

# Propagation of the Organization of Works of Art

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## Propagation of the Organization of Works of Art

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### Abstract:

Our aim in this article is to discuss the propagating organization of artistic sensibility and the works of art that arise from that sensibility which we claim parallels the propagating organization of living organisms. We first examine what distinguishes a work of art from other forms of human artifacts such as tools, technology shelters, toys, games and ornaments. We show that this propagation of art and artistic sensibilities parallels the propagation of the organization of living systems. By doing so we explore the hypothesis that works of art and the artistic sensibility that give rise to them are metaphorically like a living organism in that they propagate their organization and that artistic expression evolves much like the way that living organisms propagate their organization and also evolve.

### Introduction

The focus of this study is to show that works of art propagate their organization in a process similar to the way that living organisms consisting of matter, energy, work, constraints and that vexed concept, 'information' propagate their organization as described by Kauffman, Logan et al. (2007) in an article entitled "Propagating Organization: An Enquiry." This study consists of the following elements:

1. A description of what constitutes a work of art and how works of art differ from other human artifacts and activities.
2. A review of the way living organisms propagate their organization (ibid.)
3. A description of the way that works of art propagate their organization which parallels the way living organisms propagate their organization and as a consequence works of art evolve much like the way that living organisms evolve.
4. A suggestion that cultures like works of art also propagate their organization

### How Does a Work of Art Differ From Other Human Artifacts and Other

## **Human Activities?**

A work of art differs from other human artifacts in a number of different ways. This is not to suggest that a work of art is more valuable than other kinds of human artifacts such as tools, technology and ornaments, but they differ from them in a number of distinctive ways. Human artifacts that are not works of art such as tools and various forms of technology almost always have a utilitarian purpose or function. There is one class of human artifacts that are neither utilitarian nor works of art such as ornaments and amusements such as games, which we will come back to later, but for now let us consider how works of art differ from utilitarian tools and technologies.

A work of art is a human artifact but so too are tools, shelters, clothing, toys, games and decorations. Works of art have no utilitarian or practical purpose – they stimulate an emotional response – provide a sense of beauty – provide pleasure. Tools and technology, on the other hand, enhance some practical objectives. They can also elicit an emotional, aesthetic and/or the pleasurable response of achieving their objectives, but these are secondary and unlike art these are not their primary purpose.

Artifacts created for play like art have no utilitarian objective – they are constructed largely for the amusement and pleasure of engaging in them – they can entail a certain degree of aesthetics, but this is a secondary consideration (Huizinga 1955). Like works of art, games and sports can attract audiences who derive emotional and aesthetic pleasure from viewing others at play. Sports events are a form of theatre in which the outcome is not known ahead of time. Some sports events like gymnastics and dressage have important aesthetic elements to them. Yet a gymnast is not considered primarily as an artist as is a ballet or modern dance performer. Once the sport event is over it does not live on like a work of art even if it has been recorded. The emotional response and pleasure of watching a recording of a sports event is greatly diminished from its first viewing. This is not the case of a true work of art where subsequent viewings or hearings of a work of art can actually increase its impact.

## **Popular Art, Folk Art and Crafts, Ornaments and Decorations versus Fine Art**

It is easy to draw a sharp line or distinction between artifacts that are tools and those that are works of art since it is only art objects whose primary purpose is the creation of beauty and/or an emotional response. But what about popular art,

folk art and crafts, ornaments and decorations that are also created to be aesthetically pleasing and elicit an emotional response. Where does one draw the line between a work of art and these popular art forms? Is fashion in terms of attire a form of artistic expression? Is not folk music an art form that propagates its organization from one generation to another? The same with jazz (Dixieland, swing, bebop, or modern). And what about pop music and folk music? Are advertising jingles a form of art? A similar problem arises when considering dance. Ballet and modern dance such as Graham technique are certainly art forms but what about popular dances like the waltz, fox trot, rumba, cha cha cha, salsa, and then there are folk dances and ritual dance. All of these popular dance forms propagate their organization.

