Abstract and Keywords

In this chapter, Carroll attempts to defend the view that art is an adaptation on that grounds that by means of provoking contagious emotions it promotes fellow feeling and thereby abets social cohesion.

Keywords: art and emotion, evolution, emotional contagion, Leo Tolstoy, function of art, group selection, origin of art

8.1 Introduction

In the opening chapters of What is Art?, Tolstoy comments at length—and often satirically—on the vast investment of resources and labour that went into the production of the art of his day. He writes:

For the production of every ballet, circus, opera, operetta, exhibition, picture, concert or printed book, the intense and unwilling labor of thousands of people is
needed at what is often harmful and humiliating work. It were well if the artists made all they require themselves, but, as it is, they all need the help of workmen not only to produce art, but, as it is, for their own usually luxurious maintenance. And one way or another they get it, either through payments of rich people or through subsidies given through the government (in Russia, for instance, in grants of millions of rubles to conservatories, and academies). This money is collected from the people, some of whom have to sell their only cow to pay the tax and never get the pleasures art gives.\(^1\)

Such a commitment in terms of blood and treasure, Tolstoy believes, calls for justification. However, Tolstoy is not convinced that the most influential justification available at the time is sufficient. He says:

\[
\text{It is said that all is done for the sake of art, and that art is a very important thing. But is it true that art is so important that such sacrifices should be made for its sake? This question is especially urgent because art, for the sake of which the labor of millions, the lives of men, and, above all, love between men is being sacrificed—this very art is becoming more and more vague and uncertain to human perception.}\quad (p.160)
\]

Because he is so struck by how much art costs a society, Tolstoy makes it a desideratum of any acceptable theory of art that it characterize art in such a way that its importance for human life is made explicit enough so as to justify the sacrifices made on its behalf. That is, Tolstoy demands of a definition of art that it not only say what art is, but that it do so in a way that explains why it is worth all the effort. Tolstoy’s answers to his own questions are highly revisionist, rejecting much of the contemporary art of his culture as well as significant parts of the canon. His definition of art undoubtedly has a polemical function. It is a form of period-specific social criticism. It is not only a criticism of the art that caters to the aristocracy of Tsarist Russia; it is patently a criticism of the totality of that social system.

Nevertheless, the issue that Tolstoy insists upon raising is of more than local historical interest. For, throughout human history, art has required a substantial expenditure of resources. Putatively, every human society has possessed some practices or behaviours that we would call art, including societies in which material necessities were dear and times were stressful. So the question arises: why are peoples, including those in straitened conditions, willing to pay the costs that art exacts? What benefits explain the sacrifices cultures are prepared to expend on the production of art?

Tolstoy thought it was incumbent upon the theorist of art to justify art. For contemporary theorists, it is not so much a question of justification as it is one of explanation. Why were medieval towns ready to devote in some cases nearly a century of toil and material wealth to the construction of their cathedrals? Why do people in Bali spend so much of their day creating items of aesthetic delectation, such as the arrangements of flowers, fruits, and other foods which are called offerings and that are placed daily at the entrances of dwelling places? We need not be outraged social critics like Tolstoy to seek
answers to questions like these. We need only acknowledge that for much of human life resources have been scarce and yet vast amounts of energy and supplies have been spent for the sake of art.

In this chapter, I would like to speculate—and I emphasize the word *speculate* here—about an explanation of why the arts have warranted the place they occupy in human history, despite the fact that on the surface they appear to contribute about as much to society—to quote the notable evolutionary psychologist Steven Pinker—as cheesecake does.

8.2 The Arts and the Emotions
One clue toward an explanation of the place of art in society is in the writing of the ancients, since they were expressly concerned with identifying the function of art, where understanding the function of art, of course, provided a key for them for ascertaining its social value. Plato and Aristotle, along with the rasa theorists of the Hindu tradition, all regard the arts as involved with the arousal of emotion. Although in Book Ten of his *Republic*, Plato advises banishing the poets from the ideal state precisely because they traffic in the emotions, at other junctures in his writing—including Books Two and Three of the *Republic* and his *Laws*—Plato adopts a more measured view of the arts, applauding the stories that by way of emotionally affecting, good role models promote socially desirable behaviour as well as recommending, as the Confucian (p.161) tradition also does, which musical modes are best for emotionally moulding character. In most of his writing, Plato is for regulating art, rather than exiling it entirely. Poems presenting bad role models should be censored; they should be kept from impressionable youths who once infected by inappropriate emotions—like the fear of death—will emulate them.

Moreover, even when Plato threatens to ostracize the poets, he leaves open a loophole: if the poets or their friends can show the way in which the undeniable pleasure afforded by poetry benefits the commonwealth, the poets may be readmitted into the polis. However, since Plato has linked poetry and the arts in general so closely with the emotions, if the arts are to be beneficial to society, it will be in virtue of their connection to the emotions.

Aristotle, as usually understood, implicitly takes up Plato’s challenge in his *Poetics*, in which he argues that the primary function of tragedy is to raise the emotions of pity and fear for the purpose of subjecting them to the process of catharsis. It is very interesting that Aristotle singles out the emotions of pity and fear, because those are among the ones that most troubled Plato. Plato worried that portraying gods, demigods, and heroes who evinced pity for themselves and others, as well as fear of death, would be the worst sort of role models for the young guardians-to-be of his *Republic* since, among other things, the guardians were soldiers and the emotions of pity and fear are not what you would wish to instill in the troops.

Aristotle thus meets Plato head-on, granting that although drama engenders pity and fear, it does something to these psychological states—it transforms them somehow. How exactly? This is where the notion of catharsis enters, but unfortunately, it is far from clear what Aristotle has in mind here, since he does not define it precisely in the *Poetics* or, for
that matter, elsewhere. In the Politics, he applies it to what is suffered by the celebrants of certain Eleusinian rites, but it is not evident that he wants us to think of the sedentary audiences of dramas as analogous to the dancing participants in ecstatic ceremonies.

Catharsis can mean to purify, to purge, or to perfect. My own view of what Aristotle has in mind is that drama purifies the emotions of pity and fear—among others—by clarifying them. That is, we read in Aristotle’s Nicomachean Ethics that the emotions need to be directed at the right objects, for the right reasons, at the right time, and at the suitable level of intensity. Drama, it seems to me, helps viewers calibrate their emotions by providing them with opportunities to train their feelings with respect to situations designed to draw forth the appropriate emotional responses. And, by honing the emotions of the citizenry—by cultivating them in the right direction—poetry, pace Plato, performs a beneficial function for society. Indeed, poetry becomes an instrument of soul craft.

