

Professor Laland's pedagogic theory of evolution

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Kevin Laland, *Darwin's Unfinished Symphony. How Culture Made the Human Mind*, Princetown University Press, Princetown, 2017, 450pp £27.95 hardback, ISBN 9780691151182

When discussing Darwin with Jehovah's Witnesses or students - sometimes the same people, or more commonly fundamentalist Christians or Muslims, a good point of departure can be the similarities and differences between human beings and other animals. Kevin Laland is committed to demonstrating 'a major gulf between the intellectual capabilities of humans and other animals' (p231). Tool use was once considered a crucial marker but Laland shows in a variety of examples of animals using tools that this previously accepted distinguishing feature of humanity has lost its uniqueness. He also rejects 'The currently dominant view . . . [that] the primate brain expanded to cope with the demands of a rich social life' (p144). Instead, he sees teaching as unique to humanity.

Teaching he defines as '*behaviour that functions to enhance the fidelity of information between tutor and pupil*' (his italics p158). It imparts the hierarchical syntax that structures the forms languages take, giving all languages the underlying generative grammar that the linguist Noam Chomsky derives from a supposed universal Language Acquisition Device innate to humans. Instead, 'Human language is unique (among extant species) because our species uniquely constructed a sufficiently diverse, generative and changeable cultural world that had to be talked about.' (p192 in

the chapter 'Why we alone have language'). 'We' thus 'constructed our niche' through 'our species capacity to control, regulate and transform the environment . . . chiefly due to our extraordinary capacity for culture.' (p230) and for transmitting culture by teaching.

Animals can certainly learn from their experiences and from each other so that many of them - from fish to frogs, crabs to crows - pass information down their generations to form cultures. The regional variations of birdsong, or the use of tools by monkeys and many other creatures, show this clearly, including innovative behaviour which is then adopted and adapted by successive generations. This is different from what is called epigenetics, which also explains the inheritance of stable traits without changes to DNA, especially through the extraneous activation and suppression of gene expression, but it has similar effects in speeding up evolution. Laland is thus not alone in meeting the objections of those for whom the succession of inherited accidents recounted by neo-Darwinism cannot account for the intricacies of complex structures. However, for Laland this acceleration became exponential amongst a restricted family of primates, the hominidae, which developed language to enable the transmission of culture by teaching.

Symbolic language, as distinct from the often elaborate signalling systems of other creatures, is another critical marker that, like tool use, is often claimed to distinguish the species homo from other primates. As another tool, language co-evolved with tool use and Laland mathematically models the

selective advantage conferred by hand, eye, voice and brain co-evolution to assert, 'Language originally evolved to teach, and specifically to teach close relatives' (p191).

Although he occasionally writes of 'coaching' and 'training', this pedagogic conception of cultural learning and language 'as an adjunct to teaching' (p318) is an impoverished one because Laland neglects what has been called *The Tacit Dimension* of building a culture through new members being apprenticed to it. He therefore misconceives learning and teaching by reducing them to their basis in copying for the competence imparted by training. The imaginative leap required to understand new knowledge or achieve skilful performance is thus lost, whether acquired for the first time by novices or introduced as a new discovery or improvisation. This is important today when so much of education is being reduced to behavioural training; after all, many animals can be trained but none can be educated!

The transmission of culture is therefore more than mere copying, otherwise no innovation would be possible and, as Marx wrote in *Capital*: 'A bee puts to shame many an architect in the construction of its cells; but what distinguishes the worst of architects from the best of bees is namely this. The architect will construct in his imagination that which he will ultimately erect in reality. At the end of every labour process, we get that which existed in the consciousness of the labourer at its commencement.' Laland's pedagogic notion of cultural transmission misses this emphasis upon imagination so that tools - including language - are not necessarily technologically deterministic but can serve to free human consciousness from the reality it is focused upon.

Of course, not so long ago - certainly on an evolutionary timescale - it was received wisdom among many Marxists that Marx and Engels had completed *Darwin's Unfinished Symphony*. Whether or not Darwin refused Marx's offer to dedicate *Capital* to him (on the reasonable grounds he had not read it), Marx definitely considered *The Origin of Species* as 'the basis of natural history for our views', even though he also thought Darwin's theory influenced by contemporary capitalist economics.

Engels's explanation of *The Part Played by Labour in the Transition from Ape to Man*, where he declared 'labour begins with the making of tools', is an example of his *Dialectics of Nature* which have long been almost universally discredited (including by many Marxists) as mechanical and outmoded. However, the violent overthrow of what Engels called the primitive communism of classless tribal societies by a new warrior class imposing a state through their monopoly of weapons is an example of

the emergence of a new dynamic that took over the direction of society. Henceforth, the more or less violent struggles between classes determined social development.

Today, 'the ruling ideas' of the ruling class are contested by the sub-, counter- and not only class cultures struggling against them. Nevertheless, the overall direction of society is usually decided by owners or shareholders seeking profit who generally have the last word over how to deploy new technologies to maximise output. There is not therefore a simple exponential development as Laland supposes and the logic of cultural evolution is not identical to that of biological evolution with 'memes' supplanting genes. 'Biology provides no substitute for a comprehensive historical analysis', Laland concedes in conclusion (p314) but then asserts 'Human culture is indeed amenable to evolutionary analysis' (p320). This is not the usual evo-devo but is as reductive in its own way.

Despite all the references to inter- and cross-disciplinary archaeological studies, mathematical modelling and artistic collaborations that Laland details, his frame remains that of science narrowly conceived and not extended to even the possibility of social science. In what calls itself a University (St. Andrews) this is bizarre, especially in an epoch - which Laland labels the 'anthropocene' (more precisely, the 'capitalocene') - requiring sustainable development to preserve what is left of the 'endless forms most beautiful and most wonderful', whose origin Darwin had delineated but which humanity, as the one species self-consciously aware of its own existence (another marker!), is in danger of destroying along with itself.

The violent origin of civilisation emphasised by Engels but neglected by Laland explains the self-inflicted intra-species mass violence often claimed as yet another unique marker of humanity. In the 'more or less subdued civil war' within class societies - not the unity Laland supposes - it is augmented by the symbolic violence of culture. This reinforces whilst simultaneously occluding through its religious and other ideological forms the root violence of class and gender oppressions. Violence is also amplified by technology, especially when inflicted by one people upon another in imperial conquest. However, from the natural scientific perspective which Laland maintains, 'The Evolution of Intelligence' he celebrates as 'the ability of an animal to solve problems, comprehend complex ideas, and learn quickly' (p125), appears less of an achievement and more of a possibly lethal mutation.