

Book review for *Ethnos* of Aunger R (2002) *The Electric Meme: A New Theory of How We Think*. New York, NY: The Free Press.

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In 1999 the anthropologist Robert Aunger organised a conference at Cambridge on the current state of memetics, an interdisciplinary field devoted to the study of 'memes'. As defined by Susan Blackmore, memes are 'ideas, skills, habits, stories or inventions that are passed from person to person by imitation'. The conference, whose results were published in Aunger's edited *Darwinizing Culture: the State of Memetics as a Science* (2000) was revealing in two main respects. First, it showed up the explanatory inadequacies of imitation as the key mechanism of social transmission. As Dan Sperber argues in that same volume, in order to qualify as replicators, memes would have to contain instructions for their own replication, just as genes contain DNA instructions. Surface similarities between cultural items do not necessarily indicate chains of causality. With the exception of unusual objects such as chain emails – which come with explicit messages to encourage receivers to forward them – coded instructions are very rare in human communicative praxis. Second, the debate revealed the long-standing neglect by most anthropologists – particularly social anthropologists – of the problem of cultural diffusion. For all their doubts about memetics expressed in *Darwinizing Culture* and elsewhere, social anthropologists have paid scant attention to this question ever since Malinowski's 'fieldwork revolution'. Instead the subdiscipline has for decades celebrated the creative local appropriation of alien ideas and technologies, largely ignoring the social and cognitive processes that allow those cultural elements to diffuse in the first place.

Aunger's single-author sequel to *Darwinizing Culture*, entitled *The Electric Meme* (2002), is a fascinating search for the elusive meme. It ought to be read by students of all branches of anthropology, as it is a unique introduction to some of the more vexing problems facing our profoundly divided science. In his dogged pursuit, Aunger guides us through a vast maze of specialist literatures, from memetics, cognitive psychology, and neuroscience to sociobiology, computer science, and network theory. He starts off by dispensing with imitation as the key mechanism whereby memes are transmitted from one human to another. Like Sperber, he argues persuasively that this mechanism cannot explain the making of informational lineages, for a high degree of fidelity is needed in such lineages. If memes are to pass the evolutionary test, he argues, they must adhere fully to Replicator Theory. Drawing on Dawkins and other evolutionists, Aunger sees replication as 'a relationship between a copy and some source' that entails causation (the source must be causally involved in the making of the copy), similarity (source and copy must resemble one another), information transfer (the source must supply all relevant copying information) and duplication (during the process, two or more entities must arise from a single source) (pp. 73-74).

Examples of replicators, in addition to memes, include genes, prions and computer viruses. Unlike organisms, replicators form lineages (chains of causal links) within confined environments. In other words, all replicators are tied to specific physical substrates (Chapter 5). Thus, computer viruses reside and reproduce in computers, while genes require RNA and other 'molecular helpers' to replicate. By the same logic, memes cannot be the Protean, substrate-neutral creatures found in standard

memetics, perpetually transmuted from ideas to skills to habits to stories to artefacts and back. Where do memes reside, then? For Aunger, they reside solely within human brains. He urges us to think of memes not as bits or bytes, less still as static 'things', but rather as 'states of mind' (Chapter 7) or, more precisely, as 'state[s] of matter coded in 'brain language'' (p. 241) or as 'distinct pattern[s] of electrical charges in a node in our brains that reproduce... a thousand times faster than a bacterium' (book jacket).

Yet if these 'millisecond memes' reside in brains, how can they spread from one brain to another? Much of *The Electric Meme* is devoted to this conundrum. Aunger suggests that we rethink our received ideas about social transmission. Over the course of human cultural evolution, he proposes, memes evolved the capability of spreading from one brain to another by means of *signals*. Because signals are merely 'air-pressure fluctuations or series of photons' (p. 237) they cannot carry memes along with them. Instead, they are 'rabble-rousers' that operate on other brains not through construction but rather by instigating conversion from one state to another using local materials. This entails micro-changes at neuronal levels, e.g. by flipping a neuron from state A to state B. In a nutshell, while the *idea* of a car may well be a meme, the spoken word 'car' is a signal. With the development of modern media technologies such as books and computers, memes have found indirect yet powerful new channels of distribution. These artefacts have co-evolved with memes by providing the latter with catalytic signals that allow them to be recreated within brains that may be far removed in time and/or space.

Aunger's account has a number of distinct advantages over its predecessors. First, it supplies a plausible mechanism of social transmission. Second, it rightly stresses the physicality of information, eschewing the Platonic 'info-mysticism' of earlier memetic approaches. Third, it offers a pioneering account of the co-evolution of memes, genes and artefacts. Finally, it makes room for human agency by suggesting that a communicative exchange serves both the interests of its individual participants and those of the memes involved in this 'social contagion'.

There is, however, a problem with Aunger's faith in neuroscience as the future basis of memetics (Chapter 8). In the concluding chapter, he invites all 'adventurous neuroscientists' to set out on a quest to demonstrate empirically the existence of memes. This seems strangely at odds, though, with the book's earlier claim that processes of cognition take place not only within brains but also in their social and material surroundings. If this is so, shouldn't the quest for memes and their allied social expressions be a collective endeavour involving social scientists as well as neuroscientists? It would appear that the time is ripe for a second Cambridge conference on the elusive meme.