paper on the biology and relationships of that most puzzling insect *Braula caeca*, the 'bee louse'.

Personally Imms was reserved, and probably few people knew him intimately. Although he stimulated an immense quantity of valuable research through his writings, he was sometimes apt to appear discouraging to undergraduates, seeming on occasion to dishearten and chill by an apparent lack of enthusiasm. But in reality he was an excellent judge of promise in young research workers; he knew the real investigator directly he saw him, and he recognized and appreciated the type which would respond to criticism in the right way and whose ardour nothing would damp. A student of this quality could count on him for unwavering support and friendship.

Imms was elected a Fellow of Downing College in 1940, and his work for the College and his relations with its society constituted perhaps one of the happiest episodes of his career. When the Second World War came and the younger Fellows of the College left for war service, he unhesitatingly undertook the arduous duties of bursar and steward, thus entering on work with which he was previously altogether unfamiliar. Nevertheless, he made a real success of it and impressed all his colleagues with the rapidity and efficiency with which he got things done; he was particularly clever in making the most of the scanty time at his disposal, and it was astonishing how he contrived to carry this heavy burden of College work without apparently decreasing the time available for his scientific activities and without ever becoming in the least 'ruffled' over the sometimes irksome jobs which arose in the course of his duties. On his retirement from the University readership in 1945, Imms received the honour of election to an honorary fellowship at Downing. He was also honorary member of a number of learned societies in foreign countries, including France, Holland and Finland. The climate of Cambridge never suited Imms, and on retirement he therefore settled in Devon in the hope that he would enjoy better health

there. He soon began to take an active part in local affairs and to enjoy his garden and the new duties and obligations which life in a small rural community involved. But further illness soon supervened, and his last years were, in the main, a brave struggle against persistent and painful ill-health, in spite of which he managed to accomplish much valuable work in the way of revising and preparing new editions of his books.

Imms married in 1913 Miss Georgina Mary French, of County Tyrone, who, with their two daughters, survives him.

W. H. THORPE

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Mr. W. A. Knight

MR. WILLIAM A. KNIGHT, the first headmaster of Sexey's School, Bruton, who died on April 11 at the age of eighty-two, was known as a leading educationist. From 1905 for some years he was a member of the Somerset Education Committee; during 1920-25 he served on the first Burnham Committee; in 1924 he became president of the Incorporated Association of Headmasters; and in 1928 he was elected to represent the English secondary school headmasters at the Bucharest Conference. He was an honorary M.A. of the University of Bristol, honorary associate of University College, Reading, and a J.P. for Somerset.

The opening of Sexey's School in March 1891 was due indirectly to an Elizabethan, Hugh Sexey (or Saxey), the founder of Sexey's Hospital, Bruton, certain accumulated funds of this institution being appropriated for the purpose. The Right Hon. Henry Hobhouse was chairman of the school governors until 1930. Mr. W. A. Knight, a native of Castle Cary, was only twenty-four at the time of his appointment, and during the thirty-six years until his retirement in 1927 he developed a school with highly distinctive traits. Bearing in mind a fundamental idea of the promoters to impart a strong practical and scientific bias to the curriculum, the youthful headmaster became a pioneer in the development of science teaching in schools. General elementary science, natural history, chemistry, physics and botany all found a place in the curriculum. A generation or so later, the importance of biological science in schools received general recognition. Up to the present time numerous Old Sexeyians (many of whom are now well known in science) have taken a leading part in organising and developing biological work in schools, universities and research stations, both at home and overseas.

Gradually, under Mr. Knight's guiding hand, the school became known in the provincial universities, at the Universities of Oxford and Cambridge, and in Continental universities: so quick in its own soil was this acorn from a native Elizabethan oak. The record of Sexey's School shows that a proper emphasis on science in school teaching need not exalt material values at the expense of the spiritual. It is likewise remarkable that so many of Mr. Knight's pupils have developed strong literary and artistic tastes. The diverse fields in which alumni of this school have achieved distinction include the Church, literature, public affairs and administration.

In this little school, with her native human material and "Somerset's green lanes around her", the gifted headmaster was able to find full scope for his remarkable ability as a teacher, his organising genius and his inspiring ideals of attainment and

character. Under Mr. Knight's tutelage one learnt as much out of school as within its walls. How, for example, could one remain indifferent to local history and topography when botany rambles with him led to such fascinating haunts as Wyke Champflower, Kingsettle Hill, Stourton Tower, Godminster and Holywater Copse?

The perennial charm and stimulating force of Mr. Knight's personality had much to do with the success of Sexey's School. He took a vivid interest in his pupils and their doings, both at school and afterwards. His memory of anything concerning them was amazing. In an unsurpassed measure he earned and kept the esteem and strong affection of his pupils, to whom he was always a personal friend as much as the ideal headmaster. In the words of a versatile old pupil (R. W. Gregory), who achieved eminence as an electrical engineer:

You made us men, we boys of your own breed;
And like the glowing steel, our mother wit
With cunning hand you hammered into shape,
And tempered for keen service to our kind.
You made our School; a thousand boys and more
You showed the way of life; and thorough men,
Through all the continents of mother earth,
Hold you in honour.

JOHN READ

PRESENT-DAY educationists, if they had had the opportunity, would have studied with interest, and acclaimed many points in, the pedagogical approach and the school organisation of Mr. Knight; for in many ways it was unique. For example, he would never allow 'holiday tasks', 'lines' or being kept in school after hours as a means of punishment. Both monitors (as they were then called) and staff could punish by a system of exclusions—exclusion for a definite period (which varied with the crime) from the gymnasium, the museum, the reading room, the fives courts, and even from the class-room (out of school hours). So boys never ran the risk of their literary appreciation being undermined through having to write under duress interminable quotations from authors; they always enjoyed complete freedom during their holidays: but the 'exclusions' proved to be so inconvenient that any sensible culprit thought twice before repeating his offence.

The school year was also divided into four terms, so that half-term rests were not necessary, and fatigue was reduced.

Mr. Knight also seemed to have a genius for choosing his staff to the best advantage. He was not easily bemused by high academic honours; capacity for work and the full recognition of the value of *esprit de corps* played important parts when he made a choice. Mr. Knight himself recently told me that, other things being equal, he would not mind whether his assistant was a 'pass' or an 'honours' man. One of his assistants recently coined the expression "the Sexeyan habit"—the habit for hard work.

As Prof. Read writes, his "memory of anything concerning [us] was amazing"; and whenever we met him afterwards (no matter how many years had elapsed between), he was the headmaster, we the boys. In 1947, when the school honoured me by inviting me to present the prizes on Speech Day (well-nigh a quarter of a century after I had left the school), he took my hand and, without so much as a 'how d'you do', said: "But you have changed; you were always so very thin".