

research worker in the general field of solar spectroscopy that St. John will be remembered. Among the problems that he worked at we may mention the gravitational displacement to the red of lines in the solar spectrum in accordance with the general theory of relativity. Closely allied with this was the study of systematic convection currents in the solar atmosphere invoked by St. John to account for anomalies in the observed Einstein effect. A full discussion of the Evershed effect in different levels in the sun's atmosphere in the immediate neighbourhood of sunspots was one of St. John's methods of analysing the layers in which the various Fraunhofer lines originated.

St. John's wide and exact knowledge of the solar spectrum in all its variants made of him a natural leader for the team recently engaged in the revision of Rowland's Preliminary Table of Solar Wave-Lengths, for St. John had been elected in 1922 president of the Commission on Standard Wave-Lengths and Tables of Solar Spectra of the International Astronomical Union. Later, when several of the solar commissions were combined into one—the Commission on Solar Physics—St. John was appointed its president, and he only gave up his active work for the Union a few months ago on account of failing health. He will be greatly missed at the coming meeting of the Union. St. John was also a member of the Commission on Solar and Terrestrial Relationships working under the International Council of Scientific Unions. He was elected an associate of the Royal Astronomical Society in 1917.

Mr. J. T. Cunningham

OF Joseph Thomas Cunningham, whose death occurred suddenly in London on June 5, at seventy-six years of age, it can with truth be said that he, more perhaps than most, through fair weather and through foul, preserved his youthful keenness and eagerness for biological research to the very end of a long life.

Born in London and educated at St. Olave's Grammar School, Southwark, Cunningham went up to Oxford, where his career was brilliant. He was Brackenbury science scholar of Balliol from 1878–81 and obtained first classes in mathematical moderations and in natural science. In zoology he was a pupil of Rolleston, who died in 1881. He was elected to a fellowship at University College, Oxford, in 1882, which he held until 1889.

After working for a time with Ray Lankester, Cunningham spent the winter of 1882–83 at the Naples Zoological Station. His first publication (*Q.J.M.S.*, Jan. 1882) was a review of recent work on karyokinesis. In 1883 he contributed to *NATURE* a description of the Naples Station, the occasion for which, he says, was the new Department of Comparative Physiology about to be opened there. In July of the same year there appeared two papers on his first researches, dealing with the nephridia of *Patella* and *Aplysia*.

Cunningham's career as a marine biologist commenced when, in 1884, after having been for a short

time assistant to the professor of natural history at Edinburgh, he was appointed director of John Murray's floating marine laboratory (the *Ark*) at Granton, with Hugh Robert Mill as his colleague for hydrographical research. From 1887 until 1897 he was naturalist to the Marine Biological Association of the United Kingdom, being stationed at Plymouth until 1895 and then at Grimsby. He published during this time his monograph on the sole, which remains a standard work, and also his book on "Marketable Marine Fishes", in which much of his own research on the eggs and larvæ of fishes was summarised in convenient form. After serving for a period under the Cornwall County Council as lecturer on fishery subjects, he moved in 1902 to London, where he was engaged in teaching zoology, being from 1917 until 1926 lecturer at East London (Queen Mary) College.

Cunningham was a regular attendant at zoological meetings and frequently took part in the discussions. Although in later years theoretical aspects of biology were his chief interest, he seldom failed to direct attention to significant facts not generally known to his audience which had either come under his own observation or, although recorded, had been forgotten. When the present writer first knew him in 1892 his 'Lamarckian' outlook was already well established and he was always proud of the fact that he had received much help and encouragement in his study of the subject from Herbert Spencer. His own views were summarised in his book "Modern Biology: a Review of the Principal Phenomena of Animal Life in Relation to Modern Concepts and Theories" (1928), and his principal original contributions in "Hormones and Heredity" (1922), and "Sexual Dimorphism in the Animal Kingdom" (1900).

Cunningham was much interested in the experimental side of Mendelian work, as well as in experimental physiology, and always had in hand experiments of interest of his own. So recently as 1930, when more than seventy, he went to Marajo, in the mouth of the Amazon, to study the function of the external filaments which develop during the breeding season on the pelvic limbs of the male lepidosiren; there he satisfied himself that the observations he was able to make confirmed a view he had previously expressed, that these filaments emitted oxygen to the eggs and larvæ, which develop and grow in the almost oxygen-destitute water in a burrow in the swamp.

E. J. A.

Mr. H. W. Clinton-Baker

THE death on April 19, at the age of seventy years, after a few days' illness, of Mr. H. W. Clinton-Baker, the Squire of Bayfordbury, removes a well-known Hertfordshire arboriculturist. Mr. Clinton-Baker will be best remembered for his keen interest in conifers, which he had made the hobby of a lifetime. He became the owner of the Bayfordbury estates in 1903 on the death of his father.

Mr. Baker's love for trees was no doubt inherited from his grandfather, Mr. William Robert Baker, who commenced the famous Bayfordbury pinetum in 1837. The Bayfordbury cedars, planted in 1765 by