

Standpoints in the Evolution of Art

Yamen Nouh, BDS, PGDip¹

Abstract

Different evolutionary theories and models were suggested trying to reason the emergence of the symbolic culture and symbolic behavior, giving rise to art, alongside with language, rituals, and religion. The article reviews different perspectives in the issue, giving sample studies for each school or standpoint. Reviewed theoretical positions include classic Darwinian standpoint, the revolutionary theory with its different branches, socio biological or Neo-Darwinian standpoint with its different approaches including evolutionary psychological school, behavioral ecological school, and feminist school. Scholars main Criticism for each theoretical position is reviewed whenever possible.

Introduction

It was once said that *"the time has come when no history of art can be considered as complete without having for a basis the prehistory of art."* This statement by the American anthropologist "George Grant Mac Curdy" in 1916 emphasizes clearly how it is fundamental nowadays to understand the creations of the prehistoric man to be able to understand the evolution of art that we know these days. However, discussion of the origins of art in our species history- or prehistory! -Opens up the doors very wide to a bigger - and more difficult- discussion about development of language, religion, communities, and symbolic culture in general. This huge intersection between art and other manifestations of symbolic culture makes the question more and more difficult to find a satisfying answer, and even more difficult to keep the same question just as it started: a question about art, not about the human being existence as a whole!

¹Master's degree researcher Physical anthropology department, Institute of African research, and studies, Cairo University, Cairo, Egypt. 12613

Unfortunately, nothing works, and searching about an answer to the so thought to be simple question: how artistic expression started in our species history? Slips you directly to an ocean of questions about everything related to the human cultural and physical life, and the question turns up to be: how we do live our life? What does it really mean to be a human?

However, I tried hard to stick to our specific question about art, reviewing the main theories that rose up to explain the emergence of such expression style that we call "art". The paper is aiming at giving view on the landscape of the "dialectique" about prehistoric art evolution, with brief account of the Ideology or philosophy that the proposed theory is coming from whenever possible.

What Is Art?

There is no one universally agreed definition for what we call "art", "*because the concept "art" is an open concept: new exemplars of artworks, styles and art forms have emerged throughout history, and will foreseeably continue to do so, constantly forcing new definitions that can accommodate them.*" (marcos nadal, 2014, p. 196). In addition to the regenerative nature of art, a usual overlap is happening between "Art", "aesthetics" and "craft".

While some definitions is too wide to include every "*meaningful objects shaped by human hands*" (White, 2003), many other definitions emphasize on the aesthetic component in art, which means that an artistic creation is found to be "aesthetically pleasing" and not necessarily pragmatically functional. (Morris-Kay, 2010). Defining art by aesthetics seems to be a displacement of the definition problem, as we will then need to define the meaning of "aesthetic" and the reference of "aesthetic please". "*Such difficulties not only hamper our understanding of the evolution of art and aesthetics. They also encumber research on the evolution of other mental traits, like language or morality*"(marcos nadal, 2014, p. 196)

From a different perspective, we can recognize "writing" as a form of "drawing", and "talking" as a form of "singing". What is meant by that is that what we call "art" is not different from other ways of "expression"; a way of "showing" the internal "reality" to others through shared symbols, And the sense of "beauty" that usually accompanied to art forms, seems to be culturally created in most of the cases.

In other words, what I have learned from this research is that there is no clean cut boundary between “language” and “art,” so if we need to define art, we will find ourselves obliged to define language. This does not make the defining problem easier, but at least it makes the understanding of the art phenomenon more into its humanistic context.

The Dialectique

The dominant view during the nineteenth century considered that art and aesthetics had no purpose beyond themselves. (marcos nadal, 2014). However-since then- different theories and models were suggested trying to reason the emergence of the symbolic culture and symbolic behavior, giving rise to art, alongside with language, rituals and religion. The following section shows different perspectives in the issue, giving sample studies for each school or standpoint. Scholars main Criticism for each philosophy is showed whenever possible.

