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A Bona Fide Ethological View of Art: The Artification Hypothesis

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Between the 1960s and 1980s, most biologically-informed speculation about the origin and function of art was produced by two zoologists, Desmond Morris (1962, 1968) in England and Irenäus Eibl-Eibesfeldt (1975, 1989a, 1989b) in Germany. Both had been students of the founders of ethology, Niko Tinbergen at Oxford and Konrad Lorenz at the legendary field station in Bavaria, Seewiesen. In their writings, “art” was presumed to refer to visual art and its animal roots were traced to play (Morris) or display and other forms of communication (Eibl-Eibesfeldt). Like these scholars, my own early forays into the subject of art in human evolution were also heavily influenced by ethological concepts that were prominent at the time (Dissanayake 1974, 1979, 1980, 1982).

In the United States, during the 1980s and thereafter, both animal and human ethology were gradually assimilated or swept aside by the American-born fields of evolutionary psychology and cognitive science. By 2010, in his influential textbook *Evolutionary Psychology: The New Science of the Mind*, David Buss described “the ethology movement,” as being of primarily historical interest and essentially passé. Although Buss praised ethology for forcing psychologists to reconsider the role of biology in the study of human behaviour and for focusing attention on the importance of biological adaptation, he found that ethologists did not develop “rigorous criteria” for discovering adaptations. Moreover, their focus on observable behaviour resulted in descriptions that tended to be “labels” without explanatory force, particularly of the “underlying mechanisms” of the behaviour.

Since their emergence in the 1980s and eventual dominance by the end of the twentieth century, the fields of evolutionary psychology and cognitive science have developed a formidable body of theory about human evolution and behaviour, abetted by a continuing crescendo of neuro-imaging, computa-

tional, and other investigative techniques for testing hypotheses about underlying mechanisms in human behaviour that were not available to ethologists. These advances can only be welcomed, although elsewhere I have questioned some of these fields' assumptions and pronouncements about human art making and response (Dissanayake 2009; Brown and Dissanayake 2009).

Since the late 1980s, views about art from the perspective of evolutionary psychology have increased, although most emphasize literature or storytelling (for an overview of contributions to the field; for an overview of a variety of biological views of the arts through the 1990s see Cooke and Turner 1999:433-464). It is not easy for newcomers to find their way through the many conjectures, speculations, or hypotheses. Scientists, like philosophers of art before them, are stymied by the difficulty of defining or circumscribing their subject. "Art" may refer to visual (or aural) beauty or beautiful things; to perceptual and cognitive biases for certain colours, shapes, subject matter, landscapes, or bodily and facial features; to use of these as communicative devices; to the cognitive ability to imagine or enhance; to creativity; to an expressive need; to emotional ("aesthetic") responses; and others – this is not a comprehensive list.

All these approaches seem to have some relevance to the subject of art in human behaviour and evolution, but is one more elementary than the others? Can we find a common denominator? It is not enough to treat our subject with a "cluster definition" (Dutton 2009), if we wish to suggest an origin and adaptive function (or functions). We have to know what we are talking about and looking for. "Art," after all, is a modern concept and it is not surprising that ideas about what comprises art are influenced by our historical time and place.

It is because of the bewildering cornucopia of ideas about what art is (and what art does) that, despite Buss's dismissal, I continue to find ethology to be the most helpful starting place to examine its biological origin and original function(s). To begin with, let us conceptualize art as a *behaviour* (or *behavioural predisposition*), rather than an object ("work" of art) or quality (beauty, skill) or cognitive capacity. Ethologically speaking, art is something that people *do* (like play, display, court, mate, mourn, establish territory and hierarchy, form families, practice aggression and ethnocentrism, and so forth). Because there is no general verb (e.g. "to art") for what people do when they engage in art, I call it "artify."