The various forms of what we will call folk art are part of the oral tradition. Folk songs and folk dances propagated their organization by word of mouth, demonstration and by engaging in them. The same is true of plastic folk art of drawings, decorations, pottery, folk costumes, body painting, folk rituals, and nursery rhymes. The only conclusion one can reach is that both popular or folk art and fine art propagate their organization. And that the distinction between popular/folk art and fine art is almost impossible to define. We believe that it is impossible to really define what is art and what is not? As Louis Armstrong once said, "If you have to ask what jazz is, you'll never know it." What he said of jazz applies to defining art. If you have to ask what art is you will never know it or appreciate it.

## **Definition of What is a Work of Art**

Before we attempt to define what a work of art is, here is a warning from <https://plato.stanford.edu/entries/art-definition/> of the difficulty of defining art

The definition of art is controversial in contemporary philosophy. Whether art can be defined has also been a matter of controversy. The philosophical usefulness of a definition of art has also been debated.

A human artifact is anything that is constructed by a human being. It need not be a purely physical object although most human artifacts are. But a song created by the human voice or a musical instrument is also an artifact as are human utterances. Before there was, the written words, there were stories, songs and poetry created by human actors many of which would be considered as works of art. The very word artifact ("art"ifact) contains the notion of art. So, does the word artificial ("art"ificial) to distinguish things that are not found in nature, i.e. are not natural, not a part of nature. Art in the sense of fine art is not part of nature although it imitates nature and therefore it is non-natural and **artificial**

Let us consider some definitions of art from *Oxford Languages* (<https://www.google.com/search?client=firefox-b-d&q=Definition+of+art>):

- the expression or application of human creative skill and imagination, typically in a visual form such as painting or sculpture, producing works to be appreciated primarily for their beauty or emotional power.
- works produced by human creative skill and imagination.
- the various branches of creative activity, such as painting, music, literature, and dance. "the visual arts"
- subjects of study primarily concerned with the processes and products of human creativity and social life, such as languages, literature, and history
- a skill at doing a specified thing, typically one acquired through practice - "the art of conversation"
- know-how

**Here are some more definitions of art collected by googling “what are art forms”**

Art in any form is an expression or application of human creativity, skill, and imagination. Many of the arts are experienced visually but can also be audible or enjoyed through sensory touch. Arts were traditionally appreciated primarily for their beauty or emotional power but are now often used for political expression or social commentary. Most art can be generally categorized into the seven different forms of art...: painting, sculpture, literature, architecture, cinema, music, theater (<https://www.eden-gallery.com/news/7-different-forms-of-art>, accessed December 15, 2023). Missing in the above definition is dance, an art form I once engaged in dear readers.

Art as expression: The view that “art is imitation (representation)” has not only been challenged, it has been moribund in at least some

of the arts since the 19th century. It was subsequently replaced by the theory that art is expression. Instead of reflecting states of the external world, art is held to reflect the inner state of the artist. This, at least, seems to be implicit in the core meaning of *expression*: the outer manifestation of an inner state. Art as a representation of outer existence (admittedly “seen through a temperament”) has been replaced by art as an expression of humans’ inner life (<https://www.britannica.com/topic/philosophy-of-art/Art-as-expression>, accessed December 15, 2023)

If you describe an activity as an art form, you mean that it is concerned with creating objects, works, or performances that are beautiful or have a serious meaning (<https://www.collinsdictionary.com/dictionary/english/art/related>, accessed December 15, 2023).

From these definitions we see that art to a large degree are artifacts such as paintings, drawings, lithographs, sculptures, films (or cinema) with a few exceptions like art that has to be performed such as music in the form of a song or a symphony or dance in the form of ballet or modern dance.

