

intentions, and that Georgia was a mere water-spitting robot? Isn't it far more economical to assume that if two closely related species act in a similar way, the underlying mental process is also similar? If wolves and coyotes were being compared there would be immediate agreement about that. Why should we adopt another logic when comparing chimpanzees and humans?

The different philosophical approaches to animals impinge directly on de Waal's discussion of whether animals can have culture and how our cultural environment affects our scientific approach to this question. He considers it no accident that Japanese scientists were the first to record culture in animals, as "without openness to the idea of animal culture, the potato washing by monkeys on Koshima Island might never have attracted any attention". He details the fascinating observations of how Imo, a young female macaque, invented the behaviour, and how her kin and playmates learned it from her. Occidental psychologists had great difficulty in accepting this claim of cultural transmission in animals, as it threatened to remove one of the supposed barriers between humans and animals. They rejected it on the basis that the transmission process was not rapid enough to qualify as cultural transmission, and was instead individual learning in an animal.

The author is thorough and stimulating on the basic flaws in approaching the question of animal culture from a psychological angle. First, the transmission mechanism at work is irrelevant to the problem of whether culture exists in a species. Our present knowledge suggests that cultural behaviour is learnt through different and complementary mechanisms and what counts is that different cultural traits are shared within one group. Thus, there is no doubt that culture is present in animals. The interesting question is whether animal cultures rest as much on imitation as human cultures supposedly do. This question requires much investigation as, surprisingly, we know very little about how humans acquire their culture and even less about how animals do so.

Psychologists, as de Waal observes, seem to have neglected the old rule of science that absence of evidence is not the same as evidence of absence. One point put forward by psychologist opponents of animal culture was the fact that captive chimpanzees had not been seen to imitate human models. This apparent failure might be resolved, de Waal suggests, if we "level the playing field by ... testing children with ape models to see whether they would still be better imitators". An alternative experiment — presenting a human model to apes that are completely familiar with humans — has been done, and these apes turned out to be good imitators. "The surprise here is how the investigators interpreted this result. Instead of concluding that apes are a match for young children

Science in culture

Standard-bearer of culture

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Giovanni F. Bignami

In the politically black period between 1923 and 1925, industrialist Giovanni Treccani launched a new cultural era. He acquired, and donated to the Italian state, the priceless fifteenth-century illuminated bible that had belonged to Duke Borso d'Este. At the same time he founded the institution that still bears his name, the 'Istituto della enciclopedia italiana fondata da Giovanni Treccani'. Treccani's vision was to create an encyclopaedia pitched at a level somewhere between the monograph model of the glorious *Encyclopaedia Britannica* (1768) and the more abbreviated form of Larousse's *Grande dictionnaire universel* (1866).

Three-quarters of a century later, *The New York Times* described the Istituto della enciclopedia italiana as "the greatest Italian cultural institution". Its fascinating history represents one of the few examples of continuity in a country whose recent history has been marked by major discontinuities.

Work on the Treccani encyclopaedia was still in progress when, inevitably, in 1933 it became a state project, receiving the blessing of Benito Mussolini. Mussolini gave the editors total cultural freedom, the guidance of, among others, Guglielmo Marconi, and generous financial support. Understandably, he kept for himself the authorship of the entry 'fascismo'. Marconi died in 1937, just before the monumental work — 35 beautiful volumes — was presented to the king. In recognition of his achievement, Treccani received the hereditary title 'degli Alfieri' (of the standard-bearers).

Work on the *magnum opus* continued throughout the war years, with noteworthy independence. The geography section, for example, was coordinated by Roberto Almagià, a Jew who was weathering out the Holocaust years as a refugee in Vatican City.

In the 1950s, the encyclopaedia was enlarged, and the cultural activities of the Treccani institute diversified. In 1991 a special law was passed to foster "collaboration between the State and the Institute for cultural initiatives in Italy and abroad".

when both are equally familiar with the model, they conclude that human-reared apes are special," notes de Waal. I strongly recommend this stimulating and highly readable book, which takes us on a revelatory tour of different cultures and species. ■

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More primatology

Primate Origins of Human Cognition and Behavior, edited by T. Matsuzawa (Springer,

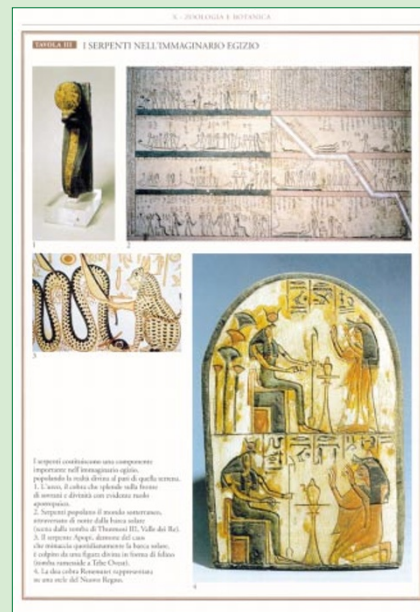
Although rigorously adhering to the Italian language (and setting high standards for it), the Treccani works have for decades been based on authoritative international contributions. The latest major work in progress is the eight-volume *Storia della scienza*, on the history of science. The first volume, on ancient science (*La scienza antica*), was published in March, and the last, on big science (*La grande scienza*), is still being written. An English-language edition is planned.

La scienza antica, with contributions from Jan Assman and Geoffrey Lloyd, is a delight. A description of an 'ophiology treatise' from Egypt tells you everything you want to know about snakes. Elsewhere, there is a translation of Archimedes' own words on the winding and unwinding of his spiral.

Treccani is the encyclopaedist's encyclopaedia. *Britannica* says of it: "One of the most important of all, the *Enciclopedia italiana* is famous for its lavish production, its superb illustrations, and its lengthy, scholarly, and well-documented articles."

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► <http://www.treccani.it>



2001, DM229, \$119) includes a chapter on the 'sweet-potato-washing' monkeys of Koshima Island.

The Chimpanzees of Tai Forest by Christophe Boesch and Hedwige Boesch-Achermann (Oxford University Press, 2000; £55 (hbk), £22.50, \$39.50 (pbk))

Tree of Origin, edited by Frans de Waal (Harvard University Press, 2001; \$29.95)

Significant Others: The Ape-Human Continuum and the Quest for Human Nature by Craig B. Stanford (Basic Books, 2001; \$25).