

One success of twentieth-century anthropology was to debunk the myth of primitive thought. There is perhaps no better demonstration of the sophisticated cognition of non-literate, "traditional" people than their knowledge and understanding of the biological world. Explorers and other intrepid travellers have known this for centuries, but it was in the 1950s that the wonder of indigenous peoples' knowledge of nature became a core interest of anthropological science. Harold Conklin's seminal Yale doctorate entitled "The relation of Hanunóo Culture to the Plant World" was based on extended fieldwork in the Philippines with a tribe of forest-dwelling traditional cultivators. Not only was their knowledge of local plant life vastly superior to the average modern European's, but their classification turned out to have significant similarities with biological taxonomy in modern science. A rich tradition of ethnobiological research on traditional cultures around the world has since discovered principles underlying some of our most fundamental cognitive capacities. Through this, we now know a good deal about how the human mind categorizes, organizes and exploits large bodies of knowledge such as those encoded in biological taxonomy.

Why is the biological knowledge of traditional societies so remarkable to an educated Westerner? The literature is littered with awe-struck descriptions of the fieldworker's sense of wonder at what villagers know. Ask a traditional cultivator to name as many tree species

as he can, and the list will go on and on, into the hundreds. And it is more than a mere list of names: he will also have a rich body of knowledge about the functions of different trees, and their ecological interrelations with other plants and animals. One might wonder how he does it, but the real question is: why can't we? The average educated Westerner knows as much about nature as a Hanunóo tribesman is likely to know about computer software. *The Native Mind and the Cultural Construction of Nature*, by Scott Atran and Douglas Medin, opens with this unsettling fact. When the authors ask their university students in the United States to name all the trees they know, these young people are at a loss. Here is the response of a Northwestern Honours student: "Oak, pine, spruce, . . . cherry . . . (giggle) evergreen, . . . Christmas tree, is that a kind of

tree?". Needless to say, there is not merely an inability to name the trees, but also a complete lack of knowledge about their functions or ecological roles. Compare this to the richly annotated lists of up to 500 species readily elicited from members of the least technologically advanced and least formally educated small-scale traditional cultivator societies.

To get a sense of how and when this poverty of understanding among modern literates has come about, Atran and Medin delve into recent history of the English language. Tracing historical references to trees in the *OED*, they find that "writing about trees is less extensive now than in any other time in the history of the English language". Their matter-of-fact conclusion about the world of English-speakers is a headline with a disturbing ring to it: "Cultural support for trees has declined". Is it a problem? One response is that it simply reflects the lack of relevance of trees in daily life. We understandably don't know much about what we don't need. But perhaps the problem is not that we lack this knowledge: it's that we think we don't need it. Biological illiteracy is more alarming than illiteracy itself. Knowledge of nature is not specific to an invented environment like that of books or cyberspace. While only some of us invented writing and computer programs, none of us invented nature. Nature invented us. And nature will be the agent of our eventual collapse. As the biologist Jared Diamond points out, a key cause of collapse is lack of awareness that there is a problem at all.

The modern loss of knowledge about nature is what Atran and Medin call the extinction of experience. Rather than dwelling on its causes, the authors are concerned with its cognitive consequences; that is, how differences in knowledge and understanding of the natural world affect the ways in which we behave towards it. Their culturally comparative perspective combines the best of situated ethnography and experimental psychology, and takes the received versions of both these disciplines to task. Their ideal is a marriage of psychology and anthropology, but current standards in these two disciplines are

not up to the task set by these authors.

The complaint with cognitive psychology is that while it aims to characterize the universal nature of mind, this universality is assumed rather than tested. "If cognitive psychology has laws and generalizations to offer about how the mind works", write the authors, "it has so far shown little interest in putting them to the test of whether they fit humanity at large." Most empirical research on the mind has involved laboratory experiments on so-called standard populations, that is, students of introductory psychology at major research universities. These "standard" human subjects are the very nature-illiterates mentioned above. Atran and Medin's experiments show that these subjects' reasoning about nature is almost entirely in terms of abstract, "last resort" strategies. While an expert traditional cultivator will reason in terms of rich ecological relations among forms of life, the novice university student will retreat to generic principles like sheer formal similarity. Among experts, such strategies are used only when one has run out of reliable relational information. When we focus on the findings of standard lab psychology, the slice of humanity we are getting is wafer thin.

Anthropology receives a different kind of critique. The authors lament anthropology's obsession with the idea that everything is culturally constructed and therefore cannot be scientifically measured. This "self-immolation" has caused the field to move from science to mere literature. Atran and Medin's plea, then, for a methodological union of psychology and anthropology, is a marriage that cannot simply be arranged. Those psychologists interested in cultural comparison do not readily find the kind of anthropology they want, that is, a scientific or even positivist anthropology. So they are inventing it. This is, of course, an umpteenth reinvention, another swing of the pendulum: today's "literature anthropology" is itself a reaction to the positivist anthropology of a former generation.

