

Art, Life, and Human Nature*

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Why have people everywhere made and valued the arts? I will approach this question by using what may seem, especially to readers of a journal of aesthetics, a surprising or even peculiar perspective — that of ethology. As the scientific study of animal behaviour, ethology considers humans as a species which, like others, has evolved and has a specifiable “nature”. I claim that art (or “the arts”) is part of human nature.

I choose ethology, rather than contemporary philosophy, anthropology, or psychology, because it allows for both universal predilections and cultural variation. It tries to understand humans as they adapted to, or were shaped by, their surroundings, thus embedding them within nature. Moreover, it provides an embracing view of humanity, as a species, that seems to me an essential one to hold in an interdependent and multicultural world.

Western aesthetic theories, especially as they have developed after the Enlightenment, have been primarily concerned with “fine art,” and heavily imbued with philosophical assumptions that separate mind and body, categorize or compartmentalize knowledge, and advocate a disinterested appreciative attitude toward “works” of art. Such assumptions, however, do not transfer well to non Western arts or even nonelite art of the West. Anthropology of art, like cultural anthropology in general, for most of this century has distanced itself from looking for universals (such as a universal art impulse), and has considered art solely as a product of culture, different from society to society and even from individual to individual. Psychology of art has been oriented either experimentally or psychoanalytically. In the former case, interest is on what aesthetic preferences people have (e.g., for certain proportions, or shapes, or colors, or musical consonances). Although such studies are interesting, they do not address the broader implications of what art is or what it contributes to people’s lives that has made it everywhere so important. While psychoanalysis is concerned with universals, it remains, in my opinion, too Western in its various orientations to account for all of human art. Freudians, for example, view of art as a symptom of a lack or, at best, as therapeutic — as sublimation, compensation, projection, regression, or repressed fantasy; Jungians consider art more positively, but as a means of individuation; object-relations theorists see art as arising, like play, as a “transitional object,” again a means to creative separation or individuation.

If individuals in all societies DO practice or engage with the arts in some way, which does seem to be the case, then one can adopt an ethological point of view and hypothesize that there is a universal, evolved tendency in human beings, underlying their individual differences and particular cultures, to make and value arts. Although its manifes-

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tations will differ, the underlying impulse (or psychobiological mechanism) would have come about and been retained (or “selected for”) because of its contribution to survival.

Other fairly obvious behavioral universals come to mind. For example, it seems evident that while African babies are carried on their mothers’ backs in wrappers, Navajo babies are swaddled on cradleboards, and British babies are alike in having a need for developing and sustaining a predictable social relationship with their caretakers and tendencies to behave in ways that will assure that these needs will be met (i.e., all over the world, they cry, smile, and otherwise compel their elders to respond to and care them). Crying, smiling, holding the arms out in order to be picked up, and so forth are evolved behaviors, and during human evolution babies that did these things survived better than babies that did not, thus passing on this trait to their offspring.

Similarly, adolescent boys and young men may go out hunting together for game, or raid nearby villages for women and other booty, or be inducted into the armed forces and fight in wars, or play team sports, or form neighbourhood gangs — but all seem to have an easily encouraged behavioral tendency to join and bond with other males in groups in order to perform dangerous and exciting physical activities together.

As a convinced Darwinist who considers that human behaviour has evolved, just like human anatomy and physiology, I have attempted in my work to show that art, like infant attachment and adolescent male bonding, is a universal *behaviour*, part of human nature.¹ This has been a departure from the usual Western art discourse, which has viewed art as *objects* (like paintings, poems, musical scores or performances) or a kind of *essence* that imbues objects (thereby making one painting or poem “art” while another painting or poem that lacks that essence — say harmony, or significant form, or unity-in-variety, etc. — is NOT art). In recent times, some have claimed that art is a *label*: thus, whatever curators or critics consider to be art IS art.

But my aim has been to understand what it is that people everywhere do when they “artify” something — that is, when they make or regard something artfully. (The reason that an ethological or biobehavioural approach to art seems strange may simply be that we have no word, at least in any language that I know, for what we do when we make art — so that we think of art as a noun or object, rather than as a verb or activity).

In order to present how I have come to understand art as part of a universally evolved “human nature,” and to show how that nature affects our lives today, I must first introduce a few perhaps unfamiliar elementary evolutionary ideas.

