
REVIEWS & NEWS

BYRNE BEATRIZ,
Cognition, Stone Tools and Aristotle

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Cognition, Stone Tools and Aristotle is a book that offers a new perspective in the search for what makes us human. This perspective is based on the manufacturing techniques to make stone tools which dating as far as 3.3 million years ago of years. It is an interdisciplinary study that includes four areas: Cognitive Archaeology, Cognitive Psychology, Primate Cognition, and the Philosophy of Aristotle.

Applying the perspective of Aristotle's philosophy to the study of human evolution is not new. Teilhard de Chardin already did it in the framework of palaeontology. And in the field of biology, which includes the study of evolution, so did Hans Jonas and Max Scheler. What makes the present study ground-breaking is the philosophical interpretation of the criteria drawn from Cognitive Archaeology to determine whether the manufacturing of stone tools requires the existence of human cognition or it can be explained by animal cognition.

The author chooses Leonardo Polo as the interpreter of Aristotle because Polo, unlike other modern authors, gives an account of the origin of cognition. For Pierce's practical philosophy, the appearance of symbolic thought is linked to language and, as a consequence, only the manifestations found in the archaeological record linked to symbolic thought, such as cave painting or the use of personal ornaments among others, are sufficient to determine the appearance of human thought. This criterion has been and continues to be fashionable in certain archaeological and paleontological academic circles, preventing until a few years ago the possibility of other criteria beyond symbolism. Studies

with great primates conducted since the late twentieth century highlight the ability of primates to also make and use tools. These conclusions require further explanations to determine when human thought was born. Authors such as Michael Tomasello suggest social manifestation of intelligence as the area for the first appearance of human thought. Specifically, Tomasello points out to share intentionality as the starting point for this but finds no difference between human and primate capacity to make and use stone tools. Shared intentionality is understood as the ability between humans to share goals that require for their achievement not only to act together but also taking into account the welfare of the other party for the survival of both. This requires a certain degree of trust in the other and a capacity to know the other as trustworthy. The latter does not occur in large primates, but it does in humans.

Cognitive Archaeology borrows terms from Cognitive Psychology which are used to define the qualities necessary in the manufacturing of stone tools in humans. In particular they refer to the following terms: general concepts and sophisticated chain operations which help to determine the difference between human and primate ways of manufacturing tools. One of the challenges encountered in Cognitive Archaeology is to determine the validity of criteria drawn from other disciplines. In order to solve the problem, this book reviews and critiques the way these criteria are understood by Cognitive Archaeology and by Cognitive Psychology. The author concludes that both sciences study the same processes from different perspectives. Cognitive Psychology does it in the realm of the human mind through language, and Cognitive Archaeology does it in the realm of stone tools which are a product of the mind of an organic being living in an environment. Putting the results in dialogue is necessary in any interdisciplinary study and it requires specialists from each discipline or at least someone who knows them. It should not be forgotten that the author has academic qualifications in Psychology as well as in Archaeology. However, this view does not completely solve the problem of the validity of these concepts to determine whether general concepts and sophisticated chain operations are valid to establish when abstract thinking and practical reason appear in the archaeological record.

The fact that great primates are capable of using stone hammers to open certain tree seeds and learning to make stone tools in captivity, makes it necessary to ask how human cognition differs from that of animal since both are capable of producing them. Again, the author focuses on the processes of making and using stones this time in great primates. She concludes that the study of these processes does not help to determine what enables humans to make sophisticated stone tools. The study of the processes does not explain the differences, it only highlights them.

The answer to this question comes from the Aristotelian philosophy interpreted by Leonardo Polo which reverts to the classical interpretations that link cognition with life. In addition, it also refers to the advances of Thomas Aquinas regarding his discovery of practical reason. Polo's philosophy studies human and animal cognition and link them to the phenomenon of life but in a different way for each. While animal cognition is a development of organic life in its adaptation to the environment in which it lives, human cognition requires the presence of a factor which does not belong to organic life although it uses it to manifest itself: intellectual life whose origin transcends the being of the universe. Polo in his *Transcendental Anthropology* explains how rational intelligence is one of the manifestations of that powerful light that is the spirit or person. In other words, it is the mechanism of divine origin described by Aristotle: the Agent Intellect. Stone tools and any product of human making in evolution require the capacities of abstraction and practical reason and therefore they are manifestations of what Polo describes as the human essence. Biological changes that take place in the long human march until the appearance of *H sapiens sapiens*, or anatomically modern man, would be the manifestations of the spirit/person in human nature adapting the environment to his/her needs. This way of understanding the human person allows a better insight in what is observed in the archaeological and paleontological records.

There are two very important consequences of this interpretation in the realm of human evolution. The first is that human cognition appears very early in the archaeological record at least 3.3 million years ago. And the second is that all the so-called human evolutionary species are not such but only one single human

species, evolving in time, because all hominids are endowed with the same type of intelligence. This theory, as the author mentions, has already been advanced by Rafael Jordana since 1988.

It is an innovative and provocative book to which, like all pioneering works, there will be no lack of misunderstandings from each of the areas to which it refers. Following Luis Romera, it can be said that the book is inserted in a sapiential thought because it develops a comprehensive understanding that takes into account the scientific areas of study collected: Cognitive Archaeology, Cognitive Psychology, and Primate Cognition detached from the paradigms that consider science as the last instance of knowledge by including Philosophy. It is an investigation that connects with a deeper, philosophical vision of man. Only from a comprehensive and deep understanding of the person can it be determined, through the study of the manufacture of stone tools, who among our hominid ancestors were humans and the main role of material culture in the development of our intelligence.

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