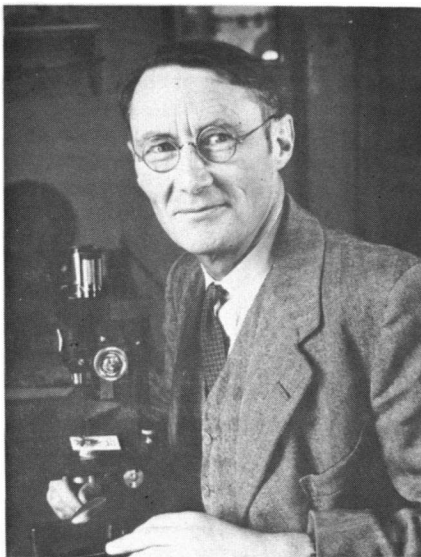


OBITUARY

THOMAS TOWNELY MACAN

A short biography of T.T. Macan (born: September 12, 1910, Wellesbourne, Warwickshire, England; died: January 12, 1985, Ambleside, Westmorland, England; well-known entomologist and freshwater biologist) is followed by a list of publications which relate directly or indirectly to odonatology.

THOMAS TOWNELY MACAN ("Kit" to his friends) spent almost the whole of his professional life in the employ of the Freshwater Biological Association (FBA) on the shores of Lake Windermere in the English Lake District. This period, spanning 41 years and terminating with his retirement in 1976, saw great advances in freshwater biology. Macan made contributions of lasting value to this branch of science as well as using his considerable skills as a writer to present contemporary findings in a way that interested the layman as well as the specialist. He was author or co-author of about 100 scientific publications, including 5 books, noteworthy among which was the volume in the New Naturalist



series on lakes and rivers (1951) co-authored with E.B. WORTHINGTON. The following account of Macan's career owes much to the tribute article by ELLIOTT & HUMPEsch (1985).

Macan's first publication (reporting the discovery of the mosquito, *Culiseta morsitans*, in a tree-hole) appeared in 1930 when he was an undergraduate at the University of Cambridge where he read biology, thus departing from his family's traditional pursuit of the army as a career. At Cambridge his interest in biology

was stimulated by J.F. MARSHALL, an authority on mosquitos, and J.T. SAUNDERS, one of the founders of the FBA. On graduating B.A. in 1933, and at the suggestion of J. Stanley GARDNER, Professor of Zoology at Cambridge, Macan joined the John Murray Oceanographic Expedition as Assistant Naturalist, an assignment which resulted in a publication on starfishes. This, however, constituted his only formal venture outside entomology and freshwater biology. On his return he took the degrees of M.A. (1936) and Ph. D. (1940) from Cambridge. Between 1941 and 1946, as Major in the Royal Army Medical Corps, he worked on mosquitos and malaria in Iraq and Iran. Apart from this he spent the whole of his professional life with the FBA, joining it as a research student in 1935, and being appointed Assistant Naturalist in 1936 and Deputy Director in 1946.

Macan made very good use of his long, unbroken association with the FBA to promote, and undertake, work in two important fields: the taxonomy of larval stages of aquatic insects; and long-term studies on the effects on invertebrates of predation by fish and on the variation that occurs in life-cycles and spatial distribution of invertebrates within a small body of water. Largely as a result of his initiative (1947), the FBA embarked on the production of authoritative keys for the identifications of the aquatic stages of freshwater invertebrates. These publications, several of which Macan authored, made possible the ecological studies in which he also played a major role. In 1955 he began a detailed study of the fauna of a small moorland pond, Hodsons Tarn, which he continued, using a standardised sampling method, for the next 20 years. This produced a record of unique value which Macan made available in several classic publications. Three of these (1964, 1974b, 1977c) are of special interest to odonatologists, showing how the life-cycles of two species of dragonfly (*Pyrrhosoma nymphula* and *Enallagma cyathigerum*) can vary between generations, and the way in which the larvae are distributed among the aquatic macrophytes in relation to size, between and within age-groups. The quality and continuity of Macan's data made it possible for him to reveal the important role played by aquatic plants in the ecology of these two Zygoptera. He found, for example, that the presence of a vigorous stand of *Littorella* had a greater effect on the survival of larvae of *P. nymphula* than did predation by fish (in this case brown trout, *Salmo trutta*).

Of particular interest was his hypothesis (1977a) that larvae of *P. nymphula* are territorial, the more successful individuals defending sites which enhance their survival. This novel suggestion, which has since been confirmed (HARVEY & CORBET, 1985), opened up an exciting new field in the ecology and population dynamics of larval Odonata. Another valuable outcome of Macan's studies was his development of artificial substrates for sampling plant-dwelling dragonfly larvae (1972). For *P. nymphula*, these harboured more larvae per unit area than did real vegetation (1974b)!

This brief and selective account, which necessarily focuses on Macan's odona-

tological work, does not do justice to the wide scope of his contributions to freshwater entomology, most of which dealt with Ephemeroptera and Corixidae. One of his conspicuous strengths was to combine the qualities of a first-rate naturalist with those of a disciplined scientist. Those who knew Kit Macan personally, or who had occasion to seek his help, will remember him also as a person who exhibited in full measure humour, courtesy and generosity of spirit. The success and friendliness of the Third Symposium of the Societas Internationalis Odonatologica held in Lancaster in 1975 owed much to his efforts as local organiser. Over a period of 30 years, I myself have been much helped by Kit Macan's frank and stimulating criticism of my work, and there must be many other biologists who could say the same. He will be remembered with respect and fond regard.

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For the (undated) photograph on p. 99, taken by F.J.H. Mackereth, I am indebted to the Fresh-water Biological Association.

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