The Environment of Evolutionary Adaptedness

In thinking about the evolution in humans of a behaviour of art, indeed of any behaviour, it is necessary first to be aware of the great length of time during which the features that came to characterize humans were evolving, and second, of the essentially uniform environment in which these features evolved.

As an animal taxon, hominids are quite recent, becoming distinct only about four million years ago. For 39/40ths of that period, we inhabited essentially the same environment and lived in essentially the same way, as nomadic savannah-dwelling hunter-gatherers

in small groups of twenty-five or so. We think of human history (since the earliest civilizations) as very long, but in the four million year span of our species evolution, Egypt or Harappa occurred too recently for that way of life — in large settled societies — to have made significant changes in our nature.

Rather, beneath the veneer of civilization and cultural diversity is a “bedrock” of fundamental humanness that evolved over 3,900,000 years in an essentially pre-cultural way of life (although, to be sure, it requires a cultural soil in which to take root, develop and bloom). Evolutionary scientists refer to this ancestral environment as the Environment of Evolutionary Adaptedness, or the “EEA” (an abbreviation I will henceforth use). What engaged our mind and senses in the EEA is what still touches us most deeply and continues to inspire our strongest feelings. Understanding this helps to explain the adolescent male behavior that I mentioned earlier: it was adaptive in an environment where young active males had to joint together to hunt or kill for the livelihood or defense of their group.

This long view of human evolution implies that the usual non-ethological philosophical and historical views of human existence and their answer to questions about human nature are pitifully (and literally) superficial. I cannot improve on the analogy made by the evolutionary psychologists John Tooby and Leda Cosmides: “[I]n trying to understand the forces that laid down the sediments at the Grand Canyon over millions of years, study of which way the wind is blowing can only contribute so much. They document the explanation of the last 0.02 millimeters of the upper layer, but may lead to entirely incorrect conclusions about the events that created the other three thousand meters of sediment deposition.”⁴² That is to say, we misrepresent our human depth to the extent that we regard human history as being only some ten thousand or at most 25-40 thousand years in length (rather than 100 to 400 times longer).

Adopting this way of thinking about human history is like nothing other than substituting a Copernican for a Ptolemaic worldview. It provides a powerful (and in my view fundamental) starting point for social policy makers, educationists, and environmentalists as we look for ways to address the enormous political, social, and environmental difficulties that we face today.

Human Nature

A corollary of the heliocentric or Grand Canyon view of human history is that theirs is an evolved human nature that all members of the species share. Few of us would dispute that our anatomy and physiology have been shaped through evolution by natural selection. We are noticeably different in physical form and function not only from our primate relatives but from our earliest hominid ancestors as well. Walking upright, being relatively hairless, having a flexible wrist and opposable thumb, concealed evolution and a nine-month gestation period, a specialised vocal tract of speech — these are all physical adaptations that presumably contributed to the survival success of those individuals in the EEA who had them.

It is less well recognized that behaviours too are adaptations. The infant attachment and male bonding that I mention earlier are but two examples. I can mention others: in infancy the strong predispositions to speak and understand language, to make and use tools

, and so imitate and wish to please. Later we join with others in common endeavour, respond to strong leaders form hierarchies of age or strength, actively seek companionship, are suspicious of strangers. Everywhere humans show avoidance or ridicule of the unfamiliar, identification and preferential treatment of kin — especially close relatives. They invest power in those of greater age, ritualize social associations, have ritualized exchange and giftgiving, and make explanatory schemes based on categories and oppositions.

Neural circuitry in the brain involved with motivation and emotion — their expression, direction, and cognitive control — has gradually developed to favour these behavioural characteristics so that individuals who tended to behave in such ways were better adapted to the nomadic, small-group existence of our hunter-gatherer forebears in the 3,990,000 years of the EEA, before the rise of agriculture, cities, writing, and everything else we consider as “civilization” or “human history.”

Such a view, of a “common human nature”, implies that almost everything we consider to be “natural” or “right” (e.g., living in a large anonymous society based on a money economy, learning from books in schools, being regulated by calendars and clocks, being socially stratified according to income or class, the requirement to fashion a unique individual self, the importance of questioning and dissent, societal pluralism, sitting for hours looking at a television or computer screen, pushing buttons to do work) is opposed to the way we lived as a species for 99/100 ths of human history. If human behaviour today is dysfunctional so that we are beset by psychological and environmental problems, it is no wonder.