On this view, tragedy is a means of educating the emotions. This is a controversial interpretation of how Aristotle means us to understand catharsis, although I think that it is eminently defensible, since it fits so nicely with his overall defence of poetry as educative. But whether I have nailed Aristotle’s meaning here is not important. All I need for what I wish to argue is that arousing the emotions is a function of art—indeed, a very basic function—as acknowledged by Plato and Aristotle at the very dawn of the philosophy of art. Consequently, if we can say more about why arousing the emotions in the manner of the arts contributes to the well-being of society, then we may be on our way to explaining the mystery of why societies lavish such energy on support of the arts despite their apparent lack of return on society’s investment.

However, before I discuss what I think are the most pertinent bonuses that the arousal of the emotions by the arts deliver to society, let me emphasize what I am not saying. I am not saying that the one and only function of the arts is to express or arouse the emotions. I am not, in other words, endorsing what is often called an expression theory of art. I grant immediately that there is much art that may have nothing to do with provoking the emotions. There may be reflexive, modernist art that, for example, aims only at inducing cognitive insight into the conditions of the possibility of painting. Nevertheless, so much art has been devoted to the task of arousing the emotions that if we can identify why arousing the emotions in the way of the arts is socially valuable, we will be able to speculate on why much art—indeed, perhaps most art—and thus the ongoing practices of art have deserved the support of the societies in which they have emerged and flourished.

But in advance of addressing the question of why the artistic arousal of the emotions is socially valuable, it is useful to remind ourselves why the emotions themselves are vital to society. Life in a culture involves a constant process of judging and being judged; we are constantly appraising situations including social situations; at the same time, we are subject to the judgements of others. Sometimes these judgements are deliberate—we and the others who judge us are frequently aware that we are involved in a process of assessing this or that. I think about the student’s excuse about her problems at home.
before I decide that she needs to be cut some slack.

(p.163) However, a great many of the judgements that we make, including moral judgements, are issued automatically. And, this is where the emotions come in. For the emotions are biologically endowed mechanisms for making rapid appraisals, often sans deliberation. When one senses something moving swiftly and low to the ground, one is gripped by fear. Or, for a more social example, when someone jumps ahead of you in line, you feel anger automatically. You don’t have to think about it.

Obviously, the capability for making such speedy appraisals was an advantage for our early forebears where a snap judgement could mean the difference between evading a predator or responding to an enemy and extinction. The emotions were ways of solving the frame problem for creatures like us. That is, giving a wealth of stimulation, humans need the means to assess what is important to them—what will advance or impede their vital interests. The emotions enable us to pick out the details of the arrays that confront us in terms of what we need to avoid or to exploit. Fear, for example, zeroes in on danger, and primes us to fight, flee, or freeze. Moreover, once an emotion takes command, it sends feedback to our perceptual system, disposing us to scope out the situation in terms of the elements before us which are relevant to advancing or threatening our vital interests. Where in the first instance, fear alerts us to the presence of approaching thugs, in the second instance, it prompts us to search the environment for an avenue of escape.

Many of the situations of human life that are pertinent to our vital interests are recurrent. Consequently, there are certain basic emotions—including fear, anger, jealousy, and disgust—that appear to be nearly universal and, given the rootedness of the emotions in the body where they engender physiological responses, these emotions seem to be grounded biologically. Nevertheless, although the emotions have a biological basis, that basis is a platform upon which different cultures calibrate various emotions in light of the particular circumstances that beset them. Even if fear is a basic emotion, feeling terror upon the sight of a summons from the IRS is unique to our culture.

Society depends upon its members’ abilities to make converging judgements in order for social coordination to obtain. Since a substantial amount of the judgements we make are emotional appraisals—indeed, it is likely that most of our judgements are such—the emotions are essential ingredients in the continual renewal and reproduction of social life. However, for the emotions to perform this role there needs to be some agreement or uniformity across the population of a culture in the modes and criteria of the reigning emotions. And for that to occur, the raw emotions have to be trained or educated.

That is, for a society to persist, certain habits of judgement must be passed from one generation to the next, and foremost among those patterns of judgement are the emotions. The citizenry of a society must learn the emotional repertoire of their society. In order to function in the group, people need to possess the emotional knowledge of the group—they must learn through habituation the conditions under which such and such an emotion is appropriate as well as what behaviours the emotion is apt to motivate in
others. We need to possess this knowledge not only to judge our conspecifics (p.164) but to be able to predict how we will be judged and, in consequence, be treated by them. We require knowledge of what to do and feel, where feeling and doing are intimately related, and we need knowledge of how others are likely to feel toward us as a clue as to what they will do.

This is why the emotions are important for society. The arts, then, are important because they represent one of the primary ways in which the emotions are educated. That is, the kind of emotional knowledge requisite for social life in large measure is transmitted by examples portrayed in images—visual and verbal, including picture, sculpture, poetry, and song—and in myths and narratives as well as by the rhythms of music and the orders of our constructed environment—its architecture, gardens, parks, sculpted landscapes, and so forth. In short, by arousing the emotions, the arts contribute crucially to the sort of education of the emotions upon which the existence of societies depends.

One especially significant feature of the emotions which is particularly pertinent to the educative role of the arts is the human capacity to share affective states, a phenomenon sometimes called emotional contagion. When we speak with our interlocutors, we often take on their facial dispositions. They frown and furrow their brows; we frown and furrow our brow. They smile and nod in assent; so do we. The configuration of our facial muscles then sends signals to our autonomic nervous system and we feel something like what our interlocutors feel, thereby garnering for us a glimmer of their inner states. Undoubtedly this capacity to penetrate the mental states of others begins in infancy where so much learning, including emotional learning, occurs on our care-giver’s knee where we imitate everything from her glance to her giggles.

