

CULTURE AS A MANIFESTATION OF HUMAN ACTIVITY

Franz M. Wuketits

University of Vienna, Austria

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Summary

Culture has been defined in many different ways. However, there is agreement that human culture is both unique in the biosphere and universal in humans. Generally, it can be defined as an extra-somatic continuum of things and events that depend on intentional behavior and symbols. When talking about culture, one has to take into account an enormous variety of cultures which is expressed in different customs, languages, writings, religious belief systems, institutions, works of art, etc. Culture is not a ‘super-organic’ entity, and cultures are not static systems; they undergo many changes due to ecological, social, and economic constraints. The capacity of culture is based on specific brain functions and thus a result of biological evolution. The evolutionary view implies that (human) culture is just a special case of behavior - in fact, the most complex expression of behavioral patterns in primates. This is not to say that the evolution of culture(s) can be reduced to mechanisms of biological evolution.

Cultural evolution does not depend on the transmission of genes, but on the transmission of ideas. While biological evolution produces a diversity of genetic programs (species), cultural evolution results in a variety of extra-somatic structures depending on the biological and cognitive capacity of one single species (*Homo sapiens*). The crucial question is, how a biological species - as a result of evolution by natural selection - acquired the ability to create, store, and transmit intellectual information. It is therefore important to realize that there is no contradiction between biological and cultural evolution, but that these two types of evolutionary change are connected in many sophisticated ways. The nature-nurture controversy is indeed obsolete: Cultural evolution exhibits its own principles; yet natural history is the broader framework to which the history of culture and cultures has to be related.

1. Culture: The Human Way of Life

Everybody seems to have an intuition of what culture means: the result of human activities, the sum total of human-made objects that, some way or other, contrast with natural objects. According to this intuition, stones, plants, and animals are objects of nature, cathedrals, sculptures, and poems objects of culture. The latter express human activities, the former exist independent of human action. Besides, most people would, intuitively, agree that culture also means the ability to use and change natural objects, e. g., to make tools by using stones or to cultivate plants. (see *Foundations and Characteristics of Culture*)

Finally, our intuition tells us that culture is expressed in a particular style of life, sophisticated patterns of behavior like table manners, that mark a clear distinction between humans and animals, and between modern humans and their “wild” ancestors.

Aside from our intuitive understanding and common-sense perspective, historians, sociologists, anthropologists, and philosophers have long contemplated about the essence of culture and made numerous attempts to come to terms with its various phenomena. *Culture* is one of the basic concepts in anthropology and the starting point of serious and endless reflections concerning the very nature of humans. It has been frequently used to specify human life in contrast to animal life. However, there are few scientific concepts that imply so different connotations and have been defined in so various ways. Yet it seems that any definition of culture, even if comprehensive and precise, hardly covers each of its aspects, for, after all, “culture” comprises an immense variety of things in space and time as diverse as cave-paintings of prehistoric hominids and Leonardo’s paintings, narratives of preliterate people and Shakespeare’s dramas, palaeolithic pebble tools and modern technology, and the ideas and intentions lying behind them.

Nevertheless, there is some agreement that culture is the most specific manifestation of human behavior, and, at the same time, universal in humans. All of the known societies of modern humans have developed some kind of culture. Also, it seems evident that culture consists of ideas, languages, religious systems, moral and legal systems, customs, rituals, games, ornaments, tools, instruments, and works of art (including poetry, painting, music, dancing, etc.). Thus, one of the classical definitions of culture,

provided by Edward Burnett Tylor in the late 19th century, conceives of culture as “that complex whole which includes knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by man as a member of society.” It is usually argued that one if not the most important aspect of culture is *tradition*: Elements of culture are transmitted to succeeding generations. Anatomical and physiological characters, too, are transmitted from one generation to another, but this happens by the means of genetic reproduction. Thus, many anthropologists tend to apply the notion of culture to all those ways of life and patterns of behavior that are transmitted by interpersonal communication rather than by genetic means. No surprise, then, that culture is often meant to be an exclusively human trait. Leslie White in *The Evolution of Culture* states that all peoples in all times and places have possessed, but no other species has developed culture. According to White and other anthropologists, the reason for this is the specific ability of humans to use symbols, to create - and to live in - a symbolic world different from the world of nature and the worlds that other animals may create for themselves.

However, attempts to disconnect nature and culture and to conceive of culture as a kind of “super-organic” entity or *Geist* (according to German idealist tradition) are of no help and must be considered as obsolete. Culture, in all its various aspects, is always a concrete expression of human activities and depends on biological organs, particularly the brain and the nervous system. Since other animals, too, possess such organs, one is tempted to speculate about cultural activities outside the human sphere. But this again seems to be a question of definition. If one defines culture in a very broad sense, as a transmission of information by learning and teaching, then one can indeed find examples of cultural behavior at least in some species of birds and, particularly, mammals (see 2.1). Defined in a narrower sense, culture remains an exclusive character of the human species and a most distinct manifestation of this species’ activities.

2. Origins of Culture

Leaving aside the problems of a clear definition of culture, many anthropologists and other scientists have been most fascinated by the (still controversial) question of how culture emerged and which “driving forces” caused its emergence. It seems somehow obvious that human culture is a novelty in the evolution of life on earth. But since evolutionary phenomena do not come from nothing, it is necessary to look for “pre-cultural” behavior at early stages of hominid evolution and at the level of non-human animals. Besides, we must be aware that our species, like all other organisms, extinct or extant, had - and still has - to solve, in first instance, the problems of survival in a strict biological sense: to reproduce and to find resources (which are indispensable to successful reproduction). An effective use of natural resources and reproductive success is in humans as imperative as in all other species. Cultural behavior, including the creation and application of technology (from prehistoric eoliths to modern airplanes and computers), is the specifically human way to solve these problems, although, in many of its aspects, it goes far beyond the mere needs of survival. It has given humans an increasing control over their natural environment and is thus connected to - and strongly influences - their biological evolution. Whether this control can and will have a long-term *positive* effect, is another question, which is not discussed in the present contribution.