At the end of this essay, I will address some implications for modern life of the “heliocentric” way of thinking about ourselves as a species with a describable common nature. But next I will describe how I consider art as an evolved component of human nature, and add this to the discussion.

“Art” as an Evolved “Behaviour”

When talking about the behavioural components of human nature, it is necessary to understand what is “a behaviour.” It is more accurate to say “behavioural predisposition,” in order to acknowledge that the environment is important to the expression of any evolved behaviour. For example, other more familiar behavioural predispositions (e.g., language, toolmaking and use, infant attachment, aggression, cooperation) all obviously need a facilitating environment in order to be appropriately expressed. A child who does not hear language will not learn to speak; one whose positive expressions of sociality are rebuffed will not learn to be social; one whose aggressive tendencies are encouraged will express aggression differently than if these tendencies had been discouraged. Individuals will also, of course, vary in the strength of behavioral predisposition and ability just as they vary in anatomical and physiological features. Some behavioral predispositions are more or less robust than others, requiring more or less facilitation to enhance or weaken them.

“A behaviour” can be thought of as an overarching psychobiological tendency to behave in a certain way or ways in certain circumstances, with a describable immediate and an ultimate result. For example, in the behaviour of infant attachment that I referred to earlier, a baby will do a number of things (cry, raise the arms to be picked up, move toward,

lean against, crawl upon its mother or other attachment figure) in circumstances of loneliness or uncertainty and fear, with the immediate result of enhancing its survival. In this example, “attachment “is the overarching behavioural tendency : its noticeable manifestations are the individual behaviours I described.

Thus, analogously, I will propose that “art “is an overarching behavioural tendency [to be described], which occurs in certain [to be described] circumstances , with [describable] immediate and ultimate results.

In order to fill in the blanks, it is first necessary to propose a defining feature of “art.” Although philosophers of art have pretty much given up searching for an attribute that would define what all examples of art have in common, an evolutionary biologist must propose a behavioural attribute (or mechanism) upon which natural selection could act. Without recapitulating the steps of my search, which has involved dismissing other definitions or characterizations of art. I will simply state that what I have found to be common to the activity of art of all times and places is a behavioural activity that I have termed “making special.” Making special refers to the fact that humans, unlike other animals, intentionally shape, embellish, and otherwise fashion aspects of their ordinary world to make these more than ordinary.

Each of the arts, if one thinks about it, can be viewed as ordinary behaviour made special (or extraordinary). This is easy to see in dance, poetry, and song. In dance, ordinary bodily movements of everyday life are exaggerated, patterned, embellished, repeated — made special. In poetry, the usual syntactic and semantic aspects of everyday spoken language are patterned (by means of rhythmic meter, rhyme, alliteration, assonance), inverted, exaggerated (using special vocabulary and unusual metaphorical analogies) and repeated (e.g., in refrains) — made special. In song, the prosodic (i.e., intonational and emotional) aspects of everyday language — the ups and downs of pitch, pauses or rests, stresses or accents, crescendos and diminuendos of dynamics, accelerandos and rallentandos of tempo — are exaggerated (sustained and otherwise emphasized), patterned, repeated, varied, and so forth — made special. In the visual arts, ordinary objects like the natural body, the natural surroundings, and common artifacts are made special by cultural shaping and elaboration that make them more than ordinary.

I have suggested that we can trace the motivation for a behaviour of making special to the very appropriation from nature of the material conditions of life (food, drink, shelter — what Marx called the “means of subsistence”). Handaxes, spearthrowers, digging sticks, fire, and clothing were the earliest technology, the cultural tools that enabled humans to better control the aspects of nature on which material production depended, so that they could survive.

