

## Obituary\*

## Sir Rickard Christophers: A Tribute

Brevet-Colonel Sir Samuel Rickard Christophers, C.I.E., O.B.E., M.B., Ch.B., F.R.S., I.M.S. (ret.) born at 43 Foxhill Street, Toxteth Park, Liverpool on 27th November 1873, the son of Samuel Hunt Christophers, died in Dorset on 19th February 1978 at the age of 104.

After attending a small kindergarten and then a small private school in Liverpool, Christophers, then about 13 years old, went to the Liverpool Institute School where he soon developed a lively interest in chemistry and insects. On leaving school Christophers decided on a medical career and entered the University of Liverpool where he had the good fortune to study under C. S. Sherrington. He was a distinguished undergraduate student and in 1892 and 1893 won the Torr gold medals for human anatomy and physiology and in 1895 was elected Holt tutorial scholar in physiology. He graduated M.B. and Ch.B with 1st class honours in March 1896 - two years before the Liverpool School of Tropical Medicine was founded.

After a brief period as house physician Christophers sailed from England in 1897 to become medical officer to an expedition journeying to the upper reaches of the Amazon, an experience which proved to be unforgettable and one which most probably fired his life-long interest in tropical medicine. On returning from Brazil he was selected in 1898 as a member of the Malaria Commission sponsored jointly by the Royal Society and the Colonial Office. He first went to Italy to study under C. Golgi before accompanying J. W. W. Stephens and C. W. Daniels on an expedition to West Africa and Nyasaland to study malaria, the use of quinine and blackwater fever. This was a few months before Ross' discovery of mosquito transmitted malaria. Thus began his life-long interest in malaria which was to make him the most famous malariologist of all time. As early as 1899 in Sierra Leone he and Stephens had discovered sporozoites and oocysts in the malaria vector *Anopheles gambiae*. In 1901 the Malaria Commission moved to India and the small team was joined by S. P. James. On his return to England in 1902 Christophers joined the Indian Medical Service (by special dispensation because at 29, he was over age). He was appointed medical officer to the 1st Brahmins Regiment, but his exceptional gifts as a scientist were soon recognized and he was transferred to special civil duties to allow him to resume his studies on malaria and blackwater fever, with special reference to the malaria problem at Mian Mir. It was during this period that he became increasingly interested in the entomological aspects of malaria transmission, and was one of the first to appreciate the necessity of correctly identifying malaria vectors to species and the importance of locating their breeding places if control operations were to be successful. He was one of the founders of medical entomology.

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In 1904 Lt. Christophers moved to Madras where he confirmed Donovan's discovery of *Leishmania* bodies in the spleen of patients suffering from kala-azar. In the same year he was appointed Director of the King Institute at Guindy and proceeded to investigate the transmission of *Babesia canis* by the tick *Rhipicephalus sanguineus*. In 1909 he investigated a severe outbreak of malaria which had erupted a year earlier in the Punjab, wrote a report setting forth well-conceived control measures and explained the possibility of predicting malaria epidemics on rainfall records. In 1910 Captain Christophers became the first Director of the Central Malaria Bureau, which became a centre of training and research in malariology, and coordinated malaria problems throughout India.

He became C.I.E. in 1915 and, during the First World War, Major Christophers was appointed Deputy Assistant Director of Medical Services and Malaria Officer to the Mesopotamian Expeditionary Force. In this new capacity he left India for Mesopotamia in 1916 and was given charge of the Central Laboratory at Basra. He was awarded the O.B.E. in 1918 in recognition of his work on malaria during the war. In 1919 he returned to India as Assistant Director of the Central Research Institute to India as Assistant Director of the Central Research Institute at Kasauli in the Himalayan foothills, an institute which later was expanded to form the Malarial Survey of India under the direction of A. J. Sinton, then to become the Malaria Institute of India and, finally in 1963, the National Institute of Communicable Diseases. For a short period (1924-25) Christophers was Director of the Kala-azar Commission and worked with H. E. Shortt and P. J. Barraud in Assam on the devastating epidemic that was sweeping through the country and also parts of Bengal. He immediately started a detailed investigation on the life-cycle, habits, anatomy and histology of *Phlebotomus argentipes* and also managed to establish a colony of this sandfly which at the time was suspected as a vector of kala-azar. He showed that flagellates (of *Leishmania*) multiplied in the sandfly and arranged themselves in the proventriculus and pharynx. He was later delighted when his life-long colleague and friend, H. E. Shortt, conclusively proved that *P. argentipes* was a vector of visceral leishmaniasis.

In 1925 he was recalled to Simla and was appointed Director of the Central Research Institute at Kasauli with the rank of Lt.-Colonel.