A more precise description of the term will be deferred here until section 5, as its components require development in sections 1 through 4. I can emphasize, however, that I find the behaviour, “artification,” to be foundational to other characteristics of art, such as those described above. That is, people use such things as beauty, perceptual biases, imagination, creativity, skill, personal expression, and emotion when they artify. In my hypothesis, artification has its own motivation and function(s). I regard it not as a by-product of other adaptations except insofar as, like many adaptations, it originated from elements in an earlier evolved adaptive behaviour mother-infant bonding (see section 1). However, during the course of hominin evolution under selective pressures of individual anxiety about environmental uncertainty and the need for mechanisms of group bonding it arose from proto-artistic/aesthetic¹ predispositions and developed its own adaptive trajectory (see section 4).

1 Mother-Infant Bonding

In hominins, the close bond that can be observed between all primate mothers and infants became especially intense during the evolution of our upright-walking, large-brained genus *Homo*. Bipedality alters the female pelvis, reshaping and narrowing the birth canal, so that parturition can be difficult, especially with large-headed infants. Adaptive answers to this problem include a compressible neonate skull, a temporarily-separable maternal pubic symphysis, a postponement of three-quarters of infant brain growth until after birth (Portmann 1941), and a considerable reduction of the gestation period. Compared to other primates, human babies are born in a strikingly helpless state so that they require constant care for months and years.

Along with the adaptations just described, I propose that our ancestors developed a significant *behavioural* adaptation as well: the universally-observable reciprocal interaction between mother and baby that is sometimes called “motherese,” referring to the peculiar sing-song vocalizations that mothers (and others) universally address to infants (Fernald and Kuhl 1987; Fernald 1992). The interaction, however, also includes concurrent peculiar facial expressions and head and body movements. It is so unlike social exchanges between adults as to demand evolutionary attention.

1 The unwieldy term “proto-artistic/aesthetic operations” indicates that the operations are both performed or enacted by a mother and responded to by an infant. “Proto” indicates that the operations are not deliberately used artificially or intended to provoke an aesthetic response.

To begin with, the prelinguistic infant of course does not understand the semantic meaning of the words. It responds to the multivalent package of vocal, visual, and gestural stimuli with its own vocalizations, facial expressions, and head and body movements. The mother leads the interaction but responds in a split-second, unconscious manner to the infant's signals. Indeed, babies actively let adults know by their own positive reactions their coos, wriggles, and smiles which vocal, visual, and gestural signals they prefer. In other words, they are predisposed from birth to elicit and reward certain signals from their caretakers.

Interestingly, maternal signals to infants are all derived from visual, vocal, and gestural indications of interest, openness, familiarity, submission, appeasement, devotion, and affection that adults universally exchange with each other. These ordinary universal adult communicative signals have been well-described and documented in people all over the world by Eibl-Eibesfeldt (1975, 1989a) and used by psychologists to predict the mood and intent of patients during interviews (Grant 1968, 1972). The difference is that when used with infants, adults simplify or stereotype, repeat, exaggerate, and elaborate the signals, making them more distinct and noteworthy, more likely to attract the infant's attention, sustain its interest, and create and manipulate its emotional response.

Although mother and baby are simply enjoying each other's company, suffused with pleasure and love, these maternal signals are, unknown to her, flooding her brain with the prosocial hormones that foster maternal behaviour in all mammals (Panksepp 1998). Making such signals, then, reinforces her brain's neural circuits for affiliation and devotion, making sure that she will want to care for her demanding, helpless baby. Responding positively to these signals of affection, the baby unwittingly calls forth more and more maternal love and attentiveness.

2 Ritualization and Ritual

One of the most interesting and original ethological observations is that of *ritualization of behaviour* in animals, particularly birds (Tinbergen 1952, 1959; Eibl-Eibesfeldt 1971, 1989a). The earliest evolutionary description was by Julian Huxley (1914), who coined the term to refer to the process by which natural selection gradually alters certain behaviours into increasingly effective signals.

