

science and in his newly and greatly extended museum was not diminished. His death is a great loss to Canadian geology, and the sympathy of all who knew his pleasant and kindly personality will go out to his widow and his son.  
W. E. S.

#### Mr. D. A. Jones

MR. DANIEL ANGELL JONES, formerly secretary and afterwards president of the British Bryological Society, who died at Bristol on October 6 in his seventy-sixth year, has long been a familiar figure among Welsh botanists. Whilst he was a schoolmaster at Harlech his assistance was often invoked by botanists interested in the flora of North Wales, especially of Merionethshire and Carnarvonshire. His keen eye and wonderful memory of detail, locality and habitat were well known to phanerogamic botanists, and in the detection of bryophytes and lichens he was unrivalled.

During the present century, the story of Mr. Jones's life is largely linked up with that of the British Bryological Society. In 1895, a number of bryological enthusiasts formed the Moss Exchange Club. The main purpose was the exchange of specimens, but supplementary to this there was a desire to extend the knowledge of the distribution of bryophytes in Great Britain, as nothing in regard to this had been published since the issue of the second edition of the London Catalogue of British Mosses in 1881. In 1907, Mr. Jones took charge as secretary of the beginner's section (Section II) and continued that work until 1922, when both sections became merged as the British Bryological Society. He became secretary of this and continued as such until the early part of this year, when he felt compelled to resign on account of ill-health. The knowledge of the vice-comital distribution of bryophytes increased rapidly, and this increase was greatly contributed to by Mr. Jones. The "Census Catalogues of British Hepatics" (1905) and of "Mosses" (1907) were followed by a second edition for "Hepatics" in 1913 and a third in 1926, and a second edition for "Mosses" in 1930.

During the Great War, Mr. Jones was a Government lecturer on agriculture in connexion with University College, Aberystwyth, for which the University of Wales bestowed on him the degree of M.Sc. in 1918. In 1925, he was elected an associate of the Linnean Society, of which he had previously been a fellow (1897-1912). He became vice-president of the British Bryological Society in 1933 and president in 1935.

Jones was born in Liverpool on July 14, 1861, was a schoolmaster at Machynlleth for about six years, then at Harlech until he retired in 1924. After ten months spent in the study of bryophytes and lichens on the Continent, chiefly on the Riviera, he lived four years at Cheltenham, and the last five years of his life were spent at Bristol. His sense of humour, good fellowship and almost uncanny power of detecting rare or strange plants, rendered his presence amongst bryologists or lichenologists delightful and stimulating.  
W. W.

#### Mr. Marius Maxwell

By the untimely death at the age of forty-eight years of Marius Maxwell, which occurred on November 2 at Nice in an accident to an aeroplane which he was piloting, the British Museum (Natural History) and those interested in the study of natural history have lost a keen supporter.

Maxwell had lived a most adventurous life and the manner of his death will come as no surprise to those who knew him best. He was a very generous donor to the Natural History Museum, and many of the specimens which he collected in his early days in Java and northern India have found a permanent home in the National Collection. Chief amongst these may be mentioned the skull of the record Javan rhinoceros (*Rhinoceros sondaicus*) which carries a horn of 10 $\frac{3}{4}$  in., and two skulls of the pygmy hog (*Porcula salvanius*) from Bhutan. Amongst his East African donations premier place must be given to the mounted head of a magnificent bull elephant which carries exceptionally long and slender tusks.

In 1911 Maxwell first visited Kenya Colony on a hunting trip between Nakuru and Lake Baringo, when the vast accumulation of game which he found in that country so impressed him that he determined to return later on a photographic expedition. The opportunity to re-visit East Africa did not come for another ten years, when in 1921 he conducted an expedition to the Masai Province and took some wonderful photographs of elephants and giraffes. One of the elephant photographs shows an old bull standing in the attitude of alarm with its ears widely spread; this photograph was taken at a range of 8 yards. It was there that he secured the amazing series of photographs of three elephants sauntering in a forest clearing, when he walked out into full view of the animals and proceeded to take about a dozen snapshots quite at close quarters. The giraffe photographs were some of the first photographs of galloping giraffe to be taken from a pursuing car, and Mr. Maxwell estimated the speed of these animals, when fully extended, as 28-32 miles an hour.

After a short trip to India on business, Maxwell returned to Mombasa in the spring of 1922 and went on another photographic expedition, first to Lake Natron and around the Tanganyika border in the south, and secondly up in the Northern Frontier Province along the Northern Guaso Nyiro. In the latter locality he obtained some excellent photographs of buffalo, elephant and hippopotamus. One close-up of a buffalo is especially awe-inspiring, as it shows the animal debating in its mind whether to charge or not. The elephant photographs taken in the region of the Lorian Swamp and at Abbas Wen are some of the most remarkable records ever made of these animals; this is especially true of the group of advancing elephants which forms the frontispiece of Maxwell's monumental work entitled "Stalking Big Game with a Camera", published in 1924 by the Medici Society. This volume is very handsomely illustrated by a large number of photogravure reproductions of Maxwell's photographs, and will remain

for all time a standard work on the subject of East African big game. The volume contains an introduction by Sir Sidney Harmer, and in addition to the chapters on elephants, giraffes, rhinoceroses, buffaloes and hippopotamuses, also has an interesting appendix on the ancestry of the African elephant, and the relationship of primitive elephants to primitive man. The volume concludes with a chapter on some of Maxwell's experiences in hunting elephants in India. This *édition de luxe* was followed a year later by a somewhat smaller and cheaper volume containing the same text and illustrations.