## **The Propagating Organization of Living Organisms**

In a conversation over beers between Stuart Kauffman, Robert Este and Bob Logan in Ottawa immediately following the inaugural meeting of the Canadian Systems Biology Society in June of 2006 Kauffman asked “what is systems biology?” Logan retorted by saying “you are asking me, you are the systems biologist, isn’t it about information in biotic systems. Kauffman responded by saying but what is information in a biotic system anyway? After a lively discussion of not more than an hour we concluded that we did not really understand what the nature of information was in a biotic system. We tried to link biotic information to Shannon’s notion of information. It quickly became apparent to us that Shannon information cannot properly describe biotic information. That conversation led to the article “Propagating Organization: An Enquiry (Kauffman, Logan 2007).”

In that enquiry we showed that biotic or instructional information is quite different than Shannon information and is related to the constraints that allow a living organism to convert free energy into work that allows it to operate its metabolism and replicate itself thus propagating its organization. In particular we described the “propagating organization of process” as “a poorly articulated union of matter, energy, work, constraints and that vexed concept, ‘information’, which unite in far

from equilibrium living physical systems (ibid.).” In that enquiry we suggested that

We cannot pre-state the configuration space of the biosphere. Now a classical physicist might argue that, if we take the solar system, it is just a large classical  $6N$  dimensional system where  $N$  is the number of particles in the solar system and the current biosphere is, with the rest of the solar system, a point in that vast space. Let us grant the move. Then, we rejoin, the physicist has no way to pick out the collective variables, the lungs and hearts and wings, and features of the environment that are the relevant causal variables for the ongoing evolution of the biosphere. Thus, again we see that we cannot write down causal laws with a pre-stated set of (collective) variables for the evolution of the biosphere.

We shall not discuss this further here, but the same incapacity to pre-state the evolution of the economy and its technology also arises, as does the incapacity to pre-state the evolution of human culture [to which I would now add the evolution of fine arts - RKL]. But all this has the deepest implications. Reductionist science is powerful, but is limited. This sets us free in astonishing ways, for organisms live their lives forward, they do not deduce them. We appear to live in a universe in which our reductionistic world view is inadequate: there is the emergence of life, and value as we discuss below. Human language and culture also represent propagating organization (Logan 2006 & 2007). Moreover we live in and partially co-create a ceaselessly “creative” biosphere, economy, and human culture. This glimmers a new scientific world view, beyond reductionism with broad potential societal ramifications [Kauffman, Logan, Este, Goebel, Hobill & Shmulevich 2007].

In the mean time Kauffman together with Andrea Roli has suggested In an article entitled “A Third Transition in Science?” that science has undergone a third transition largely based on the argument above. They wrote:

Since Newton, classical and quantum physics depend upon the "Newtonian Paradigm". The relevant variables of the system are identified. For example, we identify the position and momentum of classical particles. Laws of motion in differential form connecting

the variables are formulated. An example is Newton's three Laws of Motion. The boundary conditions creating the phase space of all possible values of the variables are defined. Then, given any initial condition, the differential equations of motion are integrated to yield an entailed trajectory in the pre-stated phase space. It is fundamental to the Newtonian Paradigm that the set of possibilities that constitute the phase space is always definable and fixed ahead of time (Kauffman and Roli 2023).

In an article entitled “The Fourth Transition in Science: Extending Kauffman and Roli’s Third Transition in Science” Logan (2024) has suggested the following:

It is posited that this notion of a “Third Transition in Science” developed by Kauffman and Roli (2022) can be extended to the evolution of the human idea sphere. The human idea sphere is defined as the sum of the products of the human mind which include language, all forms of social, economic and political organization, the natural and social sciences, technological invention and development and all forms of artistic expression including literature, music, dance, theater and the visual arts of painting, drawing, and sculpture.

This current enquiry has the aim of applying and extending the results of the enquiry by Kauffman, Logan et al. (2007), Kauffman and Roli (2023) and Logan (2024) of the propagating organization of living organisms to the phenomenon of the propagation of the organization of artistic sensibility and the works of art that arise from that sensibility by human actors including the following genres:

1. visual (including two- and three-dimensional objects);
2. music;
3. performance based such as theatre, dance and cinema; and
4. any combination of these first three categories.

