

L. C (Clive) V. Pinder, 6 December 1943 - 31 July 2021. An appreciation from 'far away and long ago'

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My first professional encounter with Clive Pinder, who has died aged 77 in his beloved adopted English county of Dorset, was also a first social meeting. I recall it was in a thatched pub, the Kings Arms, Wareham, early in the 1970s. I was off the London train, newly into a PhD, having been encouraged to visit the rising guru of the study of midges - the fly family Chironomidae - at the Freshwater Biological Association's River lab. It was the first of many discussions in comparable venues from Florida to Munich, as our collaborations continued over the next 20 years. I suspect Clive, one of my examiners, would have preferred my PhD viva to have been held entirely in the East London pub close to Queen Mary College instead of making a brief celebratory visit before the 'last train home'. But be sure to recognise that this 'life-work' balance was exactly that, and with broad overlap between the two. Thus an eminent Japanese colleague Professor Mutsunori ('Nori') Tokeshi wrote recently >>*As you have warmly described, Clive and I have forged a close relationship over many years, even after I moved to Japan spending more time on marine rather than freshwater research. My year-long stay at Pinder's family home in 1979-1980 started everything: my career in science, my deep love of things British and, indeed, overall approaches to life. It is no wonder therefore that I cannot avoid thinking about him and his family since the news first came Clive was the first English gentleman that I came into contact, lively and yet measured, conscientious and full of wit, from whom I learned an awful lot, in particular the philosophy of enjoying life. Of course I also learnt science from him, but life is bigger than that, as we all know. I just cannot believe that, the next time I have an opportunity to go to my house in Essex (yes, I still have it for my frequent visits to the UK, at least before the Covid-19), I won't be able to phone him up to arrange a pub meeting.* <<

Since I agree completely with these sentiments, I'll move on to examine the role of Clive in making a difficult taxonomic group not only accessible, but mandatory in understanding freshwater ecology and allowing palaeoecologists to use midge subfossils in past climate reconstruction. His published contributions remain justifiably highly cited to the current day, although the majority were produced between 1976 and the turn of the century, when he took retirement.

Clive's educational background was of an agricultural scientist (Newcastle University), not specifically that of an entomologist or freshwater biologist. From early days in Nottinghamshire he was a naturalist, retaining a life-long interest in birds (as I do). It was at The Freshwater Biological Association (FBA) in Wareham, Dorset, a post-PhD relocation with his wife Carolyn, that Clive discovered the huge lacunae in understanding of the most diverse of freshwater organisms. The non-biting midges (chironomids) by abundance alone just had to be important in limnology. But when Clive started in 1969 the field was near inaccessible due to the diversity of the aquatic stages, the lack of associations with the named adult stages (the midges) and confusingly incompatible taxonomic schemes according to nationality and publication language of the scattered researchers. The few English publications were outdated and lacked compatibility between the USA, Japan and continental Europe. German limnologists led by August Thienemann had created a framework built on the immature-stages, but this needed major technical resources and most publications were in German. In UK at that time, the need for identification of larval and pupal immature stages was understood, but the classification was based on male adults that were previously pinned dry but needing good microscope slide mounts for modern work.

Into this morass dived Clive, provided with strong support from the FBA including an (very attractive, Nori, *pers. comm.*) artist-assistant Angela Matthews who tirelessly produced artwork for illustration of the hundreds of male genitalia - a major diagnostic feature of the adult stage. Clive argued that without stable nomenclature and regionally compatible identifications for species and genera, little progress was possible with the immature stages. Larvae were reared, slides made, publications in German and Russian were translated and a *Key to Adult Males of British Chironomidae* appeared as FBA Scientific Publication No.37 (Pin-

der, 1978), to widespread acclaim for the clarity ('user friendliness') of a modern synthesis of the British fauna. No hornet's nest was stirred up; clearly it was time for such studies to be broadened taxonomically and geographically. Plans were made for strategically located like-minded researchers with institutional support to jointly solve disparate problems in morphology and systematics, with a view to review and revise the entire northern hemisphere larvae, pupae and eventually adult males of the total chironomid biota.