In the traditional materialist view, art — along with religion, science, and politics — is assigned to the “structure” or “infrastructure “ that is dependent on the material subsistence base or “infrastructure.”³ However, I suggest (by using the example of premodern groups that we can observe today) that at some point in human evolution, making special itself became part of the technology of appropriation — that is, means of *enhancement* (making special) were allied to the means of production *in order to make them work more effectively.*

For example, procuring food is, everywhere, crucial. Group members have strong feelings about the success of their venture so that in hunting societies that we know of, "behaviour made special" is as much a part of preparation as readying spears or arrows. Before a hunt, for example, hunters may fast, pray, bathe, and obey food or sex taboos. They may wear special adornment. In addition to sharpening their tools or treating their weapons with poison, they may perform special rites for them or mark them with special symbols. One can say that this control of behaviour and emotions mimics the control necessary to achieve a desired goal. Special practices such as spells or charms may also be carried out during the hunt, and concluding rites after success, such as propitiation and appeasement of the prey animal's spirit.

In other words, the appropriation from nature of the means of subsistence often includes psychological along with technological components; the "nature" that requires cultural control includes human behavior and feeling as well as the physical environment. Materialist thought is inadequate, I believe, when it does not acknowledge that means of enhancement (i.e., the control of human behavior and emotion outlined above) are frequently if not always intrinsic to the control of the means of production.

These means of enhancement do not necessarily have to be "aesthetic." For example, fasting, observing taboos, or sacrificing are certainly "special" or extra-ordinary behaviors even though they are not inherently artistic. Yet as extraordinary behaviors meant to serve important ends, they tend to be the occasion for ritual and artistic control and elaboration in word, gesture, and visual presentation.

Indeed, I find it significant that the primary occasion for the arts among humans everywhere is in ritual ceremonies. Ritual ceremonies themselves are extraordinary, outside the daily routine. Although they are "cultural" behaviors that differ from one society to another, they occur in strikingly similar circumstances, times of uncertainty, transitions between one material or social state and other. They are engaged in specifically to bring about desired results. And however else they may be described, ceremonies are also notably occasions for and collections of what we call arts: songs, dances, poetic language, visual display.

I see the original adaptive or selective value of making special, then, as residing in several effects of particular value to human in the EEA.

1: *By making them special, objects and events of possible significance are acknowledged.* Simply acknowledging the importance of possibly significant sources of uncertainty is more advantageous than not doing so. Reinforcing this "ordinary importance" by extraordinary activity — shaping and elaborating the means dealing with it (e.g., making tools and implements, regularizing vocalizations or movements) — additionally freights the occasion with significance. (And it seems quite evident that making important things special would contribute more to survivorship than enhancing unimportant things, which would be deleterious).

2. *Making special controls anxiety.* The control inherent in making special is therapeutic to individuals in that it provides something to do in uncertain or troubling circum-

stances and gives the psychological illusion (if not always the actual reality) of coping. Indeed, visual art in paleolithic times is found disproportionately in stressful environments, such as harsh northern latitudes where resources availability was unpredictable.⁴ Shaped, controlled, non-ordinary behavior helps to relieve anxiety. Not only does rhythmic or patterned movements or vocalization in the self or group provides, by analogy, an illusion of control of the external situation, such behavior is more soothing and unifying than “natural” or “ordinary” random, uncoordinated, individual activity.⁵

3. *Making special promotes careful attention to important concerns.* Making special of objects and activities (e.g., tools, weapons, ceremonies) that have abiding human concern leads to their being treated with care and consideration, thus helping to ensure that they will be successfully achieved. As psychologically-effective ways to enhance the means of production, making special promotes actual success. Groups and individuals who do not bother to enhance the probability of achieving their serious and important concerns will not prosper as well as those that do.

4. *Making special reinforces appropriate knowledge and practice.* By periodically reasserting and invoking special behaviour that recalls earlier occasions of uncertainty, artificial anxiety is created and handled by orienting it toward what at some point will need to be done. Even when not “necessary” or immediately effective, ritual precepts and action reinforce important knowledge and social structure in the group as well as provide to individuals the belief or psychological certainty that their world-view is right and powerful.

5. *Making special promotes group harmony.* By reinforcing individuals, beliefs in group efficacy and group virtues, the special behavior in ceremonies contributes to group oneheartedness and cooperation. The structures of ceremonies themselves exemplify cooperation by coordinating individuals in the formal patterns required by singing or moving together. Insofar as ceremonies inculcate group values and promote agreement, cooperation, cohesiveness, and confidence, they also enhance survival. Working harmoniously in common cause ensures as much as any other human attribute the welfare of individuals.