1- Classic Darwinian Models

Darwin believed that natural selection is responsible for the evolution of physical properties of living creatures including man, and is responsible for all mental traits as well. This will include our capacity to remember, imagine, perceive aesthetics and feel emotions. Therefore, from a Darwinian standpoint, Art has an adaptive role, and this adaptive role is what stands behind its evolution. (marcos nadal, 2014)

The question that all evolutionary models were trying to answer is: what is the selective advantage that is given to those who developed the artistic capacities over those who did not? For example, what is the selective advantage for a musical artist over one who has no musical talent? (marcos nadal, 2014)

The question in this form seem to be oversimplifying with a contextual defect, as it looks at art as a “separate” and “universal” domain of human action and intellectual capacity (White, 2003). This ignores that art is deeply rooted in its cultural context. In addition, it ignores that art for the prehistoric man, most probably was hardly wired with rituals, religion, social structure and language.

Different evolutionary models was developed to answer this question (i.e. why natural selection may favor those with artistic capabilities?)

Some models suggest natural selective advantages on the individual level like habitat selection, mate choice, acquisition of knowledge and relief of tension and anxiety. **Habitat selection** means that the advantage acquired by having aesthetics responses is the capability to distinguish between favorable and unfavorable environments. **Mate choice** means that there is a relation between aesthetic sense development and having advantage in the sexual mate choices; a concept that was named by Darwin as "sexual selection". Reasoning of art by **acquisition of knowledge** suggests that art main advantage is that stimulates knowledge acquisition and improves perceptual and cognitive problem solving. Some authors argued that human natural tendency to avoid pain and seek pleasure is the key to understand art production and appreciation. (marcos nadal, 2014).

In 1914, Ernst Grosse suggested another hypothesis stating that adaptive role of art production and appreciation is rather on the group level not on the individual level, as it may enhance group cohesion and cooperation. On the other hand, some authors recognized art not as adaptive mechanism itself, but rather a by-product of another adaptive response, which led to the emergence of art non-selectively. This is called "exaptation" which means, "a feature that now enhance a fitness but was not built by natural selection for the current role it plays" (marcos nadal, 2014, p. 170)

Below, a table presented by Marcos Nadal and Gerardo Gomez-Peurtó, simplifying most of Darwinian-based hypotheses that suggests an explanation for the origin of art. (Seetable below)

Evolutionary status	Level of selection	
	Individual	Group
Adaptation	Habit selection Mate selection Acquisition of knowledge Imagination, pretense and fiction Influence over others Relief of tension and anxiety	Enhancement of group Cohesion and cooperation
Exaptation	Functional cooption	

Table 1: Main Darwinian based hypotheses on the evolution of art (marcos nadal, 2014)

Evolutionary models was criticized for being insufficient to explain alone with the concept of natural or sexual selection the emergence of such symbolic activity like art and aesthetic sense. (Chase, 1994) Stated, "*There is no reason to believe that symbolic culture was ever essential for survival*" (Chase, 1994, p. 627) and "*neither the evolutionary nor the personal interests of the individual justify such sacrifice*" (i.e. altruism and need for symbolic activity including art)" (Chase, 1994, p. 628)

See also criticism of Marcos Nadal, Miquel Capo et al (Marcos Nadal) and Chris Knight in (Knight, 2010).

2- The Human Revolution Theory

Since late 80's, the "human revolution" model was strongly believed. The model simply suggests a sudden and dramatic shift that took place in Europe at the Middle Paleolithic to Upper Paleolithic transition at about 40.000 PB. That sudden breakthrough caused alteration in human behavior, which thought to correspond to increased cognitive sophistication, the manipulation of symbols, and the origin of language. (McBrearty, 2000)

This view has been held for a long time as an explanation for the emergence of the modern human behavior including art that thought to be begun when Homo sapiens migrated from Africa to Europe. It is based on the idea that there was a rapid evolutionary change in the human brain and hence a sudden and rapid development in cognition at this time. It is sometimes referred to as the "Upper Paleolithic Revolution" (Morris-Kay, 2010)

Human revolution theory was developed following a conference organized at Cambridge University in early 1987 by Paul Mellars and Chris stringer [see (Mellars, 1989)]. The conference brought together a wide variety of specialists who are concerned with the "Origins and Dispersal of Modern Humans". The theory was then formulated from a revised form of those papers delivered at the conference that address biological issues and subjects of broad archaeological interest. (Tattersall, 1991)