The emotion system is not simply a mechanism for mobilizing action in the individual; it is also a medium of communication, a way of letting our conspecifics know what is going on inside us in terms of that which we are feeling. Our imitation of the facial displays of others is crucially important in this regard. It enables us to mind-read others by way of imitating their facial expressions. The look of fear etched upon the visage of another alerts us to the fact that she perceives there to be danger in the vicinity; by mirroring the look on her face an affective alarm then goes off in us—not just in me, but in everyone nearby in the surrounding environment. (This is an effect, by the way, exploited especially by many artistic devices, such as the motion picture close-up.)

Moreover, it is not merely the faces of others that we tend to mimic when we interact with them. We will also ape their stance, gestures, and even their movements. When our confederate leans forward to confide something to us, we mirror her stance conspiratorially. One person folds his arms across his chest, and his companion very frequently does likewise. A group of students walks down the corridor and they all fall (p.165) into step. Call this behaviour a matter of mirror reflexes. It is pervasive throughout social life. Among other things, it is a way of spreading fellow feeling amongst the group which may be motivated by our underlying desire to be like our groupmates and to be liked by our groupmates.
Indeed, even in cases where we are not able to move in concert with others—as when seated in the crowded bleachers observing a sporting event—we may feel a tug in the muscles of our arm that echoes those of the outfielder straining for a catch. Or, watch spectators at a boxing event as their rhyming blocking movements mimic those of the fighter being pummelled. Recall how many action sequences in moving pictures have us squirming in our seats as the protagonists assay this or that feat. Why? In fact, there is evidence that pre-motor pathways of the cortex are activated pertinent to the performance of a certain action when witnessing the actions of others who are performing said actions. Thus, as in the case of facial expression, it appears that we have the capacity to detect what our conspecifics are feeling by undergoing similar or converging feelings in own bodies as a result of imitating the bodily dispositions of others.

The arts exploit these biological tendencies in various ways. In order to get at some of these, it is useful to make a very provisional dichotomy between what we may call the observational arts and the participatory arts. By observational arts, I have in mind arts—such as the traditional arts of theatre and theatre dance—where there is a marked distinction between the audience and the performers. Perhaps this kind of art developed, as a result of a division of labour, from earlier art forms in which the community as a whole performed—where everyone sang and danced, that is, where everyone participated, possibly in the process of enacting some religious ritual.

But be that as it may, it seems fair to suppose that both the observational arts and the participatory arts engage the possibilities afforded by emotional contagion. With observational art, the audience as a whole models itself on the actors, dancers, and other performers, including the gesticulating musicians and conductors. At the same time, while watching the performance from their vantage points in the auditorium, the audience member in the presence of observational art also has the rest of the audience, engulfed as they are in emotion, to mirror. That is, while we each in turn are being guided via mimesis by the performers toward the same affective state, that feeling is reinforced by the fact that our fellow viewers are feeling likewise in a way that additionally triggers our mirror reflexes in response to theirs. Thus we may laugh and cry all the harder for being in a group.

In the participating arts, on the other hand, we may only have each other to imitate; however, the fact that, when singing and dancing together, for example, we can mirror each other’s behaviour more robustly and along more dimensions than we can as mere viewers may more than make up for the lack of cuing by specialized actors or dancers. (p.166) That is, with respect to the participatory arts we are all primarily mirror-stimulating each other rather than modelling certain designated foci of attention, like a group of actors. Yet because we are immersed in the imitation so fully and along so many aspects of imitation, the transmission of affect need be no less potent than in the case of the observational arts. Indeed, in some cases the emotional contagiousness of the participatory arts may be more powerful than that of many instances of observational art.

Music also has the capacity to promote converging fellow feeling amongst listeners, and not only through our mirroring of the gestures of the musicians and the conductors. This
possibility rests on the fact that humans have an immensely strong tendency to hear music as moving—moving in time and in a certain direction, such as up or down, and at a certain velocity and with a certain weight or gravity. In other words, music can impart the impression of moving toward a certain destination at a certain cadence. In fact, it is arguably the very fact that we can hear musical noise as moving in this way that leads us to distinguish music from other kinds of noise.

In virtue of its potential to suggest movement, music, including pure orchestral music, can imitate human movement and, to some degree, the broad emotive qualities suggested by that movement. As Stephen Davies puts it, ‘music is expressive in recalling the gait, attitude, air, carriage, posture, and comportment of the human body. Just as someone who is stooped over, dragging, faltering, subdued and slow in his or her movement cuts a sad figure, so music that is slow, with heavy or thick harmonic bass textures, with underlying patterns of tension, with dark timbres, and a recurrently downward impetus sounds sad. Just as someone who skips and leaps quickly and lightly, makes expansive gestures, and so on, has a happy bearing, so music with similar vivacity and exuberance is happy sounding.’

That is, music appears capable of imitating human movement, at least in a global way, by suggesting movement. And musical movement, echoing human movement, in turn, can insinuate human emotive or expressive qualities—again, at least, broadly. For example, the movement in the music may have connotations of euphoria or dysphoria. And this, then, can arouse cognate feelings in the bodies of listeners as a variant of the phenomenon of emotional contagion.

Undoubtedly this is a reason that music is traditionally correlated with dance; dance allows the listeners to articulate physically the feeling of movement that they detect in the music. If music imitates human movement, then by way of dancing, listeners imitate the impression of movement that they intuit in the music. Moreover, where we are dancing with a partner or in a larger group, emotional contagion does not only move from the music to the dancers but betwixt the dancers as well.

Yet even where we do not dance to the music, there is evidence that something is happening in our bodies that is like imitation. Namely, it appears that music stimulates certain of the motor pathways in our brain, as if we were preparing to move. So, just as the actor provokes emotional contagion by inviting us, perhaps somewhat coercively, to imitate the bodily condition associated with the affective state he intends to engender, so too does music encourage a form of emotional contagion amongst listeners by prompting us to translate the impression of movement we hear in the music into bodily movement impulses with corresponding affective states. Of course, the source of emotional contagion in pure orchestral music is not another person, but the music, arranged in such a way that via the impression of movement, it suggests an emotive state.

Admittedly, the emotive states projected by pure orchestral music may not be very precise. The music may connote generic anxiety rather than fear of something particular,
like a mountain lion or a plague, such as Mad Cow Disease. In this way, pure orchestral music is mood-like rather than emotion-like. However, it is still contagious. Upbeat music will abet a joyous mood, even though the kind of joy at issue may be hard to pin down. Moreover, when the mood-like stimulus of the music is wedded to a text, a song, a dance, a ritual, a programme, and/or a narrative, that joy can become very specific; with regard to the 1812 Overture, for example, the mood of joy is identified as one of victory through the music’s programme, and the triumphalism of the music-cum-programme infects the audience.

