



Vikings, virtual reality, and supernatural agents in predictive minds

Uffe Schjoedt, Wesley J. Wildman, Richard Sosis & Joseph Bulbulia

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High-quality research and popular topics rarely come together as neatly as they do in this issue. The popular debate about the role of Big Gods in the formation of complex societies has moved to a new level of rigor, in which speculative theory must be systematically tested against detailed ethnographic and historical datasets. For Raffield, Price, and Collard, Viking-age Scandinavia represents a natural experiment in which to test the functional role of Big Gods in the emergence of successful societies. Did the Vikings believe in moralizing high gods? Did pre-Christian Norse religion contribute to Viking success in medieval Europe? Raffield and colleagues find, in contrast to the Big-Gods account proposed by Ara Norenzayan, that moralizing high gods did not precede complex societies but rather emerged in their wake. Raffield and colleagues furthermore demonstrate that the Vikings worshipped punishing gods, but not moralizing high gods.

So far so good, but beliefs in any gods rely on the human capacity for experiencing supernatural agents. One classic theory that explains this capacity, proposed by Stewart Guthrie, Justin Barrett, and others, argues that humans evolved to over-detect agents in potentially dangerous or ambiguous situations. Cracking branches in the dark elicit inferences about creatures lurking in the wilderness, reinforcing beliefs in invisible beings. Recently, however, this idea has come under fire for its lack of experimental evidence. Do we really over-detect agents in contexts of ambiguity and fear?

Two independent studies, one by Maij, van Schie, and van Elk and the other by Andersen, Pfeiffer, Muller, and Schjoedt, use cutting-edge experimental designs to investigate the optimal conditions for misattributions of agency. Thanks to modern virtual reality technology, participants can now move around in highly controlled but immersive forestscapes that emulate the milieu of early hunter-gatherers. In a series of experiments, Maij and colleagues investigate the boundary conditions for agency detection and fail to find support for the HADD account. Andersen and colleagues demonstrate that prior expectation plays a major role in self-reported agency detection.

In this issue's target article, Andersen continues to challenge the HADD account by fleshing out a competing theory. Based on the increasingly popular theoretical framework of predictive processing, he argues that there is no need to hypothesize the existence of a hyperactive agency detection bias in human beings. Prior expectation interacts with sensory information to determine when people falsely report agents as well as the kind of agents that people report. Excellent critical commentaries by leading scholars in the field engage Andersen's theory of agency detection, exploring the boundaries of its explanatory power, as well as challenging the predictive processing framework as the grand theory of perception and cognition.

Put simply, readers of this issue are in for a treat. Think about it: where else can you read about big gods, predictive minds, Vikings, and virtual reality—and still appreciate high-quality research that is transforming the field from a speculative science in which theories are proposed and debated into an empirical science in which theories are held accountable to facts?

Uffe Schjoedt, Wesley J. Wildman, Richard Sosis, and Joseph Bulbulia
Editors