However, the "Upper Paleolithic Revolution" theory was criticized due three main reasons:

- A- Euro-centricity:** the theory seemed to be grounded on the European standpoint for the classification of prehistoric ages. Also considering only the European archeological records, giving minimal value to the African records that seemed to have evidences of symbolic and artistic activity. Sally McBrearty wrote: *"This view of events stems from a profound Eurocentric bias and a failure to appreciate the depth and breadth of the African archaeological record."* (McBrearty, 2000)
- B- Revolutionary nature:** the revolutionary nature of the theory looks like the "easy way" to explain such a complicated phenomenon like the symbolic culture. Chris knight wrote: *"The argument for a mutation generating language and then triggering symbolic culture has little to recommend it. We should be suspicious when a puzzle regarding our own species is addressed using 'special' methods – methods without parallel elsewhere in evolutionary science. No specialist in, say, elephant or social insect communication would invoke a single mutation to explain its evolution."* (Knight, 2010) This revolutionary nature of the theory may be referred back to the fact that *"The Paleolithic art discovered in Western Europe appears rather abruptly in the archaeological record and falls into a relatively small window"* (GRAY, 2010, p. 35). This was argued to be discontinuity and gaps that occur in the archeological record itself, which proponents of the theory considered sufficient to explain and support such a rapid cultural, cognitive, and/or biological transformation. (McBrearty, 2000)
- C- Time lag:** the earliest modern human fossils -that means fossils that are demonstrably closer to current living humans in morphology than to any other species- are found in Africa and used to be dated at about 100 ka. Recent dating place it at about 200 ka, while the lineage of Homo sapiens could be dated further back at about 400 ka. (Stringer, 2014).

According to this dating, the "human revolution" model is creating a time lag between the appearance of anatomical modernity and perceived behavioral modernity, and creates the impression that the earlier anatomically modern Africans were behaviorally primitive. (McBrearty, 2000)

In addition to the time lag that “human revolution” theory creates in the emergence of anatomically modern humans, “*recent excavations, most revealingly in South African caves, have provided significant insight into symboling activity including the use of color, engraving of patterns, bone technology and bead-making, dating from up to 164,000 years ago [...] These finds confirm that European Upper Paleolithic paintings, engravings and carvings, many of which are mature works of skilled craftsmanship, have a long history in terms of human evolution and culture behind them.*” (Morris-Kay, 2010)

Debating the long held “human revolution” theory created four different theoretical positions that are forming a continuum starting from defenders of the revolutionary change to proposers of gradual change:

Revolution happened in Europe, and new interpretations are wrong:

Authors like Richard Klein argue in front of these criticisms that recent interpretations of the African Middle Stone Age record are wrong; and the original ‘human revolution’ theory remains correct. He debates that Middle Stone Age humans evolving in Africa may appear anatomically modern, but did not become cognitively modern until the Late Stone Age/Upper Paleolithic. Symbolic culture emerged some 50,000 years ago, caused by a genetic mutation that re-wired the brain. (Knight, 2010)

Revolution happened but so much earlier in Africa:

Christopher Hinshelwood and Ian Watts are debating that the human revolution occurred as part of modern human speciation in Africa. Archaeological Evidences are available for symbolism in the form of cosmetics and personal ornamentation. (Knight, 2010)

Gradual change happened in Africa

Sally McBrearty and Alison Brooks refuse the revolution theory. They are debating that African ancestors of modern humans underwent gradual, build-up of modern cognition and behavior spanning 300,000 years. They see that Symbolism presents no special theoretical difficulties, emerging as part of the package of modern, flexible, creative behaviors within Africa (McBrearty, 2000)

Gradual change in different places and different species

Francesco D'Errico debates that Multispecies transition happened across Africa and Eurasia. He concludes that a Symbolic capacity was already in place with Homo heidelbergensis 300,000 - 400,000 years ago. Sporadic behavioral expressions of symbolism occurred among ancestors of both Neanderthals and us (Knight, 2010).