The emerging empirical anthropology that Atran and Medin exemplify is concerned with causal processes and methodological rigour. The book reports on the application of this fresh combination of disciplines in two major case studies, one in the forests of Guatemala, one in the lakes of rural Wisconsin. Each case exemplifies the problem that the biologist Garrett Hardin dubbed "the tragedy of the commons". When an expanding population exploits a finite resource – as when several groups of traditional cultivators co-exist in a forest reserve – people appear unable to resist over-exploiting the resource until it is exhausted. Hardin's argument was that people are essentially self-interested, rational decision-makers seeking to maximize their own gain. Like a nuclear stand-off, it is a problem with "no technical solution". The only viable solution, Hardin proposed, is a political one, through legal regulation and the giving up of freedoms. The challenge, he wrote, "is to invent the corrective feedbacks that are needed to keep custodians honest".

In their Guatemalan case study of three ethnic groups in a shared forest reserve, Atran and Medin find such corrective feedbacks subtly embedded in cultural belief and practice. The authors systematically compare each group's cognition of local biodiversity, and associated behaviour towards it. They find that of the three coexisting peoples –

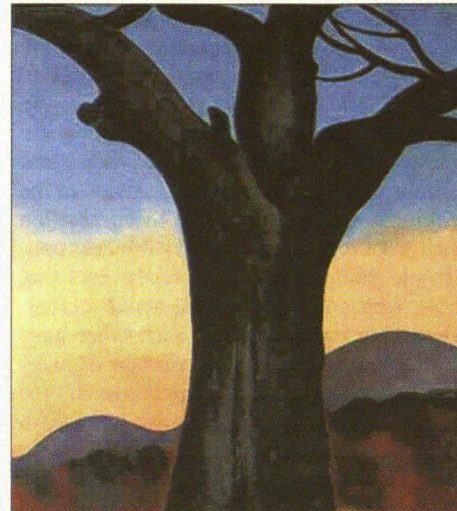
Common tragedy

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Scott Atran and
Douglas Medin

THE NATIVE MIND AND THE
CULTURAL CONSTRUCTION
OF NATURE

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978 0 262 13489 7



"The Chestnut Grey", by Georgia O'Keeffe, 1924; from *Dove/O'Keeffe: Circles of influence* by Debra Bricker Balken (156pp. Yale University Press. £30; US \$45. 978 0 300 13410 0)

indigenous Itza' Maya, Q'eqchi' Maya immigrants, and Spanish-speaking Ladino immigrants – the Itza' show the most sensitive knowledge of local biodiversity, and also display the most sustainable practices of natural resource exploitation. Are the Itza' natural-born conservationists? Effectively, it seems, but not through any environmentalist ideology. In their use of the commons, the Itza' break free of the textbook "resource exploitation" frame by means of one of the fundamental orientations of human cognition: the tendency to believe in supernatural entities. Atran and Medin show that the Itza' do not treat forest resources as mere "objects of a payoff matrix" (as perhaps some of their neighbours do), but rather "as intentional, relational entities, like friends or enemies". For the Itza', the spirits of the forest have supernatural powers of knowledge. Villagers believe that if they fail to respect the kind of reciprocal relationship with these spirits that would be expected of any human social relationship, they risk being punished. These beliefs are reflected in behaviour patterns that turn out to be the most sustainable of these three neighbouring ethnic groups.

While standard analyses of the commons problem focus on individual interests on the one hand, and institutions on the other, the Itza' display a third strategy. They recognize the commons as "a player with a stake in its own future". In so doing, they transform the nature of this otherwise rational game. It is an ingenious – yet no doubt entirely unconscious – means of providing the "coercive social arrangements" that Hardin insisted were necessary to avert the commons tragedy. Paradoxically, perhaps, more rational approaches to resource management are less likely to succeed.

The Native Mind is a milestone in interdisciplinary work. Through painstaking analysis of deeply complex phenomena, Atran and Medin make significant advances in our understanding of cognition in context. Their findings about the human mind are, to paraphrase the authors, not just real but realistic. The only drawback is a pernickety presentation of methods and findings, making the book unlikely to reach an audience beyond those who would normally read the authors' published technical journal articles.

Perhaps the most enduring impression from reading this important book is that in the domain of nature, psychology's "standard populations" are in fact cognitively impoverished, with next to no starting knowledge, and only the most bland reasoning strategies at their disposal. Atran and Medin show that, in the folk-biological domain at least, the use of docile student populations for learning about the human mind in general might be parallel to studying pathologies in order to get insight on healthy systems (as when we study the psychology of personality by looking at mood-affected patients with brain lesions). As the authors put it, "trying to understand the structure of folkbiology by focusing exclusively on relatively unknowledgeable college students may be akin to an attempt to understand the structure of language by concentrating on feral children". It is a chilling thought that our technologically advanced way of life amounts to a cultural demolition of biological understanding. This extinction of natural experience is one among many costs of our recent yet profound self-imposed domestication.