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The many ways to communicate

THE EVOLUTION OF COMMUNICATION.

Marc D. Hauser. MIT Press, Cambridge, MA, 1996. No. of pages 760. ISBN 0-262-08250-0. Price US $55.00 (Hardback)

Linguists, psychologists, and philosophers have all been notable participants in the recent intense discussions of the relevance of natural selection to explanations of the nature of human and nonhuman cognitive abilities and cultural proclivities. Some, such as Pinker (1994, forthcoming), Dennett (1995), and Lieberman (1991), enthusiastically apply the Darwinian framework to their analysis of human communication, while others such as Chomsky (1993) and Fodor (1994) are, shall we say, more guarded in their assessment of its explanatory force. About natural selection, Chomsky wrote, 'When you get beyond proteins, understanding does tail off' (1993, p. 84).

Darwin himself of course knew that 'organs of extreme perfection' were going to present a challenge to his theory [Chapter VI, 'Difficulties on Theory', Darwin (1859, 1964)]. Partly as a result of this, communication systems are very attractive objects of study, since they tend to be complicated, delicate, very effective, and abstract in the sense that one can rarely read the apparent content of the message off of its form, and thus there must be arbitrary associations in the minds of the users. Explaining its origins in humans has been a keen object of interest for centuries. But a major barrier to further investigation is that, notoriously, linguists have not achieved anything close to a consensus about what needs to be explained. The nature of the thing is tantalizingly elusive, and in such an environment, it is hard to get an account of phylogenetic development off the ground.

But for nonhumans, the situation is quite different, at least according to this very impressive book by Marc Hauser. Its over 700 pages contain elaborate descriptions of transmission and receptions systems, often with anatomical, neurological, and acoustic analysis, of a very wide range of species, including most prominently vervet monkeys (Hauser was a student of Cheney and Seyfarth). Hauser's breadth is amazing. Crickets, rhesus monkeys, squirrel monkeys, frogs (of several varieties), toads, canaries, zebra finches, bats, gorillas, Japanese macaques, the sage grouse, tanagers, mantis shrimp, European blackbirds, honeybees, and, my personal favorite, the domestic chicken, do not exhaust the list of species whose communication systems are described in some detail in this book. If one wants to know the sorts of mechanisms that need explaining in any general account of the evolution of communication, this is the place to start.

On the other hand, the book also disappoints in several ways. For one, Hauser seems uncertain of himself when discussing human language. For example, he confuses *indeterminacy of translation* with *referential opacity* [and his reference to Quine (1970) is incorrect and not very helpful in any case]. He seems to underestimate its complexity, and thus misses much of what linguists focus on. In Chapter 5 he writes, 'Here, we will take an in-depth look at the factors that guide and constrain the human child along the way to acquiring language, both spoken and signed', but the ensuing discussion barely scratches the surface. The biggest disappointment, however, is that the forest never really emerges from the trees, as the title of the book might lead us to expect. Hauser believes that to explain what an organism is like one needs to look at its environment and the environment of its ancestors, but engagement with those who think otherwise (e.g. Chomsky on language) is totally absent. The first three chapters contain an overview of some general principles but the remaining five chapters rarely refer back to stage-setting chapters, and there is almost no attempt to account for phylogenetic development in the very numerous case studies. In the end, the reward for following, for example, the very detailed discussion of stomatopod nest cavity competition is the story itself, which, though fascinating, may not be enough for many readers.

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