3. Sociobiology

Sociobiologists adopt the Darwinian concept of natural selection but apply it on the genetic level. They also apply it directly to human cultural behavior believing in its underlying genetic patterning. With this firm biological understanding, they believed that these genetically based culture traits should have led to increased reproduction, and would be then naturally or sexually selected and transmitted, thus would appear increasingly in the population. They viewed much of cultural behavior as a mechanism through which individuals-accurately genes - tried to increase their chances of reproduction. (Nanda & Warms, 2007)

In the "selfish gene"², Richard Dawkins wrote: *"The selfish gene theory is Darwin's theory, expressed in a way that Darwin did not choose but whose aptness, I should like to think, he would instantly have recognized and delighted in. It is in fact a logical outgrowth of orthodox Neo-Darwinism, but expressed as a novel image. Rather than focus on the individual organism, it takes a gene's-eye view of nature. It is a different way of seeing, not a different theory [. . .]. My point was that there are two ways of looking at natural selection, the gene's angle and that of the individual. If properly understood they are equivalent; two views of the same truth. You can flip from one to the other and it will still be the same Neo-Darwinism."* (Dawkins, 1989)

Sociobiology school reflects a persistent materialistic spirit, which insists on the biological foundation of all human behavior including culture, thus they focus on bridging the gap between biology and culture. This materialistic approach can explain why sociobiology is usually criticized by the vast majority of cultural anthropologists, whom used to believe that culture is almost completely independent of biology. (Nanda & Warms, 2007)

²"Selfish gene" is the book wrote by Richard Dawkins and widely considered as a key representative of Neo-Darwinism.

"In the 1980s and 1990s, socio biologists split into three groups: evolutionary psychologists, human behavioral ecologists, and those who study human universals. Evolutionary psychologists theorize that the mind is composed of a collection of specialized sub-organs designed for particular tasks. They try to describe these and show what they were designed to accomplish. Human behavioral ecologists emphasize human populations rather than cultures and try to test the hypothesis that culturally patterned traits enhance fitness. Some anthropologists focus on discovering and describing human universals, or characteristics found in all societies."(Nanda & Warms, 2007)

4. Evolutionary psychology

"Evolutionary psychology is a sub-field of evolutionary biology and involves the study of the brain with regard to its evolution and function. Any adaptations within the brain must also conform to the requirement that they increased either the chances of survival or reproduction – or both. Evolutionary psychology makes observations of current behavior and then attempts to explain those actions based upon what is known of past influences and the adaptations in the brain that they have produced" (GRAY, 2010, p. 47)

Many evolutionary psychology models shows how the development of connectivity patterns in the human brain is sensitive to environmental factors giving the brain highly increased plasticity, that may have played an important role in the evolution of art and aesthetic preference. (Marcos Nadal) Comparatively, as the animal behavior adjusts to the environment over the course of the organism's evolutionary history, behaviors that improve the organism's fitness will become innate in later generations in the form of psychological adaptations. Monkey's fear of snakes is a regularly used example of this trait. (GRAY, 2010)

Therefore, the evolution of artistic behavior may be psychologically driven, rather than caused by natural selection pressure. Artistic behavior may be motivated at the start by some stimuli that are ultimately connected to prehistoric adaptations that had absolutely nothing to do with art, which developed gradually over years to be innate and wired through human plasticity. (GRAY, 2010) This model is pointing out, then, the interplay between cultural and biological evolution that occurs through increased brain adaptability. Through the last 200,000 years, the exposure of human infants to diverse cultural practices, including those designed to embellish the environment—body painting, ornamental objects, bone carving...etc., is believed to be fundamental in the development of an aesthetically tuned mind.

The cultural production of aesthetic elements should have been therefore slow and gradual, with a variety of local traditions and forms of expression. (Marcos Nadal)

Neuro-imaging studies is showing that there is no single brain center responsible for aesthetic preference, and that different component processes are associated with activity in different brain regions. This cognitive subcomponent that contribute to aesthetic sense, and their neural bases, are shown to be not exclusive to human being, and showing presence in our close living relatives. This result is leading to assume that humans acquired aesthetic preference through gradual and quantitative changes in certain brain regions.

