

DR. T. T. MACAN AND HIS WORK ON EPHEMEROPTERA

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Dr. T. T. Macan died on the 12th of January, 1985, at the age of exactly 74 years and 4 months. He will be sadly missed by his many friends throughout the World. His scientific career was reviewed in a biography that includes bibliographical details of all of his scientific publications (Elliott and Humpesch, 1985). The present, shorter article emphasises his contribution to our knowledge of Ephemeroptera.

He was born on the 12 of September, 1910. Dr. Macan was educated at Wellington College and Cambridge University. After participating in an expedition to the Indian Ocean, he accepted a research studentship at the Freshwater Biological Association, Windermere. His career with the F. B. A. started on the 1st of October, 1935 and, apart from a period of war service, continued until retirement on the 31st of March, 1976. Although Macan's first task was to study the distribution of closely related species in the family Corixidae, he soon commenced work on the nymphs (larvae) of Ephemeroptera. His first paper on Ephemeroptera appeared in 1940 and the co-author was his wife Zaida. Work on Ephemeroptera came to an abrupt halt when Macan was commissioned in the Royal Army Medical Corps in 1941 and subsequently served in Iraq, Iran, India, and Burma.

During Dr. Macan's absence, work on Ephemeroptera was continued at Windermere by D. E. Kimmins who had been evacuated from London with some of the entomological collections from the British Museum (Natural History). He made use of not only his own extensive knowledge of Ephemeroptera but also Macan's collection and notes. The final product was the first F. B. A. key to British Ephemeroptera, published in 1942 and containing keys to species for adults and genera for nymphs. The nymphal key was only provisional and it was clear that a large amount of work was required before a reliable key to the aquatic stages could be produced. This became one of Macan's major objectives when he returned to Windermere in 1946.

For the next 15 years, Dr. Macan collected nymphs from many localities throughout the British Isles. Most were reared to the adult stage so that identifications could be confirmed. The cast skins were mounted and examined so that reliable characters could be found for use in the final key. As the painstaking task progressed, descriptions of nymphs of species within the same genus or family were published in a series of papers from 1949 to

1958. The final product of all this work was the first complete key to the nymphs of the British Ephemeroptera and this was published by the F. B. A. in 1961. Since then, it has been revised twice, the third and last edition appearing in 1979 (see also Elliott, *et al.* 1988).

In the course of this taxonomic work, Dr. Macan collected much information on the ecology of the different species, especially their habitats and life cycles. The most detailed studies were on Ford Wood Beck, a small stony stream near his home in Outgate, and Hodson's Tarn, a moorland fishpond near the Windermere Laboratory of the F. B. A. After his retirement from the F. B. A. in 1976, Dr. Macan studied the distribution and life cycles of Ephemeroptera in the River Lune, a large river that rises to the east of the English Lake District and flows south to enter the sea near Lancaster.

Dr. Macan was always prepared to help the beginner with an interest in Ephemeroptera, and many students were first introduced to this order of insects on courses taught by Macan at Windermere, Lancaster University (1966-1976), field studies centres throughout Britain, Toulouse University (1968), Idaho State University (1972) and the University of Ohio (1976-77). He was also the founding editor (1971-73) of "Freshwater Biology," and General Secretary and Treasurer (1953-68), Editor (1953-62), and Vice-President (1968-72) of the International Association of Theoretical and Applied Limnology (S. I. L.).

Many who work on Ephemeroptera will remember Dr. Macan for his friendly advice, for often checking identifications and for providing specimens of British species. He made many friends, especially amongst those who work on Ephemeroptera, and will be remembered not only for his science but also for his humanity.

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