In ritualization, components of a behaviour that occurs as part of normal, everyday, instrumental activity such as preening, nest-building, preparing to fly, or caring for young are, as it were, “chosen” or taken out of context, “ritualized,” and used to signal an entirely different motivation usually an attitude or intention that may then influence (affect or manipulate) the behaviour of another animal. For example, the head movements used by gulls to pluck grass for building a nest may be co-opted and ritualized to signal aggression (thus driving another gull away), or behaviours derived from feeding young (e.g., touching bills, offering a token with the bill, coughing as if regurgitating) may become ritualized and used for courtship (attracting a mate).

In the course of ritualization, particular changes occur in the original behaviour pattern so that the resulting signal becomes prominent, distinctive, and unambiguous, and consequently is not confused with its precursor (Eibl-Eibesfeldt 1971, 1989a; Smith 1977). Compared to their original instrumental or “ordinary” precursor behaviour, ritualized movements become “extraordinary” and thus attract attention. They typically become (a) simplified or stereotyped (formalized), and (b) repeated rhythmically, often (c) with a “typical” intensity (Morris 1957) that is, with a set regularity of pace. The signals are frequently (d) exaggerated in time and space, and (e) further emphasized by the development of special colours or anatomical features. The peacock’s display is a canonical example of a ritualized behaviour that originated in such simple precursors as pecking the ground for food and lifting, spreading, and fanning the tail-feathers for thermoregulation (see Eibl-Eibesfeldt 1971:44-47).

Human ritual ceremony, with its associated and necessary arts, has obvious parallels with the biological display of ritualized signals (Dissanayake 1979, 1988, 1992). Watanabe and Smuts (1999) have listed characteristics of biologically evolved cooperative (as contrasted with agonistic) ritualizations in nonhuman animals that suggest an evolutionary substrate for human culturally-created rituals. That is, ceremonial rituals, like ritualized behaviours, draw on gestures or behaviours from other social contexts and recombine them into distinctive displays or signals. These recombined displays now relate not to instrumental activities (e.g. ordinary motor behaviour, ordinary discourse, making and using everyday functional objects), but to specialized social communication. The ceremonial displays become “ritualized” to the extent that they circumscribe a repertoire of possible behaviours and establish a formalized framework of interaction that participants recognize as such and choose to conform to. Finally, the displays literally embody in communal

participation the mutual coordination they presuppose (Watanabe and Smuts 1999).

It is important to recognize that a large proportion of the distinctive recombined components of human ritual ceremonies resemble (or in fact *are*) what we today call the arts, dance and mime, poetic language, visual display, and music (song, drumming, instrument playing). Indeed, one can view ceremonial and other arts as ordinary behaviour (i.e. ordinary bodily and facial movements, ordinary speech, utilization of ordinary objects and surroundings, ordinary prosodic vocalizations) made *extraordinary* through essentially the same operations or procedures as in the ritualizations described by ethologists for other animals: formalization (stereotypy), repetition, exaggeration, and elaborations of various kinds.

Interestingly, one can consider mother-infant interaction itself as a biologically ritualized behaviour, where visual, vocal, and gestural expressions drawn from adult affiliative contexts (look at, smile, open eyes and mouth, mutual gaze, eyebrow flash, head bob backwards, head nod, head and body lean forward and back, soft undulant elaborated sounds, touches, pats) are simplified, stereotyped, repeated or sustained, exaggerated and elaborated – all serving to coordinate behaviourally and emotionally unite the mother-infant pair. Infants are born ready to respond to and coordinate their own behaviour with these very signals and, from about four months of age, to respond especially to their dynamic variation and manipulation.

3 From Mother-Infant Interaction to Artification

The artification hypothesis proposes that ancestral mother-infant interaction, with its universal and characteristic operations or features that can be seen today, holds the germs of the beginnings of the arts. Although I have described how these “proto”-artistic/aesthetic operations arose in ancestral mother-infant interaction these are not yet “art” or “artification,” either in Pleistocene or present-day mothers and infants. I suggest at least four transitional evolutionary steps that could have led from biologically-adaptive mother-infant interaction to cultural predisposition that is, from proto-artistic/aesthetic capacity to intentional artification that itself gives adaptive advantage to individuals and groups.