These changes in the brain bases of aesthetic preference may have occurred at different times throughout human evolution. Furthermore, we can assume that that multiple brain centers development have been driven by a variety of selective pressures, which was not necessarily related to aesthetic preference at that time. (Marcos Nadal)

This model is the antithesis for most of the evolutionary models that implicitly or explicitly assume that these cognitive traits appeared at some stage in human evolution, most commonly during the Pleistocene or after human and chimpanzee lineages diverged. In fact, it suggests that they appeared long before humans, and that human language, morality and aesthetic sense, in part at least, by using preexisting building blocks. (Marcos Nadal)

5. Behavioral Ecology Models

Behavioral ecologists study the fitness consequences of behavior. (Stamps, 2011, p. 231). "*Research in this field poses the basic question: what does an animal gain, in fitness terms, by doing this rather than that? It combines the study of animal behavior with evolutionary biology and population ecology, and more recently, physiology and molecular biology. Adaptation is the central unifying concept*".(the International Society for Behavioral Ecology, 2016)

One of the models that could represent this theoretical position is the mimicry model presented by Jerome Lewis. The model is trying to explain evolution of the symbolic behavior- that includes art- on the foundation of the relationship between hunting, mimicry, and storytelling.

Mimicry model suggests that Antelopes, monkeys and other animals hunted by Central African forest people trusted vocal signals, and treated it as intrinsically reliable. Forest hunter-gatherers routinely used to fake animal cries to attract targets within range. Therefore, when these hunters later recall the hunting experience, they act out the story drawing through the same faking techniques, mimicry, and pantomime. Therefore, the model suggests that Storytelling, ritual, play and religion in such societies is the in-group, co-operative and correspondingly honest redeployment of capacities for deception initially deployed in the forest. This converges with the people's different local views for their signs.(Knight, 2010)

Jerome Lewis wrote: *"'Faking' (intentionally deceptive mimicry) and 'pretending' (playful mimicry) are related. This is suggestive of the possibility that early humans' language-like behavior began with intentionally deceptive mimicry to facilitate hunting success. Thus, early language-like behavior might have initially evolved not for in-group communication but for deceiving other species. A secondary in-group use for fake vocalizations could have then emerged in the context of play and other interactions, possibly in early story-telling using sound signatures, for instance."*(Lewis, 2009)

6. Female Cosmetic Coalitions model: A Feminist Neo-Darwinian standpoint

Another model that represents the neo-Darwinian standpoint is the "female cosmetic coalition" presented by Camilla power. The model proposes that symbolic culture first arose out of the need for collective resistance to the sexual strategy of would-be philanderer males, in order to minimize female reproductive stress. (Townsend, 2015) Only one sign of female fertility remained reliable and obvious to male philanderers, which is menstruation. A female showing this signal will then trigger a conflict between males competing for this fertile female, and as well between females who may compete for male investment opportunities. Females who are pregnant or lactating will be then at risk of losing male investment to the cycling females. In their individual fitness, interest is to prioritize future economic security over short-term sexual favor seeking.

Thus a Counter-dominant female coalitions on this basis responded by 'painting up' with false signals representing all members of the coalition as uniformly 'fertile'. Thus, this female cosmetic coalition acts to minimize female competition stress for reproduction. (Knight, 2010)

The model proposes then that this earliest use of body paint gave birth to "modern" symbolic culture behavior like art, language, rituals and religion. *"It played a central role in transforming our pre-cultural ancestors into fully modern humans with modern culture, modern consciousness, and collectivized intentionality. Her argument is illustrated by intriguing ethnographic observations, such as why, among the Dogon, 'To be naked is to be speechless'."* (Whitehead, 2010)

The female cosmetic coalition strongly expresses the materialistic spirit of the Neo-Darwinism, which emphasizes on absolute individualistically inclined biological behavior that is fundamental to explain any cultural altruistic behavior.

It shows also an obvious feminist standpoint; alongside with a fundamental concept in Neo-Darwinism that highlights "cost-benefit" calculations in the biological selective behavior.