We posit that works of art propagate their organization in a process that is similar to or parallel with but not exactly the same as the way living organisms propagate their organization. This includes works of art that manifest themselves either

- i. as an object such as a drawing, painting, sculpture, architectural structure or some form of literature; or
- ii. as a performance such as a theatrical play, an opera, a dance, a musical concert, a movie or even a ritual.

We will also examine in what sense a work of art and the artistic sensibility that



gives rise to it behaves metaphorically like a living organism by also propagating its organization. While it is clear that a work of art along with the artistic sensibility that gives rise to it and a living organization are quite distinct, we believe that we can show that they both propagate their organization and that the body of the works of art and the artistic sensibility that gives rise to them evolve in a way that parallels the way in which living organisms evolve. We also believe that like living organisms the body of human art evolves and like the case with living organisms in which new species of life forms emerge new forms or new species of art also emerge. Humans did not always have oil painting, symphonic music, operas, ballets, plays, cinema, or modern dance or AI generated forms of these genres of human creativity, these modern forms of artistic expression evolved from earlier forms of primitive decorations, music, dance, and ritual.

There is another parallel in the sphere of artistic expression and the biosphere. Just as it is the case that we cannot pre-state the configuration space of the biosphere we also cannot pre-state the configuration space of the arts-sphere, where the arts-sphere is the body of all human artistic expression.

### **Parallels and Differences of the Evolution of Life Forms and Art Forms**

The mechanism for the propagation and evolution of living organisms and works of art are for the most part different, but there are some parallels, which we will describe. We believe that the application of ideas from systems biology can enrich our understanding of the nature of the fine arts. We intend to describe the nature of the organization of various art forms and describe how they propagate that organization. We will also explore in what sense does a work of art act metaphorically like a living organism and how the body of the works of art specifically evolve in a manner that parallels the evolution of living organisms although the mechanism for the propagation of their information is quite different.

For living organisms the basic unit of information processing is the cell and its content of DNA, RNA, and proteins.

By and large, the biological concept of information derives from the DNA, RNA, protein processes of “coding”, transcription, and translation... As part of the propagating organization within living cells, the cell operates as an information processing unit, receiving information from its environment, propagating that information through complex molecular networks, and using the information stored in its DNA and cell-molecular systems to mount

the appropriate response (Kauffman, Logan et al. 2007).

For multi-cellular living organism the basic mechanism for the propagation of organization is the cell, the basic atom of an organism and the organization of the communication of the cells with each other.

For artistic sensibility and the works of art that arise from that sensibility, the basic mechanism for the propagation of organization is the spontaneous emergence of an artistic sensibility in the artist influenced by the artist's former works and the works of other artists both those that preceded them as well those of their contemporaries which leads to their creation of their works of art. These are then admired and valued by their audience some of whom are other artists, who as a result develop their own unique artistic sensibility somewhat related to the artistic sensibility of the works of art that inspired them.

Unlike living organisms that are self-contained objects with well-defined boundaries, a work of art is not self-contained and it does not have well-defined boundaries. The reason for this is that the phenomenon of art and the process of its creation and evolution is more than the object or the performance but it also depends on it being apprehended and experienced by its audience. A living organism is self-contained and by interacting with its environment it is able to propagate its organization. Not true for a work of art. A work of art can only propagate its organization by being observed or experienced by those other than the artist that created the work of art. McLuhan even went so far as to suggest that "the audience, as ground, shapes and controls the work of art (McLuhan, Marshall & Eric. 1988, 48)."

One of the definitions of works of art is that they are "works appreciated primarily for their beauty or their emotional power (<https://www.lexico.com/definition/art>)."

An object therefore cannot be a work of art unless there is an audience that appreciates it for its beauty or emotional power or both. A work of art is defined by the affects it elicits in its human audience that is able to experience that work of art. A work of art therefore can only propagate its organization if it is encountered by a human subject that is moved by its beauty and/or its emotional power.