These four universal human behaviours play, mark-making, self-adornment, and ritual/ceremony can be considered as “steps” on the evolutionary path to

artification, both phylogenetically and ontogenetically. There is space here to discuss them only briefly. All use one or more of the operations of ritualization, described in the previous section, that are first experienced in mother-infant interaction and that recur in adult artification.

1. On the Path to Artification: Play in Children

Because play occurs in many juvenile animals, we can reasonably assume that young hominins, like other primates, played.² Although we cannot know when fantasy play (pretense) began in our remote ancestors,³ it is universal in human children, where it often occurs in a social context. Interestingly, play often requires the player to take a stance that is different from reality (Lillard 1993): something (say, a stick) is substituted for something else (a doll or a horse to ride). With regard to the operations of ritualization, human children, like other social animals, use “frame markers” such as exaggerated voice or movement in order to signal to others that “this is play not ordinary behaviour” (Leslie 1987; Pellegrini and Bjorklund 2004:31). Play may be stereotyped and formalized, use repetition, and be elaborated.

2. On the Path to Artification: Mark-making in Children

From their first months, babies are preoccupied with using their hands – first, they reach out, then grab and manipulate anything within reach, and finally use a precision grip. As tool-makers and users, it is not surprising that members of our species evolved to find satisfaction and even pleasure in using their flexible and dextrous hands. Making marks is part of the hand-mind repertoire. Children eagerly learn to draw with “orderly growing complexity” (Fein 1993:xiii). Their first scribbles gradually resolve into more controlled movements, then into deliberate meanders and spirals, which eventually become more and more “geometric” or stereotyped. The elements of representational form emerge from only four modalities, the circle and perpendicular, parallel, and oblique lines which children discover spontaneously between ages three and four, and use as the fundamental elements of their first drawings of humans and animals (Fein 1993).

2 I do not wish to imply that prehistoric art makers were “childlike,” but to suggest that the ontogeny of visual thinking and manual dexterity may provide insights into their phylogenetic origin and trajectory in our genus and species.

3 Evidence for its occurrence in great apes is controversial (Pellegrini and Bjorklund 2004).

Children's early drawings emerge from an "inner imperative" (Fein 1993, xiii; see also Alland 1983 and Kellogg 1970) to mark and then follow their marks where they lead often to the formalizations, repetitions, exaggerations, and elaborations of artification. For the child, the making itself (and its frequently unforeseen results) is the "meaning."

It is interesting to note that the earliest known human-made marks, everywhere in the world, are also non-iconic, that is, they are geometric, not representations of things in the world. As early as 250kya (thousand years ago), ancestral hominins hammered cupules (cup-shaped indentations) on horizontal and vertical surfaces, often in rows or ranks, in the tens, hundreds, and even thousands at one site (Bednarik 2008). Here one sees formalization, repetition, exaggeration, and elaboration used to make ordinary rock surfaces extraordinary.

3. Intentional Artification: Self-Adornment in Pre-Modern (and Presumably Ancestral) Adults

Perhaps the earliest artifications were to the human body: hair and skin made extra-ordinary with feathers, leaves, dyed and woven fibres, or bone and shell objects inserted through the nasal septum, lips, or earlobes. Permanent and extreme procedures such as tattooing or cicatrization are unmistakable indications of a non-natural state. Evidence of tooth-filing and skull elongation exists from at least 75kya (Coe 2003). Although usually called "body modification," these are all examples of making the ordinary body extra-ordinary. Perforated beads fashioned from materials such as marine shell, ostrich egg-shell, and ivory occur from as early as 200kya (Bednarik 2011). Beads artify those who wear them, marking them as important or special in some way.