Bibliography

- (2016, 1 3). Retrieved from the International Society for Behavioral Ecology: <http://www.behavecol.com/pages/society/welcome.html>
- Bailey, D. W. (2005). Prehistoric Figurines: representation and corporeality in Neolithic. Abingdon: Rourledge.
- Chase, P. G. (1994). On Symbols and the Palaeolithic. *Current Anthropology*, 627-629.
- Chomsky, N. (2006). *Language and Mind*. New York: Cambridge University Press.
- D'azevedo, W. L. (1958). A Structural Approach to Esthetics: Toward a Definition of art in anthropology. *American Anthropologist* , 702-714.
- Dawkins, R. (1989). *The selfish Gene*. New York: Oxford University Press.
- Dunbar, R., Knight, C., & Power, C. (Eds.). (n.d.). *The evolution of culture: an interdisciplinary view*. New Jersey: Rutgers University Press.
- Gray, M. P. (2010). *Cave art and the evolution of human mind*. Victoria University of Wellington.
- Hamilton, W. D. (1964). The Genetical Evolution of Social Behaviour. I. *J. Theoret. Biol.*, 1-16.
- Hamilton, W. D. (1964). The Genetical Evolution of Social Behaviour. II. *J. Theoret. Biol.*, 17-52.

- Henrich, J., & McELREATH, R. (2003). The Evolution of Cultural Evolution. *Evolutionary Anthropology*, 123-135.
- Janson, C. H., & SMITH, E. A. (2003). The Evolution of Culture: New Perspectives and evidence. *Evolutionary Anthropology*, 57- 60.
- Knight, C. (2010). The Origins of Symbolic Culture. In C. S. Ulrich J. Frey (Ed.), *Homo Novus – A human Without Illusions* (pp. 193-211). Berlin, Heidelberg: Springer.
- Laureano Castro, M. A. (2004). The evolution of culture: From primate social learning. *PROCEEDINGS OF THE NATIONAL ACADEMY OF SEINCES (PNAS)*, 10235–10240.
- Levine, M. H. (1957). Prehistoric Art and Ideology. *American Anthropologist*, 949-964.
- Lewis, J. (2009). As well as words: Congo Pygmy hunting, mimicry, and play. In C. K. Rudie Botha (Ed.), *The Cradle of Language- studies in the evolution of language* (pp. 236-256). new york: oxford university press.
- Mann, A. (1992). The human revolution: Behavioural and biological perspectives in the origins of modern humans.(book review). *American Journal of Human Biology*.
- Marcos nadal, g. g.-p. (2014). Evolutionary approaches to art and aesthetics. In J. K. Pablo P. L. Tinio (Ed.), *The Cambridge Handbook of the Psychology of Aesthetics and the Arts* (pp. 167-194). United Kingdom: Cambridge University Press.
- Marcos Nadal, M. C.-C. (n.d.). Constraining Hypotheses on the Evolution of Art and Aesthetic Appreciation. In O. V. Martin Skov (Ed.), *Neuroaesthetics*. New York: baywood publishing company, inc.
- McBrearty, S. a. (2000). The revolution that wasn't: a new. *Journal of Human Evolution*, 39, 453–563.
- Mellars, P. A. (Ed.). (1989). *The Human Revolution: Behavioural and Biological Perspectives on the Origins of Modern Humans*. (C. Stinger, Trans.) Princeton University Press.
- Morris-Kay, G. M. (2010). The evolution of human artistic creativity. *journal of anatomy*, 216, 158-176.
- Nanda, S., & Warms, R. L. (2007). *CULTURAL ANTHROPOLOGY* (9th ed.). Belmont, CA, USA: Thomson Wadsworth.
- Sharman, R. (1997). *THE ANTHROPOLOGY OF AESTHETICS:: a cross cultural approach*. *JASO*, 177-192.
- Stamps, J. A. (2011). Density bias in behavioral ecology. *Behavioral Ecology*, 231-232.
- Stringer, C. B. (2014). Diagnosing Homo sapiens in the fossil record. *Journal of the society and the human biology*.
- Tattersall, I. (1991). What was the Human Revolution? *Journal of Human Evolution*, 20, 77-83.
- Townsend, C. (2015). Mbuti & Baka Feminist Mythology and Female Ritual Coalitions. Eleventh conference on hunting and gathering (CHAGS11). Vienna.
- White, R. (2003). *Prehistoric Art: The Symbolic Journey of Humankind*. HARRY AND ABRAMS, INC PUBLISHERS.
- Whitehead, C. (2010). Rethinking Reality. *Journal of Consciousness Studies*, 17, 7–17.