In 1926, at the age of 53, Christophers was elected a fellow of the Royal Society and from 1927-30 was Hon. Physician to King George V. His little book "How to do a Malaria Survey", written with Sinton and Covell and published in 1928, was a masterpiece of simplicity and profundity - a book which became indispensable for all aspiring malariologists. He retired from the Indian Medical Service on his birthday in 1930 and in 1931 received a Knighthood, Order of the Thistle, for his outstanding services to India. After returning to England at the age of 58 he became, in 1932, Leverhulme Fellow of the Medical Research Council and was given a personal professorship of Malaria Studies at the University of London, based at the London School of Hygiene and Tropical Medicine, a post he held until he retired in 1938. While at the London School a revised edition of the "Indian Anophelini" a volume in the famous series "Fauna of British India" was published in 1933, a work that has remained a milestone in the taxonomy of Indian anophelines.

in 1938 Christophers moved to the University of Cambridge where he worked in the Zoology Laboratory on the embryology, physiology and anatomy of *Culex pipiens* and *C. fatigans*. These studies were interrupted by the Second World War and, under the auspices of the War Office, he turned his attention to the efficacy of mosquito repellents as a part of his war efforts. During this period in Cambridge, keeping his rank as Colonel a secret, he enlisted as a Private in the Home Guard, and was proud of his subsequent promotion to Lance Corporal. After the war he resumed his studies on mosquitoes and in 1947 decided to concentrate on *Aedes aegypti* and this culminated in the publication, in 1960, when Sir Rickard was 87, of a monumental and comprehensive monograph entitled "*Aedes aegypti*, the Yellow Fever Mosquito, its Life History, Bionomics and Structure", a book which was to become a classic.

Sir Rickard was Vice-President of the Royal Society of Tropical Medicine and Hygiene from 1937-39 and was the Society's 16th President from 1939-43. He was awarded many honours during his long and productive career, including the Buchanan Medal by the Royal Society in 1952 and the Gaspar Vienna medal in 1962 by the Brazilian government for his early work on leishmaniasis. In November 1977 a Symposium convened by the Royal Society of Tropical Medicine and Hygiene to commemorate the centenary of the Birth of Medical Entomology was dedicated to Sir Rickard. The Proceedings were published on 17th February 1978, just two days before Sir Rickard's death.

As one of the many tributes to a great man the Royal Society of Tropical Medicine and Hygiene is commemorating Sir Rickard's many achievements by having a medal struck in his honour to be awarded every three years for distinguished work in any aspect of tropical medicine and hygiene.

Christophers was a complete naturalist, not a specialist in a narrow field but an expert in many and he was the first, and probably last, of the all-round scientific malariologists. In studying malaria he encompassed many disciplines, such as parasitology, entomology, and sociology and also took into consideration the history and geography of the area. He was responsible for the survey approach to malaria problems, and made important discoveries related to the mechanism of immunity in hyperendemic malaria, he worked with J. D. Fulton on the biochemistry of malarial and trypanosomal parasites and investigated the mode of action of antimalarial drugs. His interests ranged so widely and his influence on tropical medicine is so great that it is difficult to select his more important contributions. In addition to his pioneer work on malaria and leishmaniasis he studied the cycle of development of haemagregarines of rodents in ticks and lice, discovered *Thelohanna*, a pathogenic microsporidian of mosquitoes and other Diptera, worked on smallpox and advocated biological control of mosquitoes as far back as 1916. He had the qualities of scientific honesty and integrity, and inspired respect, admiration and affection in all those who worked with him.

Sir Rickard was also very interested in geology and archaeology. I remember in 1966, when his eyesight was failing and he found it difficult to study insects, his enthusiasm in being shown the archaeological exhibits in the Dorchester County Museum. I had the honour of renewing my acquaintance with Sir Rickard in October 1977 when I visited him in Broadstone to tell him that the Royal Society of Tropical Medicine and Hygiene was anxious to dedicate to him its forthcoming Symposium on medical entomology. In characteristic fashion he was grateful but at the same time somewhat surprised that he was still remembered - as he will always be.

Turning to a more personal account, Sir Rickard was a man of simple tastes, shy by nature but not without a good sense of humour. He had a placid temperament, never held rancour and was a person impossible to quarrel with. He was a tireless and dedicated scientific worker but nevertheless found time to pursue his hobby of walking. Because of his short sight he was never much good at ball games, but was always physically very fit and was proud of his prowess in his earlier days as a wrestler - a characteristic he like to think was due to his Cornish ancestry.

Christophers married Miss Elise Emma Sherman on 27th September 1902 at the church of St. Andrew, Westminster. Their first child, Elise Iseult, was born in June 1903 in Allahabad, India, and their son, Samuel Vagn, in December the following year in Madras. After Lady Christophers' death in 1963 Sir Rickard moved from Cambridge to live with his daughter and son-in-law in Broadstone near Poole in Dorset, where he died in his 105th year. His ashes have been placed in the village church of Mawnan, Cornwall, where some of his Cornish ancestors are buried.

M. W. Service