So far I have been briefly reviewing the arts in order to remind ourselves of the degree to which they traffic in emotional contagion. I have done so in order to make a case for the social importance of the arts. For in virtue of igniting emotional contagion, the arts, at the very least, perform the function of binding together the members of a group by facilitating the sharing of fellow feelings. Sharing emotions and attitudes, of course, is a way of socially bonding by expanding common ground. In this way, the arts assist in unifying a social group by imbuing its members with converging feelings. Moreover, since these emotions can motivate actions, the relevant arts can enlist the emotions in the group that are requisite for the performance of certain actions. In the past, practices like war dances and work songs (like The Volga Boatman or Fifteen Years on the Erie Canal) coordinated group actions by investing the individuals in the group with the sort of emotive inclinations necessary to get those jobs done which presuppose group action as a condition for success.

Of course, the sort of emotional contagion that the arts can promote is not only a means for stirring up the fellow feelings useful for accomplishing local projects, such as revving up the warriors to march across the river in order to do battle. The arts may also foster more overarching or long-lived forms of emotional contagion, such as patriotism, by means of things like anthems. In virtue of their capability to stoke emotional contagion, the arts can contribute to the maintenance of conformity—both at the level of local projects and enduring commitments—since the shared emotions they inspire in participants and/or viewers, listeners and/or readers also bring in their trail converging motives to act. Thus, story, song, music, dance, and other forms of enactment have an important role in the orchestration of the behaviour of social groups.

Needless to say, throughout much of history, the arts operated in tandem with religion, often in the service of rituals which themselves might be thought of as proto-theatrical events. Movement—including dancing, marching, and processions—replete with music, song, narrative, and gestural symbolism, sometimes led by priests, and/or sometimes incorporating the entire community, supplied celebrants with multiple channels or conduits of emotional contagion. Moreover, this contagion crossed the boundaries of kinship, thereby making possible the construction of social groups on the basis of something more extensive than bloodlines.

That is, larger and larger social groups were enabled to cohere—beyond the family and the clan—by means of emotional contagion, abetted to a significant degree by the way in which the arts stimulate converging affect amongst creators, participants, observers,
and/or participant-observers alike. Furthermore, if it is virtually axiomatic that larger social units replace smaller ones in the competition for scarce resources, then artistic behaviour as a lever of social cohesion—which is independent of membership in an intimately related gene pool—functions as a way to bind groups emotively into an Us in terms of an affective current of shared fellow feelings.\(^{14}\)

Like contemporary sporting events that construct fan communities of sentiment around this or that team, the arts are able to contribute to binding together communities by means of emotional contagion. When spectators at a basketball game rise to their feet to applaud a brilliant manoeuvre, they experience a communal ‘whoosh’ of pleasure, as Bert Dreyfus puts it, becoming united in a momentary society of feeling.\(^{15}\) Something similar happens when the audience delivers a standing ovation after an opera, a ballet, or a play. But the communities bonded by the arts are generally wider (p.169) than those bonded by sports. For the arts do not merely bind communities affectively to particular artworks or performances. They contribute to forging larger social alliances, and they nurture the emotional intelligence upon which a thriving culture depends. Indeed, they participate in the construction of said cultures.

The arts accomplish this in part by refining and shaping the emotions they evoke typically by providing said feelings with the appropriate objects. When the arts were inseparable from religion, the songs, myths, symbols, narratives, and ritual enactments fixed what it was fitting to worship, fear, love, hate, and so on.

Speaking of the aesthetico-religious rituals of traditional societies, Patricia Churchland notes that they ’can be occasions for group bonding around certain moral issues such as defense from attackers, celebration of a new leader, or survival during a harsh winter and distribution of scarce resources. Religious rituals are important in reaffirming social hierarchies and in solidifying social conditions and some religious practices are structured to increase compassion, kindness, harmony and love. As well, rituals of affiliation can ignite contagious enthusiasm for a group’s undertaking and can be helpful in solving kinds of social problems, such as defense against attack....’\(^{16}\) That is, in such cases, the arts in concert with religion not only engendered converging feeling amongst the members of the group; they shaped those feelings by attaching them to the socially correct objects and behaviours, thereby calibrating those emotions so that the automatic judgements or appraisals that were rendered affectively would be more or less reliable relative to the culture in question.

Songs of heroes and their adversaries carried social information about the virtues and vices that pertained to the relevant society and made the pertinent criteria of judgement available virtually automatically via the emotions. The arts—including narratives, songs, pictures, and the like—are among the leading devices for developing the emotional intelligence of a social group, beginning with the earliest stories that children are told in their care-giver’s lap. Not only do the arts succeed in, to a certain extent, standardizing the feelings of a group via emotional contagion, but they do so in such a way that the fellow feelings that have been engendered are connected to the right objects. In short, the arts educate our capacity to issue emotive judgements or appraisals in the ways
required to assure social cohesion, conformity, and continuation.

Moreover, the arts are particularly effective means for educating the emotions due to the ways in which they are typically suited to engaging human psychology. It is commonly observed that notions of virtue and vice are more memorably communicated by stories, myths, and songs than by sermons enunciating abstract principles. Better to recount a tale—perhaps aided by a stained glass window that illustrates it—about a moral exemplar demonstrating the virtue in a parable than to define the virtue by means of an abstract formula. Via narratives—visual, verbal, or sometimes both—the arts make the values of the culture accessible and readily retrievable by memory.

Furthermore, if cognitive psychologists are correct and categorization typically proceeds by prototypes rather than by means of abstract concepts, the narrative arts provide a more user-friendly method for acquiring the means requisite for making judgements or appraisals of both the deliberative and the emotional varieties. Thus, viewing dramas, live ones and motion pictures, reading novels, and listening to the self-narratives in popular songs are ways of training up, exercising, and sharpening the capacity for emotional judgement that enables a society to function.

