

## Emeritus Professor Peter Orlebar Bishop AO

The honorary degree of Doctor of Medicine was conferred upon Emeritus Professor Peter Orlebar Bishop AO by the Chancellor Sir Hermann Black at the conferring of degrees ceremony held in the Great Hall in 1983.



Emeritus Professor Bishop and the Chancellor, photo G77\_1\_2097, University of Sydney Archives.

### Profile

Peter Bishop began studying medicine at the University of Sydney in 1935 and quickly developed an interest in neuro-anatomy. Towards the end of his course, Peter published an article entitled 'The Nature of Consciousness' in the Sydney University Medical Journal. This article drew the attention of those in the Department of Anatomy, and after graduating in 1940, he became a Junior Resident Medical Officer in the neurosurgical unit at Royal Prince Alfred Hospital where he worked with Sir Harold Dew, a founder of neurosurgery in Australia.

In 1942, Peter began service with the Royal Australian Navy as a Surgeon Lieutenant. After the war, he worked for a brief time in Dew's department and became a member of the University of Sydney's Postgraduate Committee in Medicine. On receiving a Travelling Fellowship in 1946, Peter moved to England with his family and began working as a clinical clerk at the National Hospital for Nervous Diseases in Queen's Square, London. His interests moved towards neurophysiology rather than neuroanatomy and from 1947 to 1950, he was a Research Fellow in the Department of Anatomy at University College, London. Before his return to Australia, the NHMRC gave Peter 1000 pounds to purchase equipment to bring back. He returned in 1950 and began work in the Department of Surgery at the University of Sydney. Taking on a few Bachelor of Science (Medical) students, he continued some of the work he had been doing in London, examining the electrical stimulation of the optic nerve. This unit became known as the Brain Research Unit.

Peter became a Senior Lecturer in 1951, Professor of Physiology in 1954 and Head of Department in 1955, remaining in this role until 1967. In the 1960s he began his seminal work using cats to study how the eye forms image and depth. Peter explains his work:

*In the late 1960s, I became interested in stereopsis, which is the ability to see in depth, to see that one object is further away than another object. We started single cell recording from the cerebral cortex—the visual parts at the back of the brain, the occipital lobe. Hubel and Wiesel had already done this as well. What was new was the realisation that the two eyes send impulses up to the brain that, by coming together on a single cell in the striate cortex, could form the basis for stereopsis. We started by studying the properties of the receptive fields. A receptive field is that little patch in the visual world – the outside world – that each cell keeps a watch on. Each cell is concerned with a little area in the visual world – that's its receptive field. The impulses from the two eyes go back to a single cell (the same cell) in the cerebral cortex, so that in effect*

*that cell in the cerebral cortex looks out through both eyes at a little area we call a receptive field, and its special job is to report to the rest of the brain what is happening in that little area.*

In 1967 Peter was awarded the degree of Doctor of Science by the University of Sydney. In the same year he was elected a Fellow of the Australian Academy of Science.

Peter then moved to the Australian National University where he was a Professor and Head of the Department of Physiology until 1982.

In 1986, he was made an Officer of the Order of Australia for "service to medical science, particularly in the field of physiology". Peter was appointed Honorary Research Associate in the Department of Anatomy and Histology at the University of Sydney in 1987. Formerly the PO Bishop Medal was awarded to the top student undertaking the Bachelor of Science (Medical) degree in the Department of Physiology. With the discontinuation of this degree the future of this prize has now to be determined.

Peter was awarded the Australia Prize in 1993, for being "known as one of the three or four world leaders in visual science" and the Centenary Medal "for service to Australian society and science in neurophysiology" in 2001.

*From the Sydney Medical School Online Museum and Archive.*