Catching the Ball:
Constructing the reciprocity of embodiment

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This thesis is presented for the degree of Doctor of Philosophy of Murdoch University
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I declare that this thesis is my own account of my research and contains as its main content work which has not previously been submitted for a degree at any University.

[Signature]

Elizabeth Eve McCardell
Abstract

This interdisciplinary dissertation is a study of the ways in which we sensually embody and experience our world. It is a metaphilosophical account that begins within corporeality; indeed, it is suggested that this is the place where the philosophic urge is argued, elaborated, and reflected upon.

While many studies of embodiment tend to focus upon "the body" as object, cultural artefact, or text for cultural inscription, the approach used in this dissertation is with the incarnation (the making flesh) of interaction in particular socio-physical milieux. The shift is thus from investigation of bodies to bodying, from noun form to transitive verb of incorporealization. This shift is felt necessary in order to better understand the so-called dualisms of traditional Western philosophic thought: mind-body, self-other, self-world, nature-culture, etc., and Tantric inspired Eastern philosophies of self-all relationality. It will be suggested, taking the lead from Leder (1990), that these apparent dualisms are not so much "add-ons" to philosophies of being, but arise in the experiential body itself.

This dissertation endeavours to rethink certain "givens" of everyday life, such as perception of time and space, place, enacted memory, having empathic feelings for others, and so on, from within bodily experience and occidental-oriental philosophies of being. Certain neurological disorders are examined for their way of deconstructing elements required to construct a meaningful incarnated life-world.

The process of embodiment is not only what the body is, but what it does.
My construction of what is necessary for embodiment studies therefore considers bodily praxes (cultural and individual), as well as the sensual, sensate experiences arising in the body.

The image of a ball game is evoked in various ways throughout the dissertation not only because it well describes the dense layers of interaction and an emergent sense of bodiliness, but it also illustrates reciprocity and situatedness.

This thesis is intended to contribute to the health sciences as well as cultural studies. It draws upon the phenomenology of Merleau-Ponty, J. J. Gibson's ecological psychology, neurological studies and case histories, and the Eastern tradition of Tantrism in its Mahayanist Buddhist and Taoist forms.
Acknowledgements

Hansen (1992) uses the opportunity of the Acknowledgements to his book on Chinese thought to map, Taoist style, a personal reciprocal connection with fellow scholars and scholars of influence; teachers; history, culture, nature and forces of his surrounds; the mountains and plains, rain, and air of his milieu: the causes and changes, natural and supernatural, of his very being. He even spins a tale of reincarnated connection with the Chinese sage, Zhuangzi. Acknowledgements pages in other books are usually less extravagant, though no less reflexive and revealing of special connections. These stand as a backdrop to all theorizing. Thus I too celebrate my relationships.

My special thanks to Dr Michael Booth, of Murdoch University, for his acute mind, gentleness, creativity, direction, and friendship. Without his enormous support, and the use of a quiet house (bathed in the scent of sea air, Morton Bay figs, and pines), in which to work, this project may have floundered. My thanks to the healers that permitted a focus of intent: Indiva, and Dr John Prott. My delight in extraordinary friends with whom I have shared ideas, plans, and much laughter: Graham Bean (cellist, now deceased), Dr Pam Nichols and Elizabeth Lindsay, Steve Rodgers, Estelle Barrett, Charles, Richard and Lew, Miri, Margaret, and Christina, I give thanks. My love to my brother, Dr Antony McCardell, for his love. Thanks also to a little cognitive science discussion group; students I have taught; the staffs of Murdoch University Library and the University of Western Australia Medical Library; and Murdoch University for travel

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1 My thanks to the primates, large mammals, the plant kingdom, and the unfathomable natural forces on which they rest. The electromagnetic field coursing through my computer no doubt flows from the Big Bang. (Mysticism is an easy matter these days of black holes and singularity.) (Hansen, 1992: x)

2 It is possible to trace an intellectual "family tree" through Dr Booth that embraces many of the thinkers that have inspired and contributed to this dissertation, e.g. Argyle, Goffman, Kendon, Neisser, Lashley, Bernstein, Leont'ev, etc.
and conference awards permitting a visit to China and Sydney, a scholarship and maintenance funds.

In Taoist style, I also acknowledge with pleasure, the bounding, funny, intelligent and very sweet natures of two dogs, two cats, fish, and a garden of birds and frangipani flowers.
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An overhead throw comprises a well orchestrated series of co-ordinated movements, starting from the foot, through the lower extremity, pelvis, trunks, shoulder, elbow and wrist. The end result is a whipping motion of the upper extremity and release of the ball at speeds up to 160 km/hr.

There are three phases of an overhead throw: the winding or cocking phase, delivery and follow-through. The wind-up phase signals the preparation of a throw. Here the joints of the shoulder slowly twist around like a spring resulting in maximal stretch of the anterior structures at the glenohumeral joint and internal rotators of the humerus, assisted by the supraspinatus, infraspinatus and teres minor, which also contract to stabilize the head of the humerus. A burst of concentric and isometric contractions from these muscles accelerates the limb towards a posterior, externally rotated position. An eccentric contraction of the subscapularis and internal rotators (pectoralis major and latissimus dorsi) slows the movement of the humerus before the limb reaches a position of full external rotation. The movement results in 'preloading' the horizontal adductors and internal rotators. During this phase, muscles around the scapula act as synergists, firing to stabilize the scapula, thereby providing a solid base on which movements of the humerus occur (cf. Welsh and Woodhouse, 1992: 511-512).