The arts of poetry, music, song, and dance all possess strong rhythmic elements, as do the visual arts and architecture, although at a different level of visceral intensity. Rhythm is a useful educational device, of course; it is a way of making things salient. One will, for example, pay special attention to the words that fall into a regular rhyme scheme in a poem or a song. But rhythm is also a very powerful mnemonic device. It is easier to call to mind information that is rhythmically organized; even patients whose memories are otherwise utterly compromised by traumas such as cerebral strokes or diseases like Alzheimer’s can often remember the songs that they learnt in childhood. Thus, by employing rhythm, the arts address us in ways that are particularly memorable, reinforcing the lessons they convey in a particularly deep and enduring manner.

Speaking of epics, Brian Boyd writes:

The concentrated patterns of rhythm and rhyme can aid in the transmission of longer texts, especially those of myths, legend, and religious or other lore or ritual felt to be passed along more or less exactly....The mnemonic advantages of the transmission of socially shared information may well have been adaptive for group selection, bolstering social cohesion through the reliable rehearsal of narratives incorporating shared knowledge and values.

Similar principles operate in ritual chant or songs (psalms, hymns, the songs of African praise-singers). The rhythmic patterns of verse can allow for emotional attunement and physical entrainment. Emotional attunement matters for any social species, especially for ultrasocial humans....

This is especially true where the arts in question are participatory—where we sing, clap, drum, and dance together. Such practices can make the social information so articulated...
virtually unforgettable, imprinting the ethos of the culture in the deepest levels of the being of its members. Moreover, oral performances of the canonical stories of various cultures, such as epics, are also rhythmically organized not simply in order to aid the memory of the singer of the tale, but also to insert these prototypes profoundly into the memories of the listeners. Rhythm, in other words, is a powerful form of *inception*—to hijack the title of a recent popular movie.

Through devices like narrative and rhythm, the arts viscerally disseminate the norms of a given culture indelibly in the hearts and minds of its people, facilitated by the kind (p.171) of emotional contagion discussed earlier. The arts are not only a primary means for educating their viewers, listeners, and/or readers with the values of their society, but they do so in ways that make those values eminently accessible and retrievable. They affectively bind the audience around a body of judgements or appraisals and the criteria that underwrite them. The arts unify and inculcate at the same time, providing the members of every society the wherewithal to make the judgements by which they live.

Thus, my answer to Tolstoy’s question—reformulated as a request for an explanation for the existence of the arts rather than as a justification—in some ways sounds like Tolstoy’s own. The arts engender fellow feeling which serves to bind people together. However, I do not understand this bonding in the narrowly Christian manner that Tolstoy prefers. I think that the arts have been and continue to be a means for uniting a people, but this does not entail that they are a conduit for uniting *all* peoples, as Tolstoy appears to hope. Often—perhaps most often—the arts have served to unite some people against other people. That is, frequently—maybe even usually—the arts contribute to the formation of an *Us* as opposed to a *Them*. On my view, the explanation for the arts, in the face of the social costs they exact, is that they facilitate the evolution of societies of larger and larger scales, by uniting and inculcating a target populace where, all things being equal, societies that are larger are advantaged against smaller ones in the competition for resources.

Of course, I do not think that this is the only kind of advantage that the arts afford. The arts may heighten the acuity of our perceptions both in terms of our discriminatory abilities and our powers of pattern detection. They may keep the mind active, exercising our mental capacities and staving off boredom. And, the arts may also play a role in sexual selection. I would not want to deny that the arts promise a return on our investment in all of these ways. Nevertheless, I think that the primary advantage that the arts provide involves the advantage they bestow upon groups in virtue of the ways in which they unify people into sociocultural wholes.

This hypothesis, of course, advances at least two very controversial claims. First, that artistic behaviour is itself adaptive, rather than a by-product of something else that is adaptive. And second, that if art is an adaptation, then it is primarily a matter of group selection rather than sexual selection. It is to these issues that I now turn.

8.3 Is Art Adaptive?
So far I have been treating art as an adaptive behaviour. Specifically, I have been suggesting, rather strongly, that art bestows evolutionary advantages upon groups in so
far as art contributes immensely to forging social cohesion among the members of a group both by engendering fellow or converging feelings amongst them and by educating those feelings in the way of the group’s presiding culture by connecting those feelings in a particularly perspicuous manner to the objects of the relevant affective states.

Groups that cultivate artistic behaviour will be more fit than groups that do not inasmuch as groups that adopt artistic behaviours are likely to sustain greater numbers of members and greater social complexity than those that do not. And greater size especially is a crucial factor in group success.

Larger groups are clearly advantaged over smaller groups when such groups are in competition for scarce resources in limited areas both in terms of being able to exploit the vicinity more thoroughly and, with respect to superior brute force, in terms of open warfare with the smaller community. In consequence, the larger groups will have more offspring than smaller groups which will continue to redound to the advantage of the larger groups. Thus, *ex hypothesi*, natural selection will pick out individuals who are disposed toward the artistic behaviours that are connected to emotional contagion and education.

Of course, for artistic behaviour to have had this evolutionary advantage, it must have performed something like this function deep in our ancestral past. And I believe that there may be evidence that it did.

Artistic behaviour is thought to have been manifest at least around 30,000 years ago during the period often designated as the Upper Paleolithic Age—the period in which *Homo sapiens* or modern or Cro-Magnon man is believed to have secured dominance in Europe.\(^19\)

Cro-Magnons possessed art—or, perhaps more accurately, we should say that they possessed various arts. They created the great cave paintings at Lascaux and other locations. They also sculpted. And there is evidence that they produced musical instruments. Hollowed bones with crafted holes have been discovered that appear to have enabled the playing of different pitches.\(^20\) Scientists have also unearthed devices we now call ‘bull-roarers’—strings with bones or antlers attached to their ends which when twirled around the head emit a powerful growling sound.\(^21\) Similarly, some of the pertinent Paleolithic caves, such as Réseau Clastres in the French Pyrenees, contain stalactites that appear to have been repeatedly pounded, perhaps functioning like percussion instruments in the highly acoustically resonant caves of the Cro-Magnons.\(^22\)

Moreover, where there is music, there is almost inevitably singing and dance.\(^23\)

Thus, it is not unreasonable to imagine our Cro-Magnon ancestors drumming, singing, and clapping in communal rituals staged in the entrance ways of caves like Lascaux and Gabillon where the pictures on the cave walls themselves may have illustrated the same...
religious symbolism that was being rehearsed in the ongoing ceremony. Presumably, these gatherings involved storytelling, embodying cultural norms and projects which were possibly reinforced by the iconography on the walls, which images were also probably relevant to the performance of hunting rituals and perhaps deeper religious allegories.