Both living organisms and works of art operate in their respective environments. For the living organism that environment is passive whereas for the work of art, that human environment is active by virtue of the necessity that the art work has been experienced by its human audience. It is through that human environment that the work of art is able to propagate its organization. The art object is the figure and the human audience that includes the artist or artists is the ground. The artist creates the organization of the work of art, the figure, but it is through the audience, the ground, that this organization is propagated resulting in new works of art. The

audience of a work of art can be the artists themselves who go on to create other works of art. It could also be another artist who creates their own works of art inspired in part by the works of other artists. And it is through this process that the body of art works evolves paralleling the evolution of living organisms. Finally, it can be the general audience who appreciate and value the work of art.

The above argument can be extended to the propagation of a language or of a culture in general of which art is only one element. For a culture or a language to propagate its organization it too must be experienced by those that live within that culture or speak that language. One of the crimes of Canada was its residential schools run by the Roman Catholic church where children were separated from their parents and were not allowed to speak their mother tongue. Similar destruction of indigenous culture have taken place in other countries colonized by Europeans. This was a form of cultural genocide. Art, language or culture can only propagate themselves by being experienced.

### **Are Art Works Metaphorically Like Living Organisms That Evolve?**

We suggest that a work of art is metaphorically like a living organism in the sense that its effects are propagated each time it is experienced by a member of its audience including the experience of the same person experiencing it at multiple times in their life. A work of art like a painting, a sculpture, a musical composition, a work of literature often far outlives the many people who initially enjoyed the experience of that art work and the artist that created the work of art. The paleolithic cave paintings at places like Lascaux are an example of long lived works of art as are Greco-Roman sculpture; the Parthenon, the music of Bach, Vivaldi, Mozart, Beethoven, and Mahler, the Mona Lisa and the paintings of Botticelli and the Impressionists, the plays of Sophocles, Shakespeare and Eugene O'Neill to mention a tiny fraction of the works of art of the past that are living, flourishing physical systems that have propagated their organization through the ages moving all those that experienced them. They are immortal living systems that will continue to have their effects as long as humankind survives and preserves these precious treasures of human culture.

We suggest that one of the features of living organisms, on the one hand, and artistic sensibility and the works of art that emerge from that sensibility, on the other hand, is that they both evolve. The notion of evolution is a standard concept in biology or the study of living organisms but not quite as much in the study of artistic expression. Although those art critics that do discuss schools of

art and their evolution do in many ways implicitly suggest that the evolution of art parallels biological evolution. Given that artistic sensibilities and works of art propagate their organization like living organisms it should be no surprise to discover that artistic sensibilities and works of art also evolve.

## **The Evolution of Music**

It is suggested that baroque, classical, romantic and modern music represent different species of music in which baroque music evolved into classical music, from there into the music of the romantic period and from there into modern music. Jazz also underwent an evolution with its roots in the gospels and work songs of the American black community in the second half of the 18<sup>th</sup> century, followed by ragtime and New Orleans based Dixieland to which the term jazz was first attached. Dixieland jazz was followed by the Swing Era, and the followed by bebop, cool jazz, hard bop, Latin jazz, and avant garde jazz.

## **The Evolution of Painting**

A similar type of evolution takes place in the development of painting beginning with cave painting dating back to 30 thousand years ago. Painting then emerged in all parts of the world. The evolution in the Western world begins with the frescoes of the ancient Egyptians, Greeks and Romans, followed by the religious paintings of the early Christians, the Medieval period, the paintings of the various renaissance, baroque, rococo and neo-classical schools of art. This was followed by the impressionists, the post-impressionists, the Fauves, the cubists and the modern art of the 20<sup>th</sup> and early 21<sup>st</sup> centuries.