Although body ornamentation does not leave archaeological traces, one can note that contemporary examples in both premodern and post-industrial societies rely on the operations of artification.

4. Intentional Artification: Ceremonial Practices in Pre-Modern (and Presumably Ancestral) Societies

Art requires deliberation and intention; it is not an accident. In the previous sub-sections, I have described three transitional or related behaviours that, like artification, differentiate between an ordinary or mundane order, realm, mood, or state of being and one that is unusual, extra-ordinary, or supernatu-

ral. The behaviour of play, described by the earliest ethologists (e.g. Meyer-Holzappel 1956), is common to all social animals, but is based in recognizing and creating an “as if” or “other” world, or a “meta-reality.” The predispositions to make marks and adorn the self, easily observed in the play of children as well as more seriously in adults, also create the extra-ordinary.

These three behaviours may have preceded or accompanied the invention of ritual ceremony in which we can identify arts as we recognize them today. Although “ritual” is considered to be an important human universal, it is not always appreciated that rituals themselves are *collections of arts*. That is, if the artifications of face and body (masks and costumes), voice (song), movement (dance), story (poetic language and performance), and surroundings (decorated paraphernalia, shaped and embellished surroundings, and built structures) were removed, there would be no ritual, just everyday people using their voices and bodies in ordinary ways.

To say it a different way, it is by means of artifications, using formalization, repetition, exaggeration, and elaboration in visual, vocal, and gestural media, that early members of our species created the extraordinary world of a ceremony, as we still see in recent and contemporary pre-modern societies as well as our own. I suggest that artifications arose along with religion, indeed *were* religious practice.

Early humans, like other animals, lived in an unpredictable and sometimes dangerous environment. At some point in human evolution, however, our ancestors, unlike other animals, acquired the ability to remember the past and then to try to predict and influence the future. Under selective pressures of individual anxiety about uncertainties in their lives and the need for mechanisms of group bonding, ancestral humans adopted already extant proto-artistic/aesthetic predispositions and used them in ritual practices. Positing a connection between individual anxiety and the performance of ritual ceremonies seems warranted when we remember that rituals everywhere occur at transitional times of uncertainty about success in important biological matters such as obtaining or ensuring food, safety, prosperity, and health, conceiving and bearing a healthy child, and traversing important life changes such as puberty, marriage, and death (van Gennep 1960/1908; Turner 1969). Ceremonies are performed in order to influence important outcomes—to have an effect (Malinowski 1954).

Although a discussion of the subject of religion can take us far afield, for my purposes here I consider religion to refer to a group’s beliefs and practices

that explain their world and help its members to get what they want and need. As Jean Clottes and others have noted, religions entail belief in supernatural entities and ritual practices that afford contact with those entities (Clottes 2006:9). For those who perform ceremonies, super-natural (extra-ordinary) entities are embodied, accessed, and influenced through the culturally-created artifications that inhere in these practices. I suggest that we consider these to be emotional/emotional mechanisms of religious belief.

4 Artifying as Adaptive: Proximate and Ultimate Functions

In my hypothesis, artification has its own motivation and function(s) and is not a by-product of other adaptations, except insofar as it originated and developed over evolutionary (phylogenetic) time from the proto-artistic/aesthetic operations of an earlier evolved adaptive behaviour – mother-infant bonding, as described in Sections 2 and 3.⁴ As just described, these operations on expressive voice, face, and body movements were (in evolutionary parlance) “co-opted” or “exapted” to address two adaptive problems in human societies – relieving stressful existential anxiety (Malinowski 1954) and fostering coordination and cooperation among individual group members, each having his or her own self-interest. As “design features” that were already used to coordinate emotional states and unify mother and infant, proto-artistic/aesthetic operations were inherent means that could attract the attention of participants, sustain their interest, arouse and shape their emotions, and physically coordinate, as well as psychologically and emotionally unify, a group.⁵ Hunter-gatherers, whose social systems have no chiefs or

4 Ancestral mother-infant interaction itself relied on earlier propensities or capacities – i.e., to recognize or posit an “other” world, and to be sensitive to the operations that altered communicative signals, thereby attracting attention, sustaining interest, and molding emotion (all evident, as I have described, in other animals who use and respond to ritualized behaviors).

