

Review of Atran's *Cognitive Foundations of Natural History:
Towards an Anthropology of Science*

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**Cognitive Foundations of Natural History:
Towards an Anthropology of Science.** By Scott
Atran. Cambridge, England: Cambridge University
Press, 1990. xii + 360pp. Appendix, notes, references,
index. \$49.50.

The term "natural history" has today a variety of meanings. Most often it is used to distinguish the descriptive and popular study of nature from its technical and experimental study, the latter being given the name "biology." But "natural history" has itself a technical sense, one that is still used, although not as widely as it has been in the past. Technical natural history is the study of the diversity and history of nature: the distribution of animals and plants through space and time, the course of evolution, and the history of the earth. The core of technical natural history is systematics, the study of the "kinds" of animals and plants, and it is the conceptual development of systematics that is the subject of this exceptional, scholarly work.

Atran approaches systematics as an anthropologist specializing in the study of folk classification (the ways in which different cultures categorize the diversity of life). Against historians and philosophers who have claimed that common sense understandings of the world obstructed the growth of science, Atran argues that folk-taxonomic common sense was the framework within which the science of systematics developed. Further, it is only by trying to solve the problems posed by common sense that science gradually disengages from common sense and stands on its own.

After surveying the folk-taxonomic literature and the principles of cognitive anthropology, Atran turns to the often misunderstood zoological works of Aristotle. Aristotle, Atran argues, did not use the methods of formal logic to classify unknowns, but rather to characterize more precisely the animal kinds already recognized by Greek vernacular culture. Unlike Aristotle, who had to deal only with a local fauna of limited diversity, Renaissance herbalists of northern Europe in the early decades of the age of exploration were faced with a far greater diversity of natural forms, a diversity that became available for extended study as botanical gardens and herbaria were established. As a consequence, the herbalists differentiated the basic folk

notion of a natural kind into two privileged ranks (genus and species), and accorded the genus special conceptual status as a fundamental unit of nature. As knowledge of natural diversity continued to increase, taxonomic ranks proliferated. Atran argues that families and orders became conceptually fundamental in the way that genera had been before. Emphasis on these higher-level structures led to the elaboration of comprehensive organizing principles for natural diversity, principles like the great chain of being stretching from monad to man.

Atran concludes his account with the rise of the evolutionary view of nature in the early 1800s. He does not address the deep transformations that are taking place within systematics today, transformations associated with the development of cladistic systematics. It is a testament to the value of Atran's perspective, however, that it was immediately apparent to me how the principal phenomenon he describes—the gradual disengagement of science from common sense as a result of problems generated within the common sense framework—is at the root of many contemporary systematic controversies, including the controversy over the rejection of taxonomic rank itself.

Atran has produced a work of substantial scholarship. Readers who are not familiar with any of the subjects covered in the book will find it slow going since the writing is dense in places, and specialists will wish to dispute certain technical points, but the wealth of information the book contains and the fresh perspectives it offers make it invaluable. *Cognitive Foundations of Natural History* will influence the conceptual and historical study of systematics for some time to come.

Reviewed by Robert J. O'Hara. Mr. O'Hara is a National Science Foundation postdoctoral fellow in the philosophy of science at the University of Wisconsin-Madison. He is also an adjunct curator in the University of Wisconsin Zoological Museum. His research centers on the history and theory of the historical sciences.