Thus, a behaviour of art, as I have reconstructed it, or hypothesized, was evolved in the EEA as a behavioural tendency to “make special” objects and activities that humans considered to be of critical importance to survival in circumstances of personal or environmental uncertainty. The immediate result was to focus attention on important concerns and to allay anxiety, and the ultimate result was to reinforce appropriate knowledge and practice and promote group harmony. An evolved tendency or predispositions art in this sense of making special one's abiding concerns is a characteristic feature of human nature that, like other behavioral tendencies, can be enhanced or discouraged by human cultures.

Art and Life

Art and Life in the EEA

My reconstruction of the evolution of a behaviour of art is admittedly speculative. I stand behind it, however, believing that it accounts for the universality and persistence of

the arts in human societies everywhere. I also believe that it addresses more questions about art more comprehensively than other theories. For example, this view of art, and the ethological notion of human nature that frames it, help us to understand the differences between early humans and humans today in their practice of art and their attitudes towards life. We can better appreciate these differences by considering three general “clusters” of universal psychobiological needs that evolved alongside and motivated human behaviour — needs of “hand”, “mind”, and “heart”. (I use these three general terms as a sort of oversimplified shorthand or capsule summary of a number of interrelated things) .

In the EEA (and in many traditional societies even today), people's lives were “hands-on” — that is lived close to nature : experiencing the natural cycles of the seasons, of planting and harvest, plenty and want. Heat and cold, rain and drought, day and night, work and rest, light and dark were given and immediate. People made things for their own lives from natural materials — leaves, grass, mud, stones. They knew the possibilities of their environment — the plants, animals, water sources, terrains. Sights, sounds, smells all had intimate primary meaning. People used their own agency and energy — their breath, muscles, fingers — to make things happen. They saw and used the results of their actions : houses, clothing ,tools , implements , and the further results of these tools and implements — did the spear work, the basket fray , the plants thrive? Every person made appropriate and useful things toward his or her life, valued his or her own efforts, and knew that others recognized and valued them.

Art (as I have described it above : the need and desire to make special) was also made or performed by each individual in the service of abiding human concerns. As I have also described, the principal evolutionary context for the origin and the development of the arts appears to have been in hands-on activities concerned with survival — appropriating the very material conditions of life (finding food, securing abundance, ensuring fertility of women and of the earth and so forth) and , further , enhancing objects and activities that were parts of ceremonies having to do with important material and social transitions such as birth, puberty, courtship , marriage, and death . If life and art in the EEA was “hands-on” , “as just described, it also directly engaged minds. Not only did the compelling actions and words of ceremonies keep “in mind” important knowledge, they fostered cognitive certainty and acceptance of authority. There were traditional ways to do things : to cure and heal , to resolve conflict, to make the rain come, to attract game, to bear a healthy child. There were fixed roles for one to assume — rites of passage made one an adult, a warrior, a wife ; the duties and benefits of these roles were accepted. There were times to plant and reap, celebrate and mourn, fast, and feast. one participated with others in ceremonies that validated these certainties, felt unmistakably as true by the suffusion of self-transcendent emotions that the ceremony generated . One accepted and affirmed a shared worldview with others.

In addition to the “hands-on” and “in mind” aspects ,one can also credit early artmaking with directly touching and conjoining hearts. Premodern societies are attached or cohesive. People are born into a family, a kin group, a community. Everyone knows each other ; individuals know who they are : their identity comes into the world with them, and it

is always connected to the identities of others so that it is hardly conceivable as separate from the group. One joins with this group to do things together that are perceived by everyone to be important and valuable. One values one's efforts and knows that others value them. One is "tied" to others, and great emphasis is placed on giving and receiving, on sharing, on reciprocity. The group is homogeneous. One always is face-to-face; there are no strangers.

Thus art also arose from and reinforced sociality — including ideas of morality. It reinforced not only the likemindedness but the oneheartedness of those who practiced it together, accomplishing this with emotionally compelling and satisfying sights, sounds, and movements.

Art and Life Today

If in the EEA the needs of hand, mind, and heart, as I have summarized them here with regard to art, evolved along with the means to satisfy them, it is clear how different things are today. Art still reflects and affects human attitudes to life, but in a mostly dispiriting way.

