

Professor Malcolm Edmunds (1938-2017)

Our colleague and friend Malcolm Edmunds died on 24 January 2017 of cancer in his 79th year. He was born in Harlow in Essex, into a Quaker family, and Quakerism remained an important strand in his many-faceted life; for example, at the age of 19, without consulting anyone, he registered as a Conscientious Objector.

In 1957 he went up to Queen's College Oxford to read Zoology, and was introduced to seaslugs on a University field course at Millport in Scotland. In 1960, he followed his undergraduate course with a DPhil on the defensive behaviour of sea slugs. Being unsure if he would enjoy research, he decided to work on attractive animals, and sea-slugs seemed right. This was a brave decision as he was unable to swim and suffered from sea sickness. He met a fellow zoologist, Janet Holmes, and they married in the icy January of 1963. On completion of his doctorate, he became a lecturer at the University of Ghana. While he was there the family spent three months in Tanzania, where he collected seaslugs, but his main research in Ghana also included studying praying mantids, mimetic butterflies and ant-mimicking spiders. Characteristically he became a world authority on all these topics.

After 10 happy years in Ghana, in 1973 the family, which now included daughters Julia and Helen, decided it was time to return to England. Malcolm had a year at Exeter University, during which he finished writing his wonderful book, *Defence in Animals* (published in 1974). I read this book as an undergraduate, and it inspired me to study mimicry: it was the first thoroughly modern evolutionary treatment of animal defence, written in beautiful prose and obvious scholarship.

In 1974 Malcolm became a Lecturer and eventually Professor and then Emeritus Professor in Biology at Preston Polytechnic. His field work was mainly on insect polymorphism, firstly in hawkmoth caterpillars and then in hoverflies, but included a trip to Malaysia to look at ant-mimicking spiders. His more than one hundred scientific publications culminated in his paper (with Tom Reader) on mimicry by the hoverfly *Volucella bombylans*, the field-work for which took him to many rural sites especially in northern England. He attended the first few Hoverfly Symposia, with his PhD students Brigitte Howarth and Yvonne Golding. Together they published an excellent body of work on hoverfly mimicry. Malcolm's ideas-based paper in 2000 is very widely cited, and has been used repeatedly in modelling the evolution of mimicry, and imperfect mimicry in particular. His talks were embellished with his lovely photographs of insects in the field.

Malcolm was prominent in Lancashire Wildlife Trust, becoming chairman of the Conservation Committee and a Trust Vice Chairman. He was the chief editor, with Tim Mitcham and Geoff Morries as co-editors, of the richly illustrated and comprehensive but easily accessible book, *Wildlife of Lancashire* (published in 2004).

Malcolm came to be very widely respected as a voice of integrity, calm and reason. He was never shy about expressing his opinion, and when he did, it was from a position of principle, and was carefully considered and argued. As a scientist, he brought a real sense of scholarship to his work. As we remember Malcolm, what will most remain with those who knew him are his clarity of thought, his consideration for other people, his calm and quiet manner, and his lucid expression of well-considered opinions. Having listened attentively to others, he could summarise a position concisely and see a way ahead that would gain the consent of all concerned. Malcolm achieved much in his life, but was unassuming and always treated others with respect and consideration. He was admired and greatly liked by those who knew him and will be greatly missed by his many friends, colleagues and his family.

Hoverfly publications of Malcolm Edmunds & colleagues

Edmunds M (1974) *Defence in animals: a survey of anti-predator defences*. 357 pp. Longman, Harlow, Essex.

Edmunds M (2000) Why are there good and poor mimics? *Biological Journal of the Linnean Society* 70: 459-466

Edmunds M (2008) Hoverflies: the garden mimics. *The Biologist* 55(4): 202-207

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Golding Y, Ennos R, Sullivan M & Edmunds M (2005) Hoverfly mimicry deceives humans. *Journal of Zoology*,

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- Golding YC & Edmunds M (2000) Behavioural mimicry of honeybees (*Apis mellifera*) by droneflies (*Eristalis* spp., Diptera, Syrphidae). Proceedings of the Royal Society of London B: Biological Sciences 267: 903-909
- Golding YC & Edmunds M (2003) A novel method to investigate the pollen diets of hoverflies. Journal of Biological Education 37(4): 182-185
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- Golding YC, Sullivan MS & Sutherland JP (1999) Visits to manipulated flowers by *Episyrphus balteatus* (Diptera: Syrphidae): partitioning the signals of petals and anthers. Journal of Insect Behavior 12(1): 39-45
- Howarth B & Edmunds M (2000) The phenology of Syrphidae (Diptera): are they Batesian mimics of Hymenoptera? Biological Journal of the Linnean Society 71: 437-457
- Howarth B, Clee C & Edmunds M (2000) The mimicry between British Syrphidae (Diptera) and Aculeate Hymenoptera British Journal of Entomology & Natural History 13: 1-40
- Howarth B, Edmunds M & Gilbert F (2004) Does the abundance of hoverfly mimics (Diptera: Syrphidae) depend on the numbers of their hymenopteran models? Evolution 58(2): 367-375

Put together by Francis Gilbert, from material by Janet Edmunds and Alastair Thomas