Eric A. Barnard FRS: A Personal Tribute

Eric Albert Barnard FRS, the pioneering neurobiochemist, passed away peacefully with his family on May 23, 2018 at the age of 90. He had an unusual introduction to science after he was brought up in an orphanage in South London before being evacuated during the war to Cambridge. He left school at 16 and then studied for his A-levels at night. He won a scholarship to Kings College, London, where he undertook his PhD studies. His PhD work resulted in the publication of his first of many important papers in Nature, ‘A cytochemical reaction for nucleoprotein’ (1956). It was at Kings that he met his beloved future wife, Penny Hennessy.

After gaining his PhD from Kings in 1956, the new couple moved to the USA, with Eric having received a Rockefeller Foundation Award to go to UCLA Berkeley, for a year then moving to the State University of New York in Buffalo, becoming Professor in 1968 and Chairman of the Department of Biochemistry. At that time, he was primarily a protein chemist and enzymologist. He became head of the Molecular Enzymology Unit at Buffalo and eventually, the Head of the Biochemistry Department. During this time, Eric published seminal works on the enzymes hexokinase and ribonuclease, and began his early ventures into neuroscience; notably, he used electron microscopy to produce seminal work on the acetylcholine receptor as well as the acetylcholinesterase enzyme (1971), which I still teach to my undergraduates.

In 1975, Eric returned to the UK to the Department of Biochemistry at Imperial College, London to become the Joseph Rank Professor of Physiological Biochemistry. It was at Imperial that he was one of the first to apply molecular biological methods to study proteins of the nervous system, where his contributions transformed the study of the neurotransmitter receptors and ion channels in the field (a more complete description of Eric’s scientific achievements is found in this obituary by three professors inspired by Eric: Oliver Dolly, Jeremy Henley and F Anne Stephenson, J. Neurochem. Letter to the Editor, Eric A Barnard (1927-2018) (https://doi.org/10.1111/jnc.14584.)

At a personal level, Eric was a kind and generous man and he was meticulous in his in-depth approach to science even in his mid-80s. As a Biochemistry degree undergraduate in 1982-1985, I first met Eric as the Head of the Department of Biochemistry at Imperial. He was the second Professor of Biochemistry, after Ernst Chain, at Imperial and was instrumental in the establishment of the undergraduate Biochemistry degree in the late 1970s. He was a highly inspirational person in my career choice in neurochemistry; one significant memory I have of Eric is when he asked me personally for a set of data on opioid receptors and G-proteins I produced during my undergraduate project, which he kindly and enthusiastically presented at an international neuroscience conference on the following day. This was a massive thrill for me and is just one of many of the inspirational contributions he made not only to me but to his many colleagues over the years. In the early 1980s, our relationship turned full circle, when I refereed an excellent Research Council grant proposal from him as P.I. on purinergic signalling, which apparently was subsequently supported for funding. Eric was known by his colleagues, many Academic Professors themselves, as the "Prof" and students as "the white rabbit"; the latter straight out of Alice in Wonderland, being a reference to him popping in and out of offices and labs, and up and down corridors of the department in Imperial and Cambridge, even at 86 years of age.

He was elected a Fellow of the Royal Society in 1981, even before some of his most significant contributions to neurochemistry. In 1985, Eric was appointed the Director of an MRC unit in Cambridge which became the world leading MRC Molecular Neurobiology Unit. He was mostly known there for his outstanding seminal work determining the structure and cloning the receptors for the major excitatory and inhibitory neurotransmitters, acetylcholine and GABA, respectively. As well as defining the structure of the cholinergic neuromuscular junction in his earlier days, arguably, Eric’s biggest triumph was the cloning of the GABA<sub>A</sub> receptor subunit cDNAs and the discovery of the ligand-gated ion channel superfamily. If this was not enough, Eric was also instrumental after he "retired" in the development of our understanding of purinergic signalling. During his extensive career he supervised and mentored many of the current national and international Chairs in neurochemistry (too many to list). He was a great supporter of the Biochemical Society and received two well-deserved major medals, the CIBA (now Novartis) Medal and Prize in 1985, and the Thudicum Medal in 2008, together with a multitude of other international awards. The field will miss a fine scientist and a true gentleman.

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