Always seeking after new experiences, in 1925 Marius Maxwell visited the Birunga Mountains north-east of Lake Kivu, in the Eastern Belgian Congo, to study and photograph the Eastern gorilla. He was accompanied by Mr. J. H. Barnes, the well-known white hunter, who had been with him on his two previous trips in Kenya Colony. Although not having very great luck in photographing the gorilla itself, he took some very interesting photographs of the gorilla forests, of their sleeping platforms and of gorilla shelters. Further, he secured a unique snapshot of a female gorilla carrying on her back a young one; this, I think, is the only pictorial record of this method of juvenile transport in this species.

Maxwell had graduated at Zurich and took up the profession of engineering, specializing in the machinery concerned with the manufacture of cane-sugar, and he erected many sugar factories in India. Latterly, he had interested himself in coffee-farming, and lived on a large estate at Thika Bridge in Kenya Colony. He married in 1929 Miss Winifred Ramsay.

GUY DOLEMAN.

#### Lieut.-Colonel Robert Knowles, C.I.E.

It is no exaggeration to say that tropical medicine has sustained a grievous loss through the early decease, on August 3 at fifty-two years of age, of Robert Knowles after a brave struggle with prolonged ill-health, aggravated by exceptionally hard work which a keen sense of duty would not allow him to relax.

After completing his medical studies at Cambridge and St. Mary's Hospital, Knowles took the first place at his entrance into the Indian Medical Service in 1908 in its palmiest days, and, after some years in military employ, obtained his first opportunities for research under favourable conditions at the Kasauli Institute. Here he began a happy and successful collaboration with his friend, H. W. Acton, and they made important contributions on the subject of snake venoms. Here he also commenced his fruitful work on protozoology in connexion with the halteridium. After the interruption caused by the Great War, when he was severely wounded in Mesopotamia, he took charge of the recently founded Pasteur Research Institute in the beautiful hill station of Assam at Shillong, where his energies and organizing ability found ample scope, and where he commenced his important investigations on kala-azar.

When Sir Leonard Rogers had to return home a few months before he had completed the organization of the Calcutta School of Tropical Medicine, he asked that Knowles should succeed him, and once more he was an outstanding success, and soon became professor of protozoology, with his friend Acton as professor of bacteriology, and during the next sixteen years his work there can only be described as most remarkable. His most outstanding discovery was the demonstration, with the aid of L. E. Napier and R. O. A. Smith, that the sand-fly, *Phlebotomus argentipes*, was the long sought-for carrier of the infection of kala-azar. Later he did valuable work on a parasite of monkey malaria called *Plasmodium knowlesi* after him.

Knowles was equally distinguished for his medico-literary work, and was a clear and prolific writer, his work on medical protozoology being of exceptional merit, and those with Acton on the dysenteries of India, and with S. White on malarial literature in India were of great value. First as assistant editor with Sir John Megaw, and later as editor of the *Indian Medical Gazette*, he raised its standard and contributed invaluable summaries of the advances during each year, at the compilation of which he was a master.

Knowles's short, thickset figure, abounding in energy and enthusiasm, combined with the unselfish and cheerful manner in which he always found time to help any of his colleagues, British or Indian, makes his early loss quite irreparable to his innumerable friends.

#### Dr. W. F. Sheppard

DR. W. F. SHEPPARD, late assistant secretary, Board of Education, died on October 12 in his seventy-third year. He went up to Trinity College, Cambridge, was Senior Wrangler in 1884 (Parts I and II) and was placed in Division I of Part III in 1885. He was elected a fellow of Trinity in 1887. For these particulars we are indebted to the obituary in *The Times*.

The name of Sheppard is well known to mathematical statisticians. In 1898 he published in the *Phil. Trans.* (A, 192, 101) a memoir "On the Application of the Theory of Error to Cases of Normal Distribution and Normal Correlation", in which the theory is developed by very elegant geometrical methods. It was in this memoir that he gave the noteworthy theorem, that if a fourfold table is formed from a normal correlation table by division at the medians, the coefficient of correlation  $r$  is given by

$$r = \cos \left( 1 - \frac{2n}{N} \right) \pi,$$

where  $n$  is the frequency in either of the positive quadrants.

Much of Dr. Sheppard's work, in the *Proceedings of the London Mathematical Society* and elsewhere, was concerned with the method of finite differences and its applications. By this method he derived the well-known 'Sheppard's corrections' for determining