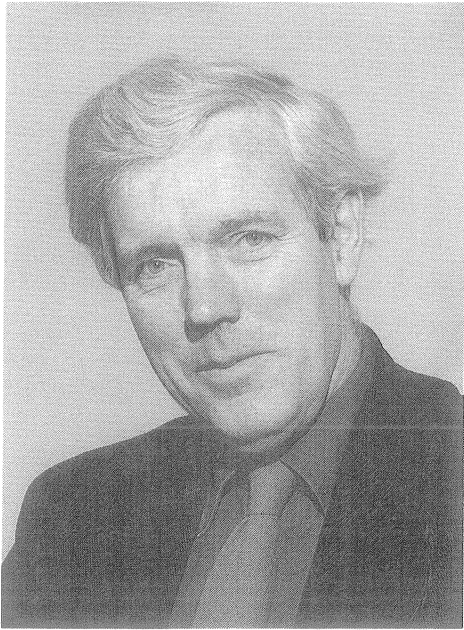


Professor Sir Eric James Denton



Date of Birth: September 30, 1923

Nationality: British

Home Address:

Fairfield House, St. Germans
Saltash, Cornwall, PL12 5LS
England

Position:

Retired Director, Marine Biological
Association Laboratory, Plymouth
Emeritus Professor, the University of
Bristol

Education and Career:

1944	B. A., University of Cambridge
1948	B. Sc., University College London
1948–1956	Lecturer in Physiology, University of Aberdeen
1952	Ph. D., University of Aberdeen
1956–1974	Principal Scientific Officer, then Senior Principal Scientific Officer, Marine Biological Association Laboratory, Plymouth
1964	Sc. D., University of Cambridge
1964–1974	Royal Society Professor, University of Bristol
1971	Acting Director, Marine Biological Association Laboratory, Plymouth
1974–1987	Director, Marine Biological Association Laboratory, Plymouth
1988–1989	Visiting Professor, University of Exeter

Awards and Distinctions:

Fellow of the Royal Society of London, 1964
Croonian Lecturer of the Royal Society of London, 1973
Commander of the British Empire, 1974
Honorary D. Sc., University of Exeter, 1976
Vice-President of the Royal Society of London, 1984–1985
Honorary D. Sc., University of Göteborg, Sweden, 1978
Knight Bachelor for Services to Marine Biology, 1987
Royal Medal, 1987
Frink Medal of the Zoological Society of London, 1987

Representative Works:

Denton, E. J. (1962) Some recently discovered buoyancy mechanisms in marine animals. *Proc. R. Soc. Lond. A*, 265, 366-370.

Denton, E. J. (1970) On the organization of reflecting surfaces in some marine animals. *Phil. Trans. R. Soc. Lond. B*, 258, 285-313.

Denton, E. J. (1974). On buoyancy and lives of modern and fossil cephalopods. *Proc. R. Soc. Lond. B*, 185, 273-299. (Croonian Lecture, 1973)

Denton, E. J. and Gray, J. A. B. (1983). Mechanical factors in the excitation of clupeid lateral lines. *Proc. R. Soc. Lond. B*, 218, 1-26.

Denton, E. J. and Gray, J. A. B. (1988). Mechanical factors in the excitation of the lateral lines of fishes. In "Sensory biology of aquatic animals", ed. Atema, J., Fay, R. R., Popper, A. N. and Tavolga, W. N., pub. Springer Verlag.

Denton, E. J. and Locket, N. A. (1989). Possible wavelength discrimination by multibank retinae in deep-sea fishes. *J. Mar. Biol. Ass. U.K.* 69, 409-435.

(Many others)

Academic Achievements:

Prof. Denton's contributions to marine biology are many and diverse. He has made many discoveries concerning the adaptation of fish to light. These include: 1) The finding that mesopelagic deep-sea fish have eyes that are sensitive to the blue-green region of the visible spectrum; this is the wavelength of light that penetrates most deeply into the ocean. 2) The fact that some predatory deep-sea fish species have retinal pigments that are particularly sensitive to far-red bioluminescence emitted from their own suborbital light organs. 3) The ability of luminescent fish to match the wave-lengths emitted by their photophores to ambient light. 4) The recognition that in the silvery (guanine) reflective layers of the eyes, the luminescent organs and the external surface of fish, the characteristics of the guanine crystals, such as their number, thickness and position within the cell, varies according to environmental conditions.

Prof. Denton has also studied the buoyancy mechanisms of marine animals including jellyfish, sharks and cephalopods. His detailed and extensive work on these mechanisms has revealed that jellyfish increase buoyancy by partially replacing sulphate with the lighter chloride in their body fluids, whereas cranchid squids do so by replacing sodium with the lighter ammonium in their body cavity. Deep-sea sharks achieve buoyancy by storing fat in the liver. He has also suggested that the cuttlebone of cattlesfish and the shell of Nautilus serve as buoyancy regulators by accumulating gas.

Prof. Denton has also investigated the swimbladder system of clupeid fish, which is specialized to exploit the oscillation of seawater. He has shown that the swimbladder system has a close functional relationship with the inner ear and lateral line, enabling the fish to determine the distance and direction of sound sources.

Prof. Denton has thus contributed greatly to the understanding of the close associations that exist between the physical and chemical properties of seawater and those of marine animals through the broad approach adopted in his studies. His findings have both immediate and far-reaching implication for the science of sensory physiology of vision and hearing.

At present, Prof. Denton is working on the ecological role of the high-frequency oscillation produced by the rapid movement of fishes with special attention to information flow among schooling fish.