Adrian Horridge, 1953-2016.

A Curriculum Vita is usually a list of appointments, committees sat through, promotions, societies paid up, and congresses attended.
In all my working life, however, I was appointed to serve and train students, and research full time, so it seems appropriate to report activity on those fronts. This is really a list of what I thought was worth doing.

1953-1963. Worked on various invertebrates, mainly in marine labs.
1953. 1st recording of a nerve impulse in a coelenterate.
1956. Description of 2 superimposed nerve nets in medusae.
1956. Description of inhibition in several coelenterates.
1956. Use of polarized light to see stresses within glass fibre laminates.
1957. Description of co-ordination of coral polyps, with a model.
1959. 1st electrophysiology of polychaete motor and sensory nervous system.
1961. Neurons sensitive to different pitches in locust ear.
1962. Discovered postural learning in headless insects.
1962. Discovered symmetrical synapses in medusae.

1965. Publication of the 2 volume work “Structure and Function in the Nervous Systems of Invertebrates” jointly with Ted Bullock. This huge work was 10 years in the making. My friends said I need never work again. It is the comprehensive book on this subject in English, and started many students on their life’s topic.

1964-1965 Work on Ctenophores, sadly too late for the above book.
1964. Description of nervous system in Ctenophores.
1964. Discovered giant mitochondria in Ctenophores.
1965. Discovered sliding motion in mechanism of cilia motion.
1965. Discovered neurocilia synapses in Ctenophores.
1965. Discovered many locations of vibration-sensitive cilia.

1964-onwards. Insect eye studies.
1964 Multimodal neurons in insect optic lobe.
1965. Light causes changes within photoreceptors of locust.
1965. A direct response of the crab to the motion of the sun.
1965. The optic lobe neurons of the locust.
1966. The structure and function of the locust retina; light guides and migration of pigment grains acting as shutters.
1966. The crab keeps its eyestalks fixed relative to nearby contrasts.
The optomotor memory persists for minutes in the dark.
1966. Optomotor responses of the crab eyestalk.
1968. Further responses of the crab eyestalk.

1968. Crystalline threads in the eye of the firefly.

Move to Australia,

1969-onwards. Descriptions of numerous insect retinas studied by optics, electrophysiology, and electron microscopy.
1976. Inference that flying insects measure range by induced motion.
1977. Foveas in insect and Squilla compound eyes
1978. Descriptions of optics and light guides in many insect eyes by night and day.
1983. Optical gain measured in superposition eye by counting photons.
1983. The diurnal changes in the cone shape in beetle eyes change the optics.

1984-1994 Insect eyes in motion. Mantids measure range when reaching.
1986. Moving insects measure range.

1987. Beginning of work with trained bees.

1988. Demonstration that trained bees measure range by induced motion.
1990. Bees detect parallax at moving boundaries.
1990. Implementation of the template model of insect vision.
1992. Discovery of fast and slow neurons in insect optic lobes.
1994. Discovery of bee's preference for symmetry.
1995. Bees' discrimination and measurement of symmetry.
1996 onwards. Systematic isolation of cues in bee vision.
1997. Discrimination of disruption irrespective of pattern.
1997. Discrimination of the two sides of the target separately.
1999. Radial/tangential cues are colour blind.
1999. Fixation on a radial pattern assists discrimination of position.
2000. Discrimination of the position of a coloured patch.
2000. Model of the processing channels in a local region of the eye.
2003. Measurements of the size of the feature detectors for modulation.
2003. Bees learn the position, not the orientation of a single bar.
2003. Measurements of the size of the feature detectors for edge orientation.
2003. Bees detect the cues, not the pattern. Cues are recognized at the locations on the eye where they were learned.
2004. Distribution of the local eye regions round the head detects place.
2005. The resolution of the eye is set by field size of feature detectors, not $\Delta\Phi$.
2006. List of cues that insects detect with their eyes.
2008. The summation of feature detector responses, small number and variety of cues available to bees, and the preference to learn the strongest cue, causes the generalization of patterns within each eye; i.e., bees mistake one pattern for another that displays similar cues.
2009. Shape discrimination in the honeybee. No shapes, only cues

2009 November. Publication of book "***What does the honeybee see***?"
by ANU Epress, now online for free personal use at the unique URL:
http://epress.anu.edu.au/honeybee_citation.html
2009-12 Efforts to understand how bees detect, locate, measure and discriminate colours.
2012 Plenary Lecture at ISIN at Tihany. *The Anti-intuitive Visual System of the Honeybee.* This review contained the new finding that bees use green and blue receptor modulation for discriminating edges of coloured areas, besides for resolution of gratings, as already known in 1988.
2014-2015 A new theory of bee vision of colour. Bees use only the blue receptor path to detect and measure blue content of areas of colour. The green receptor pathway does not detect colour, only edges displaying green modulation. Image structure is detected, located and measured mainly by the green receptors. There is no evidence for participation of ultraviolet receptors or for trichromatic colour vision. There are no receptors for black, white or grey, and no achromatic vision, only blue and green receptors. The system was summarized in the Plenary Lecture at ISIN, Tihany, Sept 2015: *Parallel Inputs to Memory in Bee Colour Vision.* Acta Biol Hungarica 67, 1-26, (2016) and four other papers.