Of these rituals, extrapolating from what is known of contemporary hunter-gathers, Edward O. Wilson writes:

Of special importance to the meaning of game animals in the Paleolithic cave art of Europe, the songs and dances of the modern tribes are mostly about hunting. They speak of various prey; they empower the hunting weapons, including the dogs; they appease the animals they have killed or are about to kill; and they offer homage to the land on which they hunt. They recall and celebrate successful hunts of the past. They honor the dead and ask the favor of the spirits who rule their fate. It is self-evident that the songs and dances of contemporary hunter-gatherers serve both the individual and the group levels. They draw tribal members together, creating common knowledge and purpose. They excite passion for action; they are mnemonic, stirring and adding to the memory of information that serves the tribal purpose.

If our ancestral, hunter-gatherer forebears had access to these artistic behaviours, then they could take advantage of the mobilization of emotional contagion for the construction of larger and more culturally complex groups than their neighbours, the Neanderthals, who appear to have lacked art to any appreciable degree. Moreover, we know from the fossil record that the Homo sapiens were able to form larger communities than the Neanderthals and that over time they came to dominate the pertinent domains of Europe to the extent that the Neanderthals became extinct.

Undoubtedly, the Homo sapiens had many advantages over the Neanderthals, including, it appears, language. And, clearly, certain of these advantages, like language, facilitated the construction of more extensive and coordinated communities than their Neanderthal competitors were able to field. Nevertheless, I think it is difficult to deny that artistic behaviour, as it abets emotional contagion, was an important contributing factor to the cohesion of the larger Cro-Magnon groups. Therefore, it seems that the resources devoted to the arts way back when were not wasted by our ancestral forebears who, as individuals, benefitted by belonging to groups that, across dimensions like scale, were, in the main, more fit than contrasting groups at large during the same time frame.

However, some commentators persist in maintaining that artistic behaviours are not adaptive but are rather what are called ‘spandrels’, that is, by-products of genuine adaptations which by-products were not themselves subject to selective pressures. For example, that the colour of human blood is red when exposed to oxygen is a spandrel. It is a consequence of the chemical constitution of our blood and, although the chemical constitution of our blood is adaptive, that it turns red when oxidized has no
adaptive value of its own. It is just a selectively neutral by-product of other biological features that are adaptive. So, even though the redness is a universal feature of humans, it is not adaptive, but is only something that is connected to something else which is adaptive.

Such by-products are called ‘spandrels’ after the phenomenon so named in architecture of the tapering triangular arches formed by the intersection of two rounded arches at right angles. Similarly, art is said to be like the colour of blood—a by-product of some other feature of the human organism that was naturally selected because of its advantageousness, but which by-product was not itself selected for.

Sometimes it seems as though defenders of the art-as-spandrel view presuppose that their position should be accepted on the grounds that it is methodologically superior to the art-as-adaptation approach. Friends of the spandrel hypothesis suspect that in order to motivate the position that art is an adaptation, the defender of such a hypothesis will be forced to tell a story about the origin of art that will be so unconstrained by information about the ancestral environments in which art emerged that it will be as fanciful as the children’s stories—which Kipling called *Just So Stories*—about such things as how leopards got their spots. That is, in the absence of knowledge about conditions on the ground in the pertinent past, the theorists will be free to concoct whatever genealogies suit their purposes. To avoid such wool-gathering, the friends of the alternative spandrel account recommend thinking in terms of spandrels which, on the face of it, avoids the embarrassment of just-so stories.

However, it is difficult to understand why the defenders of the spandrel approach think that they can dodge the problems that they see besetting the adaptationists. For the spandrel hypothesis also calls for an account of why the layout of the ancestral environment rendered art merely a spandrel. That is, friends of the spandrel labour under the same epistemic limitations that the adaptationists do.

Also, the proponents of the spandrel approach will need to tell us the adaptation from which artistic behaviour resulted as a by-product; and they will have to do this without reverting to telling us what they themselves would be prone to call a ‘just-so’ story. Perhaps this can be done. My only point at this juncture is that there should be no initial presumption in favour of the spandrel account, despite the apparent bias on behalf of the spandrel approach among commentators. Both sides of the debate have comparable burdens of proof to face; the spandrel position does not have an epistemic edge over the adaptationist.

Maybe it will be argued that artistic behaviour is obviously just a by-product of the jump in intelligence observable in *Homo sapiens* in the relevant time period. However, this strikes me as insufferably vague. Of what aspect of that intelligence, one wants to know, is artistic behaviour a by-product? A likely candidate, of course, might be emotional intelligence, of which mind reading would be a significant feature. One dimension of mind reading, in turn, is emotional contagion, which we have hypothesized is closely connected to artistic behaviour. So are we to say that artistic behaviour is a by-product of emotional
contagion or, even more broadly, mind reading?

But this seems wrong to me. Art is not a by-product of emotional contagion; it is a behavioural implementation of emotional contagion; it is an instance of mind reading. Artists use their own emotional intelligence to anticipate what forms and themes will move their conspecifics in terms of their own susceptibility to emotional contagion, while audiences respond to such artefacts by undergoing emotional contagion. Art is not a by-product of emotional contagion but is a very important instance of the process.

Furthermore, friends of the art-as-spandrel conviction appear satisfied that if it can be shown that art originates as a spandrel, then that will be the end of the debate with adaptationists. But this strikes me as ill-considered. For even if artistic behaviour originated as a spandrel, one need not deny that subsequently it went on to become adaptive. Perhaps we will never be able to establish whether the first art was a spandrel or whether artistic behaviour was naturally selected because of the function it performed ab initio. Nevertheless, even if it began as a spandrel, it is perfectly consistent to argue that after its emergence, artistic behaviour became (p.176) adaptive, possibly, as I have conjectured, by discharging the function of facilitating the formation of communities of greater scale and, therefore, greater fitness, than the communities that preceded it.

