[Review] Carol Gigliotti. *The Creative Lives of Animals.*New York University Press, 2022. 289 pp. ISBN 9781479815449.

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Carol Gigliotti's book challenges the reader to conceptualise creativity outside of its human limitations, to define creativity itself more expansively and to realise that animal creativity is vital for each species and for biodiversity. She presents a compendium of relevant scientific research over the last few decades, showing how certain 'disruptive' scientists are now asking different questions, even as she extends the potential purview of this research by suggesting fresh angles herself. *The Creative Lives of Animals* proffers the best of interdisciplinary endeavours, deploying Human-Animal Studies, Critical Animal Studies, philosophical, social and political approaches as well as research from the field, backed by Gigliotti's own experience of creativity and the teaching of creativity.

A discussion of the perils of anthropomorphism is de rigueur, of course, in any book on animals. Gordon Burghardt's notion of 'critical anthropomorphism' is a useful one. He suggests that interpretations of animal emotions and the way they live their lives be grounded in scientific research both behavioural and neuroscientific while merging with our own 'empathy and intuition' (15). As Gigliotti notes, somewhat tartly: 'it has taken the larger scientific community quite a while to catch up' to the fact that animals have personalities (185).

The first chapter, on 'Animal Intelligence', shows how, in the latter part of the twentieth century, researchers conceded that animals could conceptualise abstractly and then act on such thinking, thus dismantling the reductive notion that all animal intelligence is merely instinct. The chapter begins with Ayumu, an eleven-year-old chimpanzee, who beats human memory champions in his capabilities of recall, and then considers Moscow's street dogs with their knowledge of subway trains' schedules and destinations. Instances of scientific studies into the creativity of insects extend this reader's bias towards mammals: entomologist Mark Moffett

sees creativity in ants 'at the level of the superorganism' (qtd. in Gigliotti 31). (In *The Soul of the White Ant* (1936) Eugene Marais went as far as investigating the psyche and the consciousness of termites). Tragically, research into the intelligence of pigs, as Gigliotti observes, is constrained by the reluctance of some researchers to acknowledge pigs' phenomenal intelligence as well as their 'consciousness, awareness of self and others, and conscious emotion' (36), as this would problematize their treatment as farmed animals or experimental objects.

Chapter Two on 'Communication Unlimited' addresses how research is now acknowledging animals as having languages: both prairie dogs and coyotes have been shown to use language creatively. Animal behaviourist and evolutionary biologist Con Slobodchikoff, for example, applies 'discourse system theory' in this regard. Animal inventiveness and communication can only be marvelled at, like the capabilities of elephants who sense from twelve hours' walk away not only that Lawrence Anthony, the man who rescued them and now has them in his conservancy, has died, but remain near his homestead for two days in mourning. Whales' rhyming songs change seasonally; birds have dialects and are composers. This book presents an abundance of such scientific research on animal creativity.

'Play as a Creative Source' in Chapter Three discusses this central element in the cooperative bonobo culture, with images of dreamy bonobos playing with water. Play is not an end in itself, however, but often a means to coming up with creative solutions: humpback whales bubble-net fish, kea move traffic cones to stop cars which might dispense food.

Amphibians, reptiles and insects like communal spiders and paper wasps, enjoy play. Marc Bekoff has introduced the notion of morality into play, which includes justice and judgment as well as care for others.

Chapter Four on 'Creating Built Environments' is a substantial chapter on animal architecture: beavers are intelligent, self-aware, and as Donal Griffin and James L. and Carol Gould observe, they can modify their building strategies to suit a specific environment. Mike Hansell's research shows that animals have an aesthetic sense. When bees swarm and need urgently to choose a new home, scouts research new sites but quite how the bees collectively

reach a quorum on which location to choose remains a mystery. Gigliotti suggests that making such collective judgments is itself a creative process, pointing out how business culture has taken on creative process theory.

As well as all the engaging examples of scientific research into animal creativity the reader is apprised of Ur-ideas, like those of Darwin, about certain birds having a sense of beauty. Richard O. Prum, shifting Darwin's notions of sexual selection, suggests that arbitrary choices based on what is perceived as beautiful are key to the evolution of a species as well as biodiversity. Not only does Gigliotti present key relevant research accessibly to non-scientists, she also interviews particular scientists like Prum, an ornithologist and evolutionary behaviourist. At the same time, Gigliotti often goes beyond the science – for example, differentiating between art and creativity, and whether the animal feels pleasure in the process of creating. Scientists, she notes, often reduce the terms 'art' and 'aesthetics' to notions of beauty, whereas 'justice, ethics, politics, identity, evolution, environmental aesthetics' (128) are also relevant.

The chapter on 'Sexual Exuberance' explores the individuality of sexual behaviour with hermaphroditism, parthenogenesis, female polyandry, and homosexuality in the nonhuman realm. Sexuality, like play, Gigliotti notes is 'often a driver of creative behaviour' (143), for example the mating dance of grebes and those of birds of paradise, which are now being studied from the female point of view. Prum stresses that animals are 'aesthetic agents' (163) in their choice of mate, a choice which is not utilitarian (the latter being the dominant view). He observes, echoing Gigliotti, that anxiety about so-called scientific objectivity has limited science and the questions it is permitted to ask.

In Chapter Six on 'Emotional Agency', research on reconciliation and forgiveness is included. The importance of empathy in creative behaviour and the 'daily creativity of mothering' (178) is discussed. This chapter does seem to stray somewhat from creativity, but perhaps my notions of what is creative need to be stretched. Chapter Seven about 'Culture across Species' is a solid, informative chapter. That animals should even have cultures has been denied, partly because of the adherence to the belief in human exceptionalism. Now, Gigliotti

shows, some research in animal behaviour focuses on the prevalence of culture, and how it spreads in many species: from particular dolphins using sponges as tools to humpback whales shifting to new songs to be learned.

The creativities of nonhuman animals, mammals, reptiles, insects with whom we share the planet feature, as the discussions have so deftly shown, on individual, cultural, species and evolutionary levels. *The Creative Lives of Animals* not only fills the reader with wonder at the richness of animal creative practices that are only beginning to be acknowledged, but cites scientific proof for what so many animal aficionados have always known and celebrated. In Gigliotti's evocative image, 'We are swimming in an ocean of creativity' (225).