Works of art are more than the physical media of which they are composed, the marble, the paint, the words on paper, the musical notes on scores. They are the emotions, feelings, thoughts, inspirations, beauty that they invoke in those that experience them and yes, the other works of arts they inspire. Like living organisms, they propagate their organization through their progeny. A work of art can give rise to other works of art that they inspire. In most case the works of art that they inspire are in the same genre as their own. But sometimes they inspire and give rise to a work of art in another genre of art that contains some elements, some forms of structure from the work of art that inspired them. But this new genre of art that emerges is changed in some essential way from the forms of art that inspired it and a new species of art form can be said to have evolved from the older species of art form that inspired it paralleling the way one species of a living organism evolves into a new species. For example, the impressionists of Renoir, Monet and Degas evolved into the post-impressionism of Matisse, Bonnard and Vuillard and from there evolved into Picasso's Blue Period and from there into Picasso's Cubism. In fact, each of the painters just mentioned evolved

different genres within their lifetime and influenced each other so the analogy with the evolution of living organisms is not precise but still suggestive. A similar evolution took place in classical music. The music of Bach evolved into Haydn and Mozart and from there into Beethoven and Brahms and then to Wagner and Richard Strauss and then to Stravinsky followed by Bartok and Mahler, a never-ending evolution. Also, within the lifetime of these composers there was, like with the painters, we just mentioned a similar evolution of their musical genres. Finally, we note that the works of art in general give rise to schools of thought, schools of beauty, that follow their own evolution.

There is a parallel in the evolution of living organisms and works of art in that both are influenced by the environment in which they operate. Just as the evolution of living organisms are affected by climate and environmental changes as well as the evolution of the other organisms in their *umwelt* so it is that the creators of works of art, the artists, are affected by the artistic, technological, social, political, economic, religious environments in which they operate as well as the physical environment in which they survive from day to day including how they find food and shelter. The propagation of their art organization is not linked to biological reproduction as is the case with living organisms but is linked to how they communicate their art to their audiences and how they communicate their ideas about their art form to other artists, i.e. practitioners of their art form and in some cases to artists who practice a different form of artistic expression or even those who are not artists but have an important impact on the social culture that the artist occupies. Writers can influence painters and vice-versa painters can influence writers. Religious, political or economic leaders can influence artists and in some rare instances the other way around where artists influence leaders in some social domain.

Not only do art works in one genre evolve into art works in the same genre as we just described but genres of art also evolve. Let us consider the camera obscura that Renaissance painters like Vermeer used to make sure they could duplicate the three dimensional perspective of the scenes they painted. The camera obscura evolved into the photography camera that captured images on chemical based film that were there then printed on paper. Photography with its focus on still images evolved into silent movie cameras and cinema and then evolved into talkies and then evolved into digital movies which are a different medium. And what is the difference between film-based and digital based cinema? Well for one thing one cannot get pure black with digital images as some light always gets through the digital medium. This was pointed out to me by Atom Egoyan during a discussion we had in his studio.

## **Art and Zeitgeist**

Artists are influenced by the zeitgeist or the spirit of the time that they occupy and from time to time those that are most successful actually contribute to the zeitgeist of their time. The very fact that the notion of zeitgeist emerged is that the arts evolve not just in terms of their content but also in terms of the media of artistic expression. Things that are seemingly unrelated to art such as technology, the actual media of artistic expression, economics, religion, philosophy all contribute to the zeitgeist that artists occupy and hence impact their art work. Some argue, on the other hand, that the artists actually define the zeitgeist of their times. Wyndham Lewis wrote: "The artist is always engaged in writing a detailed history of the future because he is the only person aware of the nature of the present." Marshall McLuhan (1964, 65) wrote: "The artist is the man (sic instead of person) in any field, scientific or humanistic, who grasps the implications of his actions and of new knowledge in his own time."

## **Art and Biology**

What have the fine arts and biology have in common? Why should a study of biology have relevance for understanding works of art?

A work of art is the product/creation of a living human being/organism. A work of art and a living organism are each a form of organization of physical matter as well as an organization of information. Living organisms interact with each other as do artists and works of art – this is quite obvious for living organisms but less so for works of art. However, certain works of art become the inspiration or the model for other works of art that succeed it, which is an example of their interaction. Van Gogh and Gauguin inspired each other and influenced each other's paintings. Beethoven's music inspires Brahms. The impressionists, particularly Cezanne and Gauguin, inspired Bonnard and Vuillard. Shakespeare inspires just about every writer that used the English language.