Nowadays it seems incredible a research project involving up to a dozen authors could produce 3 substantial volumes in 6 years, pre-word processing and the internet. Initially we relied on typewriters and 'snail mail' and faxes for moving paper around, orchestrated by Torgny Wiederholm, an unflappable editor of all three volumes (Wiederholm, 1983 - larvae; Wiederholm, 1986 - pupae; Wiederholm, 1989 - adults). The successful plan was to gain support for the editor plus core contributors to attend official scientific meetings. Thus annual get-togethers of several days, accompanied by reams of paper assembled around several North American Benthological Society annual meetings (USA), some triennial chironomid meetings, plus hosting by labs of the Natural History Museum (London) and twice in Munich. Photographs here (Figs 1–2) are from the 1980 workshop hosted in Bavaria at the old Schloss Nymphenburg. The first shows director Sepp Fittkau with Clive and Frieder Reiss to his left and Ole Sæther to his right (Fig. 1). The second shows a typical working lunch with beer bottles, full and empty (Fig. 2) but ashtrays removed. Occupational health and safety were optional.

Chapters were allocated by preference or sometimes by coercion. Clive and Frieder adopted the speciose subfamily Chironominae in all stages. Ole provided the essential prerequisite stable morphological terminology for all stages. Sepp guided in-house support including much artwork from the Zoologische Staatssammlung. Clive and I drove to Munich from UK in my old banger and somehow got it back to UK. By the second (and final) meeting in Munich the Zoologische Staatssammlung had been relocated into a state-of-the art collection facility, with the construction and relocation directed by Fittkau. Amazing, and Sepp's chapters still came in on time.

Clive's major parallel project at this time was his 1986 'Biology of Freshwater Chironomidae' in the prestigious and highly cited *Annual Review of Entomology* series. Not only was this very timely for a burgeoning community engendering more than 700 total cites, but its authority continues with 80 cites since 2020.



Figure 1. Working session, led by (centre) Sepp Fittkau, to his right Ole Sæther, to his left Clive Pinder and Frieder Reiss (back to photographer). Photograph from Torgny Wiederholm.



Figure 2. Working lunch, also directed by Sepp Fittkau, with from his left clockwise, Clive Pinder, Frieder Reiss, Ami Reiss, Peter Cranston, unknown (hidden), Ole Sæther. Photograph from Torgny Wiederholm.

Building on the evident scientific demand for ‘more on the chironomids’ the commissioning editor for the late (and lamented) publisher Chapman and Hall, Ward Cooper asked Clive, Patrick Armitage and myself to consider writing a book on the family Chironomidae covering ‘the lot’ under a subtitle ‘The Biology and Ecology of Non-biting Midges’. Once again our employers, in Clive’s case now the Institute of Freshwater Ecology (I.F.E.) at Monk’s Wood, and mine then the CSIRO Division of Entomology in Canberra, Australia, encouraged us. Another seven contributors were lined up, and Clive covered ‘Biology of the eggs and first-instar larvae’ and ‘The habitats of chironomid larvae’ and his expertise and knowledge added much value to all other chapters. Clive brought on board Nori Tokeshi, who remained in UK at this time as lecturer at Queen Mary, to contribute three major overview chapters on ‘Life cycles and population dynamics’, ‘Production ecology’ and ‘Species interactions and community structure’. Clive was delighted that his ‘protégé’ turned these previously descriptive topics with poorly analysed data into ‘must-read’ sections of the book (Armitage *et al.* 1995).

In 2001 Clive retired from IFE, Monk’s Wood, and with Carolyn returned to Dorset to enjoy fishing in chalk streams and at the coast, thatched-roofed pubs, community volunteering in Wareham, and more recently their grandchildren. Already with a life of science well-lived behind him, one task remained, so with Peter Langton, the 1978 FBA guide to the adult males was updated as Scientific Publication #64 (Langton & Pinder, 2007). In the interval, 587 species had been recorded from Britain and Ireland, compared with 439 species in the 1978 key (did I write earlier that they were diverse?). The line illustrations were expanded to an astonishing 1400 - now much more than just the genitalia! This expansion was due in no small part to both authors’ own studies, and again required two volumes.

That the Freshwater Biological Association could add this publication to their list is a tribute to their history of sustained support for freshwater invertebrate research, including of Clive’s work. I mention here the often-derided ‘citations’ as a metric in scientific publishing, and undoubtedly the always self-effacing Clive would have pooh-poohed this, but such sustained numbers show the depth and breadth of his understanding of the field, of where it was going, and how it could be delivered better. And he never shirked the challenge to do so, with a joke, a wry smile, and ‘it’s time for the pub’. Although physically separated for 30 years by much distance (me in Australia, then California, and back in Australia), in our chosen research field Clive has been ever-present for more than half-a-century, and will remain so. Although lacking a Purbeck brew and 10,000 miles distant in covid lockdown at dusk in Australia, I raise a glass of shiraz to Clive’s memory.

Acknowledgments

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