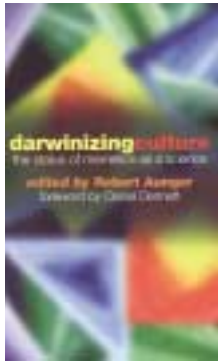


The nature of the memetic beast

Darwinizing Culture: The Status of Memetics as a Science

edited by Robert Aunger, Oxford University Press, 2000. £19.99 (xiii + 242 pages)
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What are memes, and why might they be useful? This multi-authored book is a welcome attempt to bring together arguments for and against the meme concept. It begins with the admirable sentiment that if the meme idea is to

flourish, it should do so regardless of its intuitive appeal but instead based upon sound scientific reasons.

The question of what exactly memetics is, or should be, is risky to address without lengthy caveats and explanations. To me, memetics conceptualizes culture as being at least partly constructed from socially transmitted units of information, or 'memes'. Memetics argues that some elements of culture can be broken down into discrete, replicating packages of information and, as such, memes are likely to undergo evolutionary processes. Blackmore, a meme advocate, argues that such considerations lead to the idea of the 'selfish meme' (*sensu* Dawkins¹), and radical differences with other theories of culture. Note that I have left the weighty question of defining culture to a braver individual, partly because I believe that the meme concept, usually applied exclusively to human culture, may in fact be equally applicable to animal traditions².

One major advantage of memetic approaches is that memes, as culturally transmitted replicators, can be studied using the corpus of evolutionary theory. For example, in their contribution, Laland and Odling-Smee cite the success of gene-culture co-evolutionary theory, an offshoot of population genetics, in analyses of the co-evolution of lactose absorption and

dairy farming in humans. Relevant applications of biological theory not emphasised in *Darwinizing Culture* are recent developments in phylogenetic analyses, approaches that take evolutionary history into account when analysing proposed cases of correlated evolution³. Such methods can be applied regardless of the mode of inheritance, and so have several potential applications to studies of cultural transmission, such as determination of whether cultural history has an effect on the current distribution of a trait across populations. Precise details of these analyses are not without their critics, but here is a body of theory which could usefully be adapted to the study of culture. Evolutionary theory has something to offer studies of cultural transmission and should not be rejected out of hand.

Darwinizing Culture also presents powerful arguments criticizing, first, the utility of the meme concept and, second, any Darwinian approach to culture, as irrelevant, intractable, or just plain wrong. Boyd and Richerson are here amenable to the idea of Darwinian cultural evolution, but question whether memes are necessary for such analyses. This is an important point, because it means that meme opponents should not disregard evolutionary-based theories as irrelevant to studies of culture or traditions. Sperber, Bloch and several other contributors criticize the notion of memes as particulate, independent entities. Sperber points out that much cultural transmission builds on pre-existing knowledge, with individuals inferring instructions rather than copying actions directly. I tend to concur with Hull, who argues that, instead of hand-wringing, memeticists should begin work on all fronts, as even crude empirical investigations will improve future theoretical perspectives.

Some of the most entertaining moments of the book are the devastating broadsides launched against other fields. For example, Hull exposes the 'scandal' that information theorists cannot distinguish between the information contained in the structure of a printed page and that held by the printed words, and both Kuper and Bloch criticize memeticists' lack of interest in anthropology. Kuper makes robust

attacks on Dawkins, who introduced the term 'meme'¹ and Bloch chides non-anthropologists with a gentle analogy: 'memeticists have freely chosen to study *exactly* what anthropologists have been studying for more than a century... a social scientist who, for some reason, chose to write about photosynthesis, would not be justified in pleading lack of time for not acquainting herself with the botanical literature'. Anthropologists are exactly right to criticize memeticists on this point, but it is a shame that the opportunity was not taken to provide extensive bibliographies for uninitiated students of cultural transmission, with meme critics citing noticeably fewer works than meme enthusiasts ($t_{7}=2.59$, $p<0.05!$).

There is one clear gap in the book, and that is a discussion of birdsong. One sentence is devoted to 'song dialects', yet researchers were applying the meme concept to analyses of birdsong even before memes became fashionable⁴. This omission is particularly disappointing, as the birdsong literature seems to provide an acid test of at least two controversial issues: the utility of the meme concept, and the existence of memes in non-human animals.