## **Human Culture also Propagates Its Organization**

We have argued that works of art propagate their organization. Well if that is the case, we can extend that claim to human culture as a whole which also propagates its organization through the social interactions of humans with each other. As John Donne said in his poem "No man is an Island:"

No man is an island entire of itself; every man  
is a piece of the continent, a part of the main;  
if a clod be washed away by the sea, Europe

is the less, as well as if a promontory were, as well as any manner of thy friends or of thine own were; any man's death diminishes me, because I am involved in mankind. And therefore never send to know for whom the bell tolls; it tolls for thee.

In fact, the idea of culture propagating itself has already been suggested by Richard Dawkins's in 1976 in *The Selfish Gene*, where he introduced the idea of the meme, something which is imitated, as a concept to explain the evolutionary principle at work in culture through the spread of ideas and cultural phenomena. The meme for culture plays the same role as the gene for biology and its name is derived from the Greek mimēma '*that which is imitated*'. Memes, like genes, mutate and the successful ones propagate their organization.

### **Are Human Language and the Fine Arts Somehow Connected?**

There is an interesting correlation of verbal language and the fine arts. Some forms of fine art make use of verbal language such as literature, plays, songs and opera and others do not like painting, sculpture, symphonic and chamber music and dance. What unites the two activities of verbal language and the creation of art especially non-verbal art such as painting, sculpture, music and dance is that both are vehicles for expressing thoughts, ideas and feelings. The interesting aspect of the correlation of verbal language and the fine arts in humans is that humans are the only living creatures that engage in either verbal language or the fine arts suggesting there is a connection with these two activities.

We suggested that humans as the only living creatures to have produced art. There is evidence that Neanderthals once engaged in art in the form of jewelry and rock painting as evidenced by the drawings in the caves they occupied in southern France at La Roche-Cotard.

Neanderthals might have been making some of Europe's oldest art thousands of years before the arrival of humans. Though their meaning will likely never be known, the lines drawn on a cave wall show that the creation of art isn't limited to just our species. Finger painting may have been the height of artistic expression over 50,000 years ago. Impressions made by fingers tracing a variety of

shapes on soft clay walls, the cave art found in La Roche-Cotard, France, is thought to be among some of the oldest in western Europe. It's so old that the scientists behind the study believe that it predates the arrival of our own species in the region, and so would have been made by Neanderthals instead. While any meaning of the engravings has been lost to time, the art provides further evidence that our closest relatives were more complex than first thought. (<https://www.nhm.ac.uk/discover/news/2023/june/oldest-known-neanderthal-engravings-uneearthed-french-cave.html>, accessed Jan. 21, 2024).

See also <https://www.google.com/search?client=firefox-b-d&q=neanderthal+art+cave> and <https://www.smithsonianmag.com/science-nature/oldest-known-neanderthal-engravings-discovered-in-french-cave-180982408/>, both accessed Jan. 21, 2024).

Other evidence for Neanderthal involvement with art goes back even further in time to 130,000 years ago with the discovery in Croatia of the Neanderthal 'Eagle Claw Necklace' (<https://www.sci.news/archaeology/science-neanderthal-eagle-claw-necklace-krapina-croatia-02588.html>, accessed Jan. 21, 2024).

Of course, we will never know if Neanderthals ever made use of verbal language but it is certainly interesting that they did engage in a form of folk art. As for the evidence of the correlation of verbal language and the engagement of art we only have the one data point of the unique presence of these two aspects in human culture.

## **Conclusion**

Both works of art and culture in general propagate their organization like living biological organisms. The difference is that works of art and culture are obligate symbionts in that they cannot exist if their hosts the human race did not exist. If God forbid, global warming and climate change were to make human existence on the planet impossible art and culture would also perish which makes them obligate symbionts of humans. But if culture were to disappear then perhaps humans would disappear also since humans depend on their culture to survive which means human are obligate symbionts of their culture. If art were to disappear humans might survive but would it be worth it if they had no art.

<https://www.google.com/search?client=firefox-b-d&q=neanderthal+art+cave>

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