Art is rarely either appropriate or useful in a hands-on, down-to-earth sense, related to abiding life concerns, to fundamental needs. In the Western high art sense ascendent since the Enlightenment, at least, art is *by definition* autonomous, for its own sake. As often as not, art today is an idea or concept ("conceptual art"), if not a label (the "institutional theory of art"), and at best a "statement". It is usually as removed from the material conditions of existence and from natural materials as is much of the rest of our lives.

Similarly, rather than explaining the world to us in a comprehensive way, engaging our minds, embodying and reinforcing important knowledge and making reality comprehensible, art today is more of an escape from reality, a refuge. Those few of us who are artists may for a time reconcile nature and our anxieties, but because this knowledge and worldview are personal and hence subject to the questioning or dismissal of others, they are at best affirmed privately and rarely influence the minds of others.

Thus, the heart, like the hand and mind, is similarly left dissatisfied. Art in the West, for the past five hundred years, has increasingly arisen from and reinforced not fundamental human survival needs so much as individuality. Since the nineteenth century art has become a form of rebellion, an assertion of "freedom". This freedom is a freedom from community, responsibility, obligation, participation. And while there may be (or may have been) a headiness in this individualism, it requires that one forfeit the emotional solace and security of communal participation in the arts, and the belief in the value of what they embody. The potential for enhancing and transforming reality that the arts have perennially provides now all too often results in fostering cynicism, nihilism, shock (sometimes only gratuitous) and titillation. In any case, in responding to much art of the last half century at least, feelings have become of less moment than "catching on" to the artist's intention. While those who "get it" do, to be sure, comprise a community, the larger society is perplexed by or ignorant of contemporary art. Thus artists create their works without a sense of validation, except — if they are lucky — from a small group of their peers.

Relevance of the "Humanocentric" View of Human Nature

While an ethological viewpoint cannot redeem the deprivations of or assaults to hand, mind, and heart inherent in post-EEA life, I can suggest that a "heliocentric" sort of awareness of the EEA's influence helps us to understand (at least in large measure) why we humans behave and suffer as we do. My particular examples have come from what I have called a behaviour of art, but (as with the infant attachment and adolescent male bonding that I referred to earlier) there are many other EEA-evolved behavioural predispositions that are similarly illustrative and that affect our behaviour and attitudes towards everything, including the natural world.

I have used the word "heliocentric" to describe the momentous change in this new, long view of ourselves. Embracing it means that we should no longer be egocentric ("the world revolves around me") or even ethnocentric ("the world revolves around people like me"). Rather, this new view insists that we be humanocentric: "It is our underlying common human nature that 'makes the world go around'".

The humanocentric view is appropriate and even essential to an ecological philosophy. In the first place, it connects humans to the rest of life, plants and animals, establishing from the ground up, as it were, that we are constrained by the same forces of nature, even though we have imaginative minds that can, if enlightened, to some measure sidestep those constraints. A naturalistic and materialistic view of humans does not demean us, but rather helps us to appreciate the unique human attributes that are embroidered on the same fundamental animal plan, just as other species have their uniqueness. We should then feel compassion for other creatures whose lives are, no less than ours, miraculous and mortal.

Secondly, a humanocentric view connects humans to each other, claiming that we are more alike than different — that our physical and psychological needs are the same, part of human nature. Cultures are means of satisfying these fundamental evolved needs. Individual and cultural differences, like the varying species embroidery mentioned above, make us unique but not intrinsically better or worse than other individuals or cultures (except insofar as our communities and societies do a better or worse job at satisfying the fundamental evolved needs).

Apart from providing a world view that views humans as related to all of life and to each other, the humanocentric perspective suggests what is possible and what is very difficult in planning human affairs. It enables us to recognize that many of our present socioeconomic and political global problems are consequences of our having evolved Paleolithic (even prePaleolithic) needs and responses that are inappropriate in the very different ("unnatural" or aberrant) environmental /social circumstances of modern societies. Unless we take into account these evolved needs and responses, we cannot begin to address, much less solve, present problems.