Who should read this book? Potential meme enthusiasts and detractors, certainly, but whatever one's stance on memes, several authors (notably Hull, Laland and Odling-Smee, Boyd and Richerson, Plotkin, and Sperber) make important points relevant to students of culture or social transmission who are uninterested in the specifics of the meme debate, and regard memetics as a fashionable diversion for dilettantes. It is hard to criticize a book that criticizes itself so fully; indeed, despite my disagreements with individual authors, Aunger's strength is to bring together a diversity of views so that most points are fully addressed. There was, though, one minor disappointment I had with the book as a whole, that Aunger was circumspect in detailing a path ahead. One was left with a clear picture of potential obstacles and pitfalls, rather than a firmly voiced opinion on the way forward. However, this is a small point, and simply down to the nature of the memetic beast. The book is academic in tone, and perhaps of less general interest than some recent books

on memetics^{5,6}, but is to be applauded for the refreshing, conservative approach to a field that lends itself to speculation and exaggeration.

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Hanging around with baboons

A Primate's Memoirs: A Neuroscientist's Unconventional Life Among the Baboons

by Robert M. Sapolsky, Scribner, 2001.
\$25.00 (304 pages) ISBN 0 743 20247 3



I will admit from the outset that Robert Sapolsky is one of my heroes. During my junior year of college, I read his treatise '*Stress, the Aging Brain, and the Mechanisms of Neuron Death*'¹.

Twice. Although

I never went on to study stress, aging or neuron death, the book made me realize that one could be both a neuroscientist and a field biologist...and be good ones. Sapolsky showed that this two-pronged approach to the study of the brain and behavior was both intellectually fertile and loads of fun. I've been trying to be like him ever since, and *A Primate's Memoirs* is the book I would want to write someday – the true-life adventure story of 20 or so summers studying primates in the Serengeti plains of East Africa. From these pages, we learn much about

primates, both human and non-human, and about humility (and humour) in the face of adversity.

Sapolsky has excellent credentials to write this book. He is professor of biology and neurology at Stanford University and a researcher with the Institute of Primate Research, National Museums of Kenya. He is also a highly regarded science writer (e.g. his earlier books, '*The Trouble with Testosterone*' and '*Why Zebras don't get Ulcers*'). From the late 1970s, Sapolsky's laboratory work focused on how stress can kill hippocampal neurons. To make the connection with behaviour, he also embarked on a parallel research program to study how and why some individuals were better able to cope with stress than others. This is where the baboons enter the story. Baboons live in large, complex social groups, and like humans, they spend a lot of their time jockeying for a higher position in the social hierarchy, or at least making sure they don't fall further down. Thus, Sapolsky went into the field to study the natural behaviour of baboons, following them around for hours, and figuring out which baboons were getting the most 'psychological' stress from other members of their social group. In order to obtain the necessary information on stress physiology, he then darted and anaesthetized the individuals for which he had behavioural data. This was all in an effort to determine how well their bodies coped with the stress in general and which individuals seemed to cope better and why.

In *A Primate's Memoirs*, Sapolsky's parallels his life in the bush with that of a male baboon transferring into a new troop, someone who is young and naive, but eager to get on with the adventure of life as an independent adult in a new environment. For Sapolsky, this means being a scientist in the 'teenager stage' of his career (i.e. graduate school) transferring himself into a new research project in Africa, armed only with what he has read in books and a lot of confidence. As he chronicles his travels and travails, we learn quite a bit about being a field biologist and about being a foreigner in an exotic land. For example, we get a glimpse of how the Masai tribe view mental illness, as Sapolsky is recruited to rush a hysterical woman away from her Masai village. We also get the inside story of how a poorly managed tourism industry affects



local wildlife populations, as Sapolsky sadly relates how many of his own baboons succumbed to tuberculosis that they acquired from eating infected meat from a human garbage dump. His unique experiences, living with and getting to know a troop of baboons whilst at the same time conducting invasive experiments on them, also gives the reader a candid look at how biologists often have conflicting emotions about what they do.

In 1838, prior to the publication of *On the Origin of Species*, Darwin wrote 'He who understands baboon would do more towards metaphysics than Locke'. Sapolsky's research program and his personal account provide clear proof of Darwin's claim. And from the perspective of stress and brain pathologies, he has been remarkably successful. He has found that low-ranking males are a lot more stressed and suffer from more stress-related diseases than their high-ranking counterparts. More important than rank, however, is the ability to distinguish between threatening and non-threatening situations: high-ranking but 'paranoid' males are also more susceptible to the adverse effects of stress. Furthermore, it really helps to do a lot of social grooming – that is, having someone to hang out with helps reduce stress. Ironically, although he understood his baboons, Sapolsky, by his own admission, never really quite understood the perspective on life taken by his human neighbours, the Masai, or other indigenous inhabitants of Africa.

Sapolsky's admirable attitude towards all he sees, learns and relays to us is reflected in this quote: 'Now, part of the