That is, howsoever the first artistic behaviours first appeared, it seems plausible that at some point they became adaptive by contributing to the advantage of Homo sapiens vis-à-vis their Neanderthal competitors. Moreover, it should be added that in addressing a feature of our ancestral history that calls out for explanation—namely, the survival of Cro-Magnon humans rather than the Neanderthals—the art-as-adaptation hypothesis goes part of the way to exonerating itself as nothing but a just-so story.

I suspect one reason that many are quick to deny that artistic behaviour is adaptive is their view that art is simply pleasurable for its own sake and for no other purpose. It is, to return to Steven Pinker’s metaphor, cheesecake.

But the notion that art is essentially pleasurable for its own sake is a very recent—and, for that matter, very controversial—conception of art. Thus, it is arguably highly anachronistic to project this conception of art backwards into the past in order to explain either the origin of art or its persistence over millennia. That is, when we set ourselves to explaining the origin of art and its longevity, we should not limit ourselves to thinking of artistic behaviour as a medium of pleasure and nothing else.

Rather we should constantly be reminding ourselves that for most of its existence, art has been about stirring up and shaping the emotions in a way that binds and inculcates those under its sway as participants in a culture. The theory that art is the enterprise of engendering pleasure for its own sake arrived in the eighteenth century and is disputed even today in Western aesthetics, where it has had the greatest influence. Undoubtedly, if art was as this eighteenth-century dispensation would have it, its origin and persistence might be hard to explain. But if we abandon the view that Tolstoy called ‘art for art’s sake’ and realize that artistic behaviour has long been an engine of cultural consolidation, the
proposition that it has been selected-for due to the advantages it affords groups, then the road is clear to explaining the contribution of art to human social life.

Nor does the emphasis that I have placed on artistic behaviour in the service of culture in any way gainsay the relation of art to pleasure, since it is demonstrable that the arousal of the emotions, especially when shared with others, is pleasurable. However, on the view that I am supporting, that pleasure has not attached itself to artistic behaviour for its own sake, but for the sake of the social advantages it sustains, much as natural selection has connected sexual pleasure to procreative behaviour.

Although the view that artistic behaviour is sustained by nothing but the pursuit of pleasure for its own sake hardly suits most of the history of art, there is perhaps the temptation to think that it does characterize current art which, in turn, is why our contemporaries are tempted to project this view onto art of the past. However, I am not even convinced that the pleasure perspective does a good job dealing with a great deal of contemporary art. For I am convinced that much contemporary art is still engaged in performing the cultural functions I have attributed to art immemorial. That is, much contemporary art—especially with regard to mass art forms like the motion pictures—still trades in emotional contagion with respect to habituating audiences regarding the culturally appropriate objects.

In order to see this, it is easier to consider works from the recent past rather than works of the immediate present, since we need some distance in time before we can see ourselves clearly. But with that in mind, think back to the heyday of the American Western in the 1950s. There we find repeated in cowboy movie after cowboy movie the figure of the reluctant warrior—a man, like the retired gunfighter Shane—who refuses to resort to violence until there is no other viable option. In this, these Westerns cultivated a certain culturally valued ideal of manliness. These films were undeniably entertaining. But in the process of being entertaining, they, like art throughout the ages, carried out indispensable cultural work—in this case that of engendering the emotion of admiration toward the virtue of manly restraint, and thereby uniting the audience behind a common norm. In all likelihood, once we achieve some distance on the present, we will be able to see the ways in which the mass artworks of the present have been acquitting a comparable function.

8.4 Group Selection versus Sexual Selection
In the space that remains, let me address an issue that may have occurred to some of you already. I have attempted to answer a version of Tolstoy’s question about why art persists despite its obvious costs in terms of the advantages it affords to the group, including to the groups of early Homo sapiens who, on my account, due to their capacity for artistic behaviours could form larger groups than their neighbours, allowed them to secure territorial dominance. This conjecture about the fitness value of art relies upon the notion of group selection. But not all theorists who favour an adaptationist perspective on art, however, are group selectionists. Many, possibly the majority of theorists, including most recently and perhaps most notably Denis Dutton, locate the survival value of art in explanations in terms of sexual selection.
On this view, art arose and thrived, in other words, because of the advantages it grants certain individuals, namely artists, whose artist behaviour makes them attractive to the opposite sex. This wins them reproductive success, resulting in lots of children with their genes, including a proclivity for artistic behaviour, which, in consequence, generates more of the same.

To elaborate further, the story goes like this. Artists expend a great deal of energy producing artworks or, if they are performing artists, in rehearsing the skills requisite for singing, dancing, drumming, and so forth. This is then taken as a sign of fitness by females, who are thus attracted to said artists who are, as a result, blessed with plentiful offspring. The abiding analogy here is to something like the phenomenon of the peacock’s tail.

The peacock develops a large and wondrous tail which peahens find attractive. Why? Because if Mr Peacock can invest all the resources it takes to grow such a splendidly large tail and yet survive, he must be a very solid kind of guy. That is, to still be in the game despite the handicap of having to produce such a fantastic tail at an impressive cost in physical resources is a sign of health and well-being of the sort that the peahen is invested in bequeathing to her offspring. So she goes for the guy with the big tail. Artists, rather than having beautiful tails, have their artworks and performances to exhibit, which, being expensive to produce, like the peacock’s tail, are signs of fitness which women will find attractive and have found attractive from the first Cro-Magnon yodeler through Frank Sinatra and Justin Bieber. How many little Mick Jaggers there are, we will never know.

This is a very complex issue, of course. So let me raise some reservations about the sexual selection approach without presuming that what I have to say puts an end to the debate. As you might predict, I am somewhat sceptical of the sexual selection account; I wouldn’t want to dismiss it altogether; nevertheless, I do not think it can give us an answer to the question with which we began: namely, why art, given the vast costs it can entail?

The first problem with the sexual selection account that I would like to broach is the fact that although it is frequently analogized to the case of the peacock, the comparison is not very convincing. What is important about the peacock example is that the peacock’s tail is a handicap. The reason for this is crucial to the sexual selection approach, to wit: signs of fitness cannot be cheap, otherwise they will be easy to counterfeit. The peahen needs a sign of male physical fitness that it would be hard for lesser peacocks to fake. So producing those magnificent tails must come dear.

