

Philip Steven Corbet, b 21 May, 1929

It gives me great pleasure to contribute this brief biographical appreciation of Professor Philip S. Corbet in recognition of his 70th. birthday. Without doubt, he is the foremost odonatologist alive today, and one who has had the greatest influence in the burgeoning interest in dragonflies in recent times.

Philip Corbet developed a very strong interest in entomology in his earliest years, being inspired by his father who was an eminent biologist and naturalist. It would seem that the love of biology, and entomology in particular, is stamped on the Corbet genes, as Philip's grandfather described his hobby as 'entomology'; Philip's sister, Sarah, is a biologist specialising on pollination and on behaviour and physiology of insects; and his maternal aunt, Ethelwynn Trewavas, was a noted cichlid fishes taxonomist. Philip's special interest in dragonflies dates from 1947 when his father gave him W.J. Lucas' book *British Dragonflies*. He carried out undergraduate research on dragonfly morphological development from egg to adult while completing his B.Sc courses at the University of Reading, and his interest in the Odonata was further developed through Ph.D studies at the University of Cambridge on seasonal ecology of dragonflies.

My first meeting with Philip was during the XIIIth International Congress of Entomology (London, 1964) when we were introduced to each other by our friend and fellow odonatologist, Robert Gambles. At that time Philip was a research scientist in the Entomology Research Institute, Department of Agriculture, Canada. It was during this period, 1962-1967, that he worked on the reproductive physiology and periodicities of mosquitoes in the high arctic. These notable studies demonstrated that some females of arctic *Aedes* species are autogenous, that is, they can mature and lay a first batch of eggs without having had a blood meal, relying on nectar from flowers. This pattern of ovarian development, facultative autogeny, represents an adaptation to intermittent shortage of vertebrate blood sources. Philip later moved as Director to the Research Institute, Canada Department of Agriculture, Belleville, where he remained until 1971, after which he was appointed Professor and Chairman of the Department of Biology, University of Waterloo, Ontario.

Prior to working in Canada, he spent from 1954 to 1962 in Uganda at the East African Freshwater Fisheries Research Organisation and the East African Virus Research Institute. It was in the former post that he was able to combine his primary love of dragonflies with work on the role of insects as food for fishes and crocodiles.

Philip's varied and distinguished later career included the senior positions of Professor and Director of the Joint Centre for Environmental Sciences, University of Canterbury, New Zealand (1974-1978); Professor, Department of Zoology, University of Canterbury, N.Z. (1978-1980); Commonwealth Visiting Professor, University of Cambridge, U.K. (1979-1980); and Professor of Zoology, Department of Biological Sciences, University of Dundee (1980-1990; Head of Department 1983-1986, retiring as Professor Emeritus). These were all full-time posts involving, inevitably, a great deal of administration, teaching and scientific work unrelated to Odonata. It is, therefore, remarkable that Philip was able to maintain his work on dragonflies despite the many other demands made of him.



After his retirement in 1990, Professor Corbet was provided with accommodation in the Institute of Cell, Animal and Population Biology, University of Edinburgh. This allowed him to progress with the writing of his eagerly awaited book on the ecology and behaviour of dragonflies. He now lives in Cornwall in a delightful house surrounded by a garden with a stream and ponds which are home to a good range of dragonfly species.

Philip has had a long and illustrious career during which the major emphases in his research are on periodicity, rhythmic behaviour and development in dragonflies and mosquitoes. These particular areas of concern have frequently been the co-ordinating strand in studies relating to taxonomy, morphology, life histories, arthropod-borne virus diseases, reproductive physiology, ecology of fishes and crocodiles, and arctic microclimates. His early work on the seasonal regulation of the adult dragonfly flying season resulted in the recognition of the different ecological classes termed 'spring species' and 'summer species' in temperate latitudes. Other early work included the detailed morphological studies of the larval labium, which provided for the first time a set of standardised unambiguous terms, taking into account true homologies, necessary for describing the structures of that organ. Another, and more recent subject of Philip's work is the study of phytotelmata, defined as plant-associated water impoundments. Some 47 species of dragonflies have been reported from such habitats, which include tree-holes, leaf axils and pitcher plants. He has collaborated with others in the study of two *Hadrothemis* spp. (Libellulidae) in East Africa, whose larvae occupy holes in bamboo stumps and tree roots. Many of Philip Corbet's other scientific interests illustrate his immense all-round knowledge, incisive mind and the ability to be flexible in tackling diverse problems. Of particular significance in this connexion is his involvement with agricultural research resulting in reviews on pest management in the context of integrated resource management and the implications of different approaches to crop protection. In New Zealand, while Director of the Joint Centre for Environmental Sciences, University of Canterbury, Philip developed a resource management programme that advanced environmental education at post-graduate level, and also analysed the energy costs of agriculture, publishing several reviews on related topics. Philip's energy, wide interests and expertise are further shown by his many professional assignments and responsibilities, which have included: university examining at undergraduate and postgraduate levels at some twenty-three institutions worldwide; external assessor for the D.Sc degree at the University of Birmingham; council and committee membership of many biological organisations; membership of editorial boards for three zoological journals; and invited participant or commissioned collaborator or consultant associated with a variety of research and advisory bodies.

In addition to all of these commitments, Philip has found time to write four very substantial books on dragonflies. The first was in the famous and ground-breaking *New Naturalist* (Collins) series, when he co-authored 'Dragonflies' with Cynthia Longfield and Norman Moore (1960). His 'A Biology of Dragonflies' (1962) was written to present an integrated ecological study of dragonflies, drawing on the then available information of their physiology and behaviour. This was followed in 1975 with 'The Odonata of Canada and Alaska, vol.III' (E.M. Walker & P.S. Corbet), which completed the series started by Walker. Philip's book 'The Ecology and Behavior of Dragonflies' expected shortly, will be a much expanded and updated version of his 1962 text, and will incorporate a vast amount of new information which has become available on the order in the past

37 years. This really will be the indispensable reference text for all serious odonatologists; as valuable for its extensive bibliography as for the contents of each chapter. In addition to these major publications, he has contributed the section on *Anax imperator* in the 'Field Guide to the Dragonflies and Damselflies of Great Britain and Ireland', edited by Steve Brooks (1997).

Philip is not only a truly first rate biologist, but as a personality he is helpful and generous with his time and knowledge, possesses a lively humour (his pre- and after-dinner tales are legion!) and he is a wonderfully engaging companion. May he enjoy many more years of happy retirement and a splendid 70th birthday.

Michael J. Parr