2.1 Tool-users and toolmakers: Culture in animals?

It has been frequently argued that humans are to be distinguished from other animals by their ability to make tools. Other species are bodily equipped to master their lives and have, e.g., legs, teeth, and horns - to move, to masticate, and to defend themselves. They are specialized - and adapted to their respective environment(s) - in many different ways. Thus cats have evolved pointed claws and are perfectly adjusted to catch a prey, and beavers have teeth capable of stripping and felling trees. Generally, every species is furnished with some specialized organs that display particular functions. They developed according to specific requirements of survival and have been favored by natural selection.

Humans seem to have avoided any such specialization. They acquired the ability to walk in upright posture, so that their hands became free to manipulate objects and to produce tools. The development of mental powers gave them the capability of rational insight and intentional action, so that they have found ever-better means to control their environment. Humans are characterized by an extra-somatic equipment of their own making, which can be quickly and effectively changed in accordance to the given circumstances. In this sense, they are the most adaptable of all known species.

The human species has been traditionally considered as a toolmaker; other species seem to be, if at all, only tool users. However, observations of non-human primates compel us to admit that this distinction is no longer tenable. Already decades ago, observations of chimpanzees showed that these apes display some remarkable insight and are able to solve some problems by manipulating extra-somatic objects. For example, they can fit together two bamboo tubes as a means of grasping bananas that hang beyond their reach. In the meantime, many other observations and experiments have given evidence that we have long underestimated our nearest relatives, and that they are in fact able not just to use, but also to make tools. (No surprise, they share about 98 % of our genes!) For instance, chimpanzees trim selected grass blades or stems to use in catching termites in their hills.

In a broader sense tool-making appears also in many other species. One has just to keep in mind nest building. Nests are not tools, of course, but they at least show the ability of animals to put together different types of material and thus to form a particular structure. Especially many species of birds are able to create quite elaborate nests, for example, cup-shaped and constructed of twigs, leaves, mud, and so on. In the animal kingdom we can find a remarkable variety of extra-somatic structures built for the sake of survival. Well-known examples are also fox lairs and beavers' dams.

The capacity of tool making at the level of our earliest hominid ancestors, some 4 or 5 million years ago, was only slightly further developed than that of today's chimpanzees. At the beginning, hominids used improvised hand weapons, for example tree branches and stones, to defend themselves and to kill their prey, small and medium-seized animals. The removal of the fur and skin of the killed animals certainly produced difficulties which, however, could be overcome by using sharp pieces of stone. Where such stones were not readily at hand, the only solution was to learn how to break stones and produce sharp edges. Once this ability had been achieved, the *tradition* of tool making began, and humans learned to manipulate different materials and thus to

produce multi-purpose tools. For example, they shaped sticks into spears that could be used as efficient weapons, but were also suitable for scraping meat from bones, and for splitting bones to get at the marrow. Those populations that were able to store and transmit acquired information about techniques of tool making - and to learn new techniques - had certainly an evolutionary advantage over other populations lacking such abilities.

2.2 Learning and teaching

There is agreement that one of the basic prerequisites for culture is learning. While many, if not most animal species are capable of some type of learning, only a few have developed the ability of what is called *insight learning*, i. e. the sudden production of a new response arrived at not by mere trial-and-error behavior, but by a spontaneous reorganization of experience. Again, primates give best examples for this type of learning, and one may assume that chimpanzees with regard to their capability of tool making already give us some ideas about the origins of reasoning and self-reflection (see 2.4).

However, one of the most significant components of culture in the narrower sense is teaching. Learning by imitation can be considered as the first - and decisive - step towards teaching and can be found in birds and mammals. Teaching goes beyond learning and imitation, and is an essential factor of building traditions. As *intentional instruction* or guided learning, it is universal in human societies but not unique to the human species. It definitely appears at the level of non-human primates.

Mothers of young chimpanzees and other apes use signals and physical force to guide the movements of their offspring and thus teach the infants how to behave, what to do, and what to avoid. Several other species of mammals, wolves, dogs, lions, elephants, and (probably) dolphins, also exhibit some teaching activities.

Undoubtedly, animal teaching even in its most elaborate forms cannot be put on a level with the complicated programs of teaching in human societies, which have developed educational systems including schools, colleges, universities, etc. However, records from the modern behavioral sciences lead us to the conclusion that teaching did not appear as a novelty in hominid evolution, but that the instructions invented and now practiced by humans developed from - and are refined and sophisticated forms of - phylogenetically older patterns of (animal) behavior.

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Biographical sketch

Franz M. Wuketits, born January 5, 1955 in Parndorf (Austria). He studied zoology, palaeontology, philosophy, and philosophy of science at the University of Vienna and received his Ph.D. in 1978. He has been teaching philosophy of science with special regard to philosophy of biology at the university of Vienna (Austria) since 1980, and, besides, at the University of Graz (Austria) since 1987. From 1999 to 2001 he was Visiting professor at the Institut für Technik und Gesellschaft at the Technical University of Vienna (Austria). His main fields of research are philosophy and history of biology and evolutionary theory including evolutionary epistemology and ethics. He is author of 25 books and published 280 articles in journals and edited volumes. He is currently co-editing a three-volume "Handbook of Evolution".