5 Early Pleistocene mother-infant interaction as described here could have contributed to other features that became adaptive during human evolution: (e.g., an increase in multimodal association cortex [Panksepp 1998, 310 n35]; the development of vocal anatomy for language [Falk 2009]; and provision of psychological and emotional predispositions for bonding between males and females [Eibl-Eibesfeldt 1989], helping to ensure that fathers remain close to mothers and their infants, willing to protect and provide for them).

central authority, need ways to encourage communal action (Wade 2006: 164).⁶

In this way, arts behaviour (artification) in ceremonies developed as a way of demonstrating individual and group care and concern about biologically-important outcomes, fulfilling two *proximate* (immediate or motivating) functions. First, in uncertain circumstances artification provided “something to do” that by its extravagance was considered to be likely to attract and persuade spirits and other supernatural powers to affect individual and/or group interests. At the same time, artifications, with the inherent appeal and reinforcing effect of their artistic/aesthetic operations, enticed people to engage in and become convinced of the truth of the ceremony.

Religious practice appeals not only to the intellect in the form of beliefs or precepts but to senses and emotions. Deep emotions (awe, wonder, fear, desire) and emotional bonding are produced less by esoteric knowledge than by engaging with others in stimulating activities. Rituals work because their artifications provide the excitement and drama that make their messages memorable and meaningful (Dissanayake 1992; Schiefenhövel 2009).

I propose two *ultimate adaptive functions* of artification (as it appears in arts-suffused rituals). First, by providing shaped and elaborated actions as something to do when beset by uncertain circumstances, artifying could alleviate the deleterious effects of the stress response in participating individuals. The release of stress hormones like cortisol negatively affects growth, tissue repair, energy release, immune system activity, mental activity, digestive function, metabolism, and even reproductive physiology and behaviour (Sapolsky 1992). In this sense, ceremonial/arts behaviour – compared to doing nothing – is adaptive (Kaptchuk, Kerr and Zanger 2009). Repetitive or regularized movement, in particular, is notably effective in regulating disturbing emotions like fear or anxiety and thereby contributing to the well-being of participants.⁷

6 Wade further suggests that religion, language, and reciprocity are three comparatively recent elements of the “glue that holds human societies together,” and that all seem to have emerged some 50kya (Wade 2006, 165). Others (e.g., Bednarik 2011), argue that religion, language and reciprocity occurred much earlier.

7 Humans seek out others for comfort when they are fearful (Taylor, 1992). Mead (1976/1930) and Malinowski (1922) each describe members of small-scale societies huddling together during terrifying storms, chanting charms to abate the wind. Additionally, the lament

A second ultimate adaptive function of participation in the artifications of ceremonies is to instill collective emotions such as trust and belongingness and to coordinate (physically, neurologically, and emotionally) members of the group, so that they cooperate in confidence and unity (Aiken and Coe 2004). Not only are brain chemicals like cortisol suppressed by participating with others in formalized and rhythmically repeated activities, oxytocin and other endorphinic substances are secreted, creating pleasurable feelings of unity with others, strengthening their commitment to each other.⁸

5 Conclusion: Artification and “Art as We Understand It”

In a critical article that discussed my “evolutionary aesthetic,” the philosopher of art, Stephen Davies, concluded that my concept of art “is so thinly characterized that it does not pertain to art as we understand it” (Davies 2005:291, 296). The concept of art he was referring to was called by me, at the time, “making special,” but his argument applies equally well to its most recent formulation described here as “artifying” or “artification.”

