

Tom Fenchel: Winner of the ECOLOGY INSTITUTE PRIZE 1986 in marine ecology

J. Gray*

Institutt for Marinbiologi og Limnologi, University of Oslo, Postboks 1064, Blindern, Oslo 3, Norway

Tom Fenchel, born in Copenhagen (Denmark) in 1940, obtained his D. Phil. degree from the University of Copenhagen in 1969. Since 1970 he has been Full Professor in Ecology and Zoology at the University of Aarhus, Denmark.



Tom Fenchel

His doctoral thesis, on ciliate Protozoa, already showed the high international class that has become the hallmark of Tom's research: it became a Citation Classic. Tom's research has taken 2 main directions. One is an interest in factors influencing the distribution of microfauna, particularly in sediments; the other, the microbiology of the sediment itself. In both these fields Tom's research has yielded important new insights and is much cited internationally. He realized that microfauna play a very important role in marine

ecosystems when compared with the roles of meiofauna and macrofauna, a theme that is currently a major focus of international attention in water-column ecology – a field to which Tom has also made major contributions.

In 1970, together with Rupert Riedl, he published a paper (*Mar. Biol.* 7: 255–268) on the sulphide system below oxidised layers in marine sandy sediments and suggested new evolutionary processes and the potential importance of chemosynthesis. Only with the recent discovery of thermal vents has the importance of chemosynthesis (for which Colleen Cavanaugh's research has been an important milestone) been realized. The fact that the potential for chemosynthetic processes, as suggested by Fenchel and Riedl 15 yr ago, occurs in most marine sediments seems to have been largely overlooked in the euphoria over the discovery of chemosynthesis in hot-vent fauna.

Professor Fenchel's interest in the sulphide system and the microbiology of sediments culminated in a textbook 'Bacteria and Mineral Cycling' written together with Henry Blackburn. His breadth of expertise is shown in a second book (co-authored by Freddy Bugge Christiansen) 'Theories of Populations in Biological Communities' where theoretical aspects of evolutionary biology of populations are treated.

Together with his students a range of studies on competition in marine organisms have been conducted. In particular, I cite here the research on character displacement which appears in many textbooks of ecology as a classical example.

Tom Fenchel's recent research on heterotrophic microflagellates in the water column comprises an important new contribution to the understanding of nutrient cycling. What characterizes this research (and indeed all Tom's research) is his unique ability to go back to first principles, examining the basic physics of the process, followed by careful studies of the fundamental aspects, construction of theoretical models of the process, and then verification of the model in the field. Few scientists possess his wide-ranging expertise, or

* Chairman of the Marine Ecology Jury 1985/86 of the Ecology Institute, D-2124 Oldendorf/Luhe, FRG

his capability to be fully conversant in as many disparate fields – from mathematics, through physics to microbiology, biology, and evolutionary theory.

Those of us who have had the privilege of hearing Tom lecture have experienced the demonstration of his abilities in these fields to the full. He is a much sought after lecturer in many countries. In addition, his critical capacities are widely used in editorial aspects of science where he sits on the editorial board of no fewer than 11 journals.

He is equally at home in limnology where he is currently investigating factors influencing the dis-

tribution of fresh water ciliates. In fact, he is a Council Member of the British Freshwater Biological Association.

Tom Fenchel, a staff member of the Ecology Institute (ECI), has made many important contributions to ecology in both marine and limnic habitats. In particular, his elegant studies of the role of heterotrophic microflagellates in the water column were singled out as being outstanding by ECI's Marine Ecology Jury when awarding the first ECOLOGY INSTITUTE PRIZE. Tom Fenchel richly deserves the honour of being the first recipient of this Prize.