

1 Mesoudi, A. (2013) Making sense of culture (book review of Whiten, A., Hinde, R.A.,
2 Stringer, C. & Laland, K.N., Culture Evolves). *Trends in Ecology and Evolution*
3 28(11), 626-627.

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Making sense of culture

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9 Review of Whiten, A., Hinde, R.A., Stringer, C. & Laland, K.N. (2012) *Culture Evolves*.

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18 This volume is a collection of 25 papers originally published as a special
19 issue of *Philosophical Transactions of the Royal Society* in 2011 [1], which in turn
20 resulted from a 2010 joint Royal Society / British Academy discussion meeting.
21 The title, “culture evolves”, can be understood in two senses, and these two senses
22 provide a loose structure for the volume. The first sense is that “the capacity for
23 culture evolves by natural selection”. Gone, thankfully, are the days when culture is
24 defined *a priori* as unique to humans and absent in other species, a definition
25 which is artificial, anthropocentric and precludes the comparative study of culture.
26 Consequently, the first eight papers review comparative work demonstrating that
27 social learning and cultural traditions are far more widespread in the animal
28 kingdom than was imagined just a few decades ago, occurring in birds, fish,
29 monkeys, apes, and other mammals. Individuals of many species use social
30 learning to find food, choose mates and recognise predators; between-population
31 differences often emerge as a result of shared social information; and these
32 cultural traditions constitute a major means by which species adapt to their
33 environments.

34 The next four papers focus on how the capacity for culture evolved in early
35 hominins, as revealed through the paleoanthropological and archaeological
36 records. Interestingly, just as the cultural abilities of non-human species have, until
37 recently, been greatly underestimated, so too it appears have the cultural abilities
38 of our hominin ancestors. For example, while Acheulean handaxes were once
39 thought to represent over a million years of technological stasis, recent analyses
40 have demonstrated considerable regional and temporal variation indicative of
41 both cultural traditions and cumulative cultural change.

42 At this point the volume shifts to the other sense in which “culture evolves”;
43 the sense that “the contents of culture evolves through a process of descent with
44 modification”. Those stone tools made by early hominins can themselves be seen
45 as evolving over time, forming a second inheritance system intertwining with the
46 genetic inheritance of their makers. The subsequent eight papers build on this
47 notion, examining how evolutionary tools (e.g. phylogenetic methods) can provide
48 insights into how technology, language and social norms change and diversify over
49 time. The idea that cultural phenomena evolve according to the same fundamental
50 principles as those governing genetic evolution predates Darwin, yet it is only in

51 the last few decades that a quantitative science of cultural evolution has emerged
52 [2]. The papers in this section give a taste of some of this work.

53 The final four papers switch from macro-level cultural evolution to the
54 micro-level, looking at how children acquire the knowledge and skills that
55 constitute the products of their society's cumulative cultural evolution. Children, it
56 seems, have also been underestimated: rather than being passive receptacles of
57 knowledge, they use quite subtle cues to determine whether something is worth
58 learning or not, such as whether the demonstrator is deliberately rather than
59 accidentally doing something, or the demonstrator's past reliability.

60 As one would expect given their origin in *Philosophical Transactions*, the
61 papers all present authoritative reviews by major players in the field. Scholars
62 looking for a technical overview of the latest research into the origin and evolution
63 of culture will find a wealth of information here. The downside is that they are
64 quite hard-going at times, plus most scholars will probably already have access to
65 the papers online via their institution.

66 Perhaps the most impressive aspect of the volume lies in bringing such a
67 diverse range of topics together in one place, for which the editors should be
68 commended. Rarely does one find oneself considering the social transmission of
69 stickleback foraging behaviour, followed a few chapters later by historical analysis
70 of socio-political organisation in small-scale Pacific island societies. This breadth
71 necessarily encompasses multiple disciplines, from biology to anthropology,
72 psychology, archaeology, linguistics and sociology. Whereas traditionally such
73 disciplines have had little to do with one another, the evolutionary framework
74 adopted here provides a common language within which to understand these
75 diverse phenomena, from fish foraging to Fijian fiefdoms. The social sciences in
76 particular are in dire need of such an evolutionary framework to synthesise
77 disciplines and provide the quantitative methods that are needed to explain
78 cultural phenomena [2, 3].

79 As a result of outlining what is now known, it is equally apparent that there
80 is much left to be discovered. While comparative work has closed the gap between
81 human and non-human species, there undoubtedly still is a gap: no other species
82 accumulates as much cultural knowledge as rapidly as *Homo sapiens*. Contributors
83 here suggest answers to this conundrum, from communicative teaching to

84 foresight to language, but none are definitive. Several make the point, however,
85 that the answer will probably come from linking the two aforementioned senses of
86 “culture evolves”: rather than assuming that the capacity for culture first evolved
87 biologically and then allowed cultural evolution to take off, it is more plausible that
88 the capacities underlying culture coevolved with the increasingly extensive and
89 complex contents of culture. What seems certain is that the interdisciplinary
90 approach exemplified here will be necessary to make this link.

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92 **References**

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