This is not to say that we are doomed — prisoners of our evolved nature. Rather, if we are aware of this nature, we can see the folly of much current social practice. Looking at the apparent ineradicability of war and ethnocentrism, for example, we do not need to blame Satan, or original sin, or overstrict childrearing, or private ownership, or multina-

tional corporations — at least not wholly. Rather, one can point out that the predisposition to tribalism and intragroup loyalty (with their prototypes in attachment to protective figures in infancy and to the desire to imitate and please that is so important to childhood enculturation) was adaptive in the EEA, but with large interdependent populations and modern weaponry is highly maladaptive. We see how easily they can be incited and fanned in times of real or perceived deprivation and threat, just as we recognize a more palatable version of them in our own responses to patriotic or religious celebrations and other formalized occasions, where our ties to others are reinforced.

Additionally, we can interpret the current interest of Westerners in such non-Western practices as Eastern mysticism, shamanism, harmonic convergence celebrations, Native American spirit quests, use of crystals and natural medicines, and so forth, as responses to real deprivations of hand, heart, and mind. Just as children who have been overfed with tasty but non-nutritious sugary food will spontaneously prefer to eat carrots and apples, we eventually hunger, in a mechanical and materialistic world, for spiritual nourishment.

The humanocentric perspective can even suggest why rational thinking ("reason" or "disembedded thought") is so difficult to achieve. In the EEA (as well as in much of our own lives, and certainly in those of our small children and our grandparents), disembedded thinking is rare and strange. It is inculcated and fostered by reading and writing, and certainly in the EEA we did not require or develop those special skills. We did use other kinds of mental abilities that are less rewarded in present-day society: visuospatial, mechanical, kinesthetic, oral-verbal, musical, navigational, social, spiritual. People who are less gifted in verbal-analytic skills than in other abilities spend their school years feeling stupid and inadequate; in the EEA they would have been valued and rewarded. Mythopoetic thought was evolved over millennia as a way of inspiring and integrating members of a group and is hence more appealing to humans than objective analysis, which depending on literate skills, is quite recent.

The humanocentric view also makes clear that the impetus for the practice of the arts has grown out of our original (and, though masked, continuing) close relationship with nature. Beneath the veneer of civilization, we are creatures who for hundreds of thousands of years have marked our most important life concerns — prosperity and abundance, health, fecundity, relationship with others, the divine order, the moral order, the unknown, feared, or forbidden — by special elaborations of our bodies, voices, movements, and surroundings. Although modern life may discourage participation in the arts and allow us (unlike our ancestors) to ignore our ultimate dependence on nature, both remain interrelated strands of the human condition that we forsake to our individual detriment and at our species, peril.

Notes and References

1. See Dissanayake Ellen, 1988, *What Is Art For?*, Seattle: University of Washington Press; 1992, *Homo Aestheticus: Where Art Comes From and Why*, New York: Free Press (reprinted in 1995 by University of Washington Press); 1995, "Chimera, Spandrel, or Adaptation: Conceptualizing Art in Human Evolution", *Human Nature* 6:2, 99-117.

2. Tooby, John, and Leda Cosmides. 1990. "The past explains the present: Emotional adaptations and the structure of ancestral environments". *Ethology and Sociobiology* 2, nos. 4-5: 375-424.
3. In modern mercantile societies, art is regarded as, at best, entertainment, and otherwise considered to be dispensable.
4. Gambfe, C. 1983. "Culture and society in the Upper Paleolithic of Europe," in Bailey, G., ed., *Hunter-Gatherer Economy in Prehistory: A European Perspective*. New York: Cambridge University Press, 201-211.
5. The fundamental evolutionary importance for humans and other animals of reducing psychological uncertainty is well described by Akko Kalma. See Kalma, A. 1986. "Uncertainty reduction: A fundamental concept in understanding a number of psychological theories," in Wind, J. and V. Reynolds, eds., *Essays in Human Sociobiology*. Brussels: V.U.B. Study Series 26, 213-241.
6. Kobasa (1979) concludes that healthy and hardy people have a greater sense of control of events in their lives, tend to be committed to others and to themselves, and tend to possess a belief system that includes a sense of the meaningfulness of life. See Kobasa, S.C. 1979. "Stressful life events, personality and health: An inquiry into hardiness," *Journal of Personality and Social Psychology* 37 (1) : 1-11.

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