Artification is different from the notion of “art” as it is and has been used in various ways by philosophers of art. It may seem “thinly characterized” because it requires one to approach and understand the nature of art in a way that is not automatically or uniformly understood by contemporary aesthetics – i.e., ethologically, as a behavioural predisposition. It does not “pertain to” art in the discourse of contemporary aesthetics but rather employs a broader, more universal framework that is based on the observation and description of animals, including the human animal.

Because human infants are born as essentially “natural” (“animal”) rather than “cultural” (“human”), they provide a made-to-order subject for ethologi-

is a widespread musical/poetic form performed by or for bereaved persons that apparently helps individuals cope with their loss (Dissanayake, unpub.).

- 8 Affinitive behaviors and emotions, such as those created and reinforced in arts-suffused ceremonial participation, activate the orbitofrontal cortex and other reward centers of the brain (Carter et al. 1999 and others cited in Brown and Dissanayake 2009, 53). Although neuroscientists have known for many years that oxytocin and opioids are released at parturition and during maternal behavior in all mammals, they have only recently discovered that moving to and even listening to music releases these same chemicals as do dancing and other movement activities in which people participate with one or more others (Freeman 2000). In addition to instilling trust, oxytocin relieves individual anxiety (Üvnas-Moberg 1999).

cal investigation. Locating the roots of human artifying in the earliest social interactions of infants with adults reveals that the art impulse is far more deeply dyed and consequential to the evolution and psychology of humans than heretofore suspected by philosophers and scientists alike.⁹

Artification, as I describe or “understand” it, is *an evolved behavioural predisposition in members of the genus Homo to intentionally make the ordinary extra-ordinary (i.e., to “make special”), by means of artistic/aesthetic operations (e.g., formalization, repetition, exaggeration, and elaboration), particularly in circumstances about which one cares (considers important)*. Let us examine (or “unpack”) this formulation.

5. Ordinary/extraordinary; special

As mentioned above, the predisposition to artify requires a previous capacity, shared by other animals, to recognize that some aspects of experience and some actions are unusual, special, noteworthy that they are different from the everyday. Humans everywhere recognize what can be described as an ordinary or mundane order, realm, mood, or state of being and another that is unusual, extra-ordinary, or supernatural. These are imprecise terms and may be considered scientifically or philosophically inadequate or “thin.” Yet the distinction seems apt to account for evidence that as early as a million years ago ancestral hominins were carrying with them to their dwelling sites stones with unusual patterns or markings (Dissanayake 1988) or carving cupules in small or vast quantities on stone surfaces (Bednarik 2011). Makers of art as modern philosophers understand it are not so different when they make ordi-

9 Developmental psychologists Daniel Stern (1971) and Beatrice Beebe (1982) were the first to film and minutely analyze interactions of mothers and infants at eight weeks. Lacking the evolutionary lens of ethology, however, they did not recognize that they were witnessing a “ritualized” behavior,” although the implications of there being such a fundamental evolved biological construct at the beginning of life would have underscored and reinforced their important demonstration of exquisitely attuned dyadic communication. Although psychotherapist John Bowlby (1969-80) based his pioneering studies of attachment and loss on ethology, he focused on infants in the second half of their first year (and thereafter), without fully describing the critical importance of face-to-face vocal and gestural interaction in the earliest weeks and months. Studies of infant communicative behavior by evolutionary psychologists and cognitive scientists have been motivated primarily by interest in the origin and evolution of language more than the equally valuable nonverbal and emotional aspects of communication that an ethological approach could have revealed. The work of Anne Fernald (1992) is a notable exception.

nary cave, desert, or wilderness environments and objects extra-ordinary in Chauvet, Lascaux, Egypt, Greece, Rome, and elsewhere, as illustrated in art history textbooks. Artists of all kinds today use artistic/aesthetic operations to artify things that they care about: that is, they transfigure the commonplace (Danto 1981).¹⁰

6. Deliberate use of “artistic/aesthetic operations” such as formalization, repetition, exaggeration, elaboration, and manipulation of expectation

Philosophers of art may find insignificant a predisposition to use artistic/aesthetic operations because, after all, birds and other animals also use and appreciate them as worth paying attention and responding to (that is, as being different from the ordinary). Even human infants are primed to respond to these operations when presented to them by adults in infant-directed vocalizations, facial expressions, and head and body movements. To an art theorist who is also ethologically-informed, however, the discovery of such sensitivity at the beginning of life suggests that emotional response to aesthetic manipulations has been critical to human survival. It is only natural that these operations should become powerful sources of emotion.

At the end of section 2, I briefly mentioned perhaps the most important aesthetic operation of all manipulation of expectation although it does not appear in the earliest mother-infant interactions. It can, however, be observed in mothers' behaviour to infants of about four months and older, who become bored with soothing predictability and instead desire suspense and surprise, as in games of Peek-a-boo or This Little Piggy. Manipulation of expectation rests, I suggest, on Desmond Morris's ethological notion of “typical intensity,” described when he noted that the iteration of a ritualized movement or sound has a typical rhythmic regularity and intensity in time (Morris 1957). If humans (including four-month-old infants) were not aware of typical intensity, they would not be susceptible to its manipulation. Manipulation of expectation is one of the primary devices used to produce aesthetic response in

10 Anthropologists have described the worldviews of some premodern peoples as making no distinction between natural and spiritual realms, considering themselves and nonhuman entities and forces to be all equally real inhabitants of their cosmic order (e.g., Tonkinson 1978, on the Mardudjara in Australia). However, their actions in rituals demonstrate that they make their bodies, surroundings, movements, and utterances different from their ordinary state. That is they artify or make them special.

narrative and musical unfolding and has been well described by philosophers of the arts, although without awareness of the evolutionary reasons for its power and persistence.

7. Uncertain circumstances about which one cares and considers important

The concept of art as understood today by philosophers and members of the art world is inseparable from historically unprecedented complex social and economic changes that developed as pre-industrial societies became what is now called modernized. Culture-wide ideas of individuality, originality, liberty, competition, the marketplace, and the use of science and reason rather than religion to address human problems have gradually replaced the intellectual and cultural conservatism that characterized all previous societies, which were permeated by a religious worldview.

Although an ethological view of art is also an outgrowth of these changes, it attempts to take into account the artistic/aesthetic behaviour of people of all times and places. Artification, not art, is a universal behavioural predisposition that characterizes all humans. As such it cannot be confined to specialist highly-skilled artists or original masterpieces. Nor can it be “disinterested” and lack biological function. Throughout human history and prehistory, artifications have been essential parts of traditional life, particularly in religious ceremony. Experience of the arts was often simultaneously visual, vocal, auditory, and motor and the arts’ adaptive effects required active participation in order to produce the neurochemistry that is posited to reduce stress and produce feelings of trust and belonging.

These are not the characteristics of art as it is understood by most people today, when religious art has been supplanted by more secular varieties and when most people experience art more than they make or participate in it. Nevertheless, artification remains a useful idea, precisely because as a concept it is broader than art “as we understand it”. It deliberately avoids connotations of beauty, skill, depiction, originality, creativity and self-expression that are inherent in the modern Western notion of art, yet it recognizes that because people tend to artify things that they consider important—that they care about—they will often *use* these characteristics. At the same time, artification may include behaviours that the modern concept might reject, such as the artifications of face, body, movement, and voice that fans display at

sporting events or public protest marches (i.e., occasions that they consider important).

Artification as a term may seem initially unwieldy or unappealing, especially to philosophers of art, but I consider it foundational to the evolutionary understanding of both the making and the response to the arts. One can continue to seek to understand individual traditions of one or another art, or can look at the arts according to individual psychology, culture, society, or worldview. Yet, when all is said and done, the adaptive predisposition to artify underlies these other views. The “art” of philosophical aesthetics, as an ethologist understands it, is more accurately described as being a sub-set of a broader universal entity, artification.

Literature

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