However, it does not seem probable to me that the art of our early hunter-gatherer forebears was uniformly of a costly sort, analogous to the peacock’s tail. Much of the art of the early Homo sapiens, presumably, was participatory communal art; art where everyone sang, danced, and clapped. It is far from clear to me that art of this variety involved any special costs, even to those who excelled above the rest. Likewise, expertise in storytelling does not seem to imply the sort of costs that manifest fitness that the
analogy with the peacock’s plumage invites; contemporary storytellers, like those of us who tell jokes, don’t appear to put our fitness at risk. Indeed, one wonders whether the sexual selection model is suitable for characterizing the earliest forms of art making, since it seems to presuppose the existence of specialized artists in societies where the division of labour was probably not yet that highly developed.

Perhaps, cave painting fits the analogy with the peacock’s plumage better than the participatory performing arts, but without knowing who did this and whether it involved hardship of some sort, one needs to hesitate before extrapolating a correlation to the peacock’s tail.33

(p.179) Furthermore, inasmuch as sexual selection accounts are tailored to individuals, it is not evident how they offer insight into the artistic investment of whole groups, not only in participatory group festivals, but in communal structures like burial mounds and temples.

Needless to say, these observations do not settle the issue. They are only meant to indicate that, despite its popularity among theorists, sexual selection, shall we say, leaves much to be desired.

However, it may be a mistake to think that the group selection hypothesis and the sexual selection hypothesis are locked in a zero-sum game.34 Some evolutionary theorists like Edward O. Wilson and David Sloan Wilson argue for multi-level selection, arguing that group selection operates in competition between groups, while other forms of selection, such as sexual selection, may operate within groups, affording a picture of human nature of the sort Kant had in mind when he spoke of mankind’s unsociable sociability.

This seems acceptable to me, since all I need in order to secure my case is the concession that group selection plays a role in evolution.35

8.5 Summary
To summarize: I began with the question, posed by Tolstoy, of why the arts emerged and have persisted despite the costs they have incurred throughout human history, including periods of material scarcity. My hypothesis is that the explanation lies in the ways in which the arts engage the emotions, notably in terms of how the arts possess the capability to unite people through phenomena like emotional contagion while at the same time educating us affectively by directing those shared fellow feelings towards the culturally appropriate objects.

This conjecture, moreover, fits with certain features of what we now believe about early hunter-gatherer Homo sapiens. That they survived where their Neanderthal competitors perished can be explained by their ability to form larger groups, something that may in part be explained by their possession of art in contrast to the artless Neanderthals who went extinct. Thus, the origin of art, as well as its persistence (especially in popular art forms), is apt to be connected to the advantages the arts contribute to the fitness of groups.
Acknowledgements

This chapter has benefitted from being presented to the Humanities Center at Yale University, an American Society for Aesthetics session at the Central APA, the Pacific Division of the APA, and the French Society for Aesthetics at the École normale supérieur in Paris. I would like to thank Jonathan Gilmore, Jesse Prinz, Eva Dadlez, Stephen Davies, Tobyn DeMarco, William Seeley, Amy Coplan, Joan Acocella, Anjan Chatterjee, Catherine Talon Hugon, and all of the other listeners and readers who have commented on this piece.

Notes:


(2) Tolstoy, What is Art?, 14.

(3) This view is also shared by Martha Nussbaum and Stephen Halliwell.

(4) I suspect that so much art has been dedicated to arousing the emotions that the arousal of emotions provides the best explanation for the existence of the practices of art. However, it need not be the case that every instance of the practices of art—that is to say, every artwork—satisfies the function of the practice to which it belongs. In other words, there is no inconsistency in maintaining that although the practice of art perseveres because of its capacity to arouse emotions, there are nevertheless artworks within the practice that do not discharge that function. Thus, even if the practice of motion pictures thrives because it typically arouses emotions, that is consistent with there also being structuralist films that are primarily intellectual in their address. Explaining why we have the practice or practices of art need not and does not afford an explanation of why we have this or that artwork. In a similar vein, even if the function of emotional arousal explains the value society places on the practices of art, the value of every artwork need not be explained in terms of that function. Thus, it is not incumbent, for example, on the NEA that it fund only works that arouse emotions in the ways discussed in this chapter.


(6) Scruton, Culture Matters.


(11) Daniel Levitan, the neuroscientist, has noted the tendency of music to engender the impression of movement in our bodies and, with tongue in cheek, has suggested that Lincoln Center would be well-advised to tear out the seats in its concert halls to afford the audience the opportunity and the space to enact the movement impulses they feel in the music. See Daniel Levitan, ‘Dancing in their Seats’, *The New York Times*, 26 October 2007, available online at <http://www.nytimes.com/2007/10/26/opinion/26levitin.html?_r=0>.


(14) Ellen Dissanayake in books such as *Art and Intimacy: How the Arts Began* (Seattle, WA: University of Washington Press, 2000) and *What Art is For* (Seattle, WA: University of Washington Press, 1988) has defended the idea that art emerged and persists because of the role it plays in binding peoples together. Although I do not emphasize the notion of ‘making special’ as she does, I have benefitted enormously from her pioneering work in underscoring the role of art in social bonding.

(15) Herbert Dreyfus and Sean Dorrance Kelly, *All Things Shining* (New York: Free Press, 2011). Some listeners have charged that I have failed to explain the social value of art if I attribute to it a function that can be also found in other practices, such as sport. But I disagree on the grounds that I think that cultures are redundant as regards achieving that which is important to their persistence. Cultures, that is, will cultivate multiple channels of address in order to assure that what needs to get done gets done. Sport and art both foster social cohesion because that is such a vital, indeed, indispensable function. It pays to have insurance in such cases. It is like wearing a belt and suspenders. At the very least, if one falters, the other is there as a back-up. It is true that were we defining art, citing as a central feature of art a feature it shared with sport would render the definition insufficient. But we are not defining art here, but explaining it; and it seems plausible to me to suspect that one of the primary ends of art, social cohesion, is a social phenomenon that is overdetermined.


(18) Of course, this suggests the dark side of art. Art can be and has been an instrument of aggression between groups. But my task here is explanatory, not justificatory. Unfortunately, the fact that art can be, so to speak, weaponized, due to its contribution to consolidating Us groups against Them groups is one of the reasons it has persisted,
although this has admittedly often involved participation in war, persecution, and other iniquities.

(19) One might date the emergence of art or proto-art earlier with the appearance of bodily adornment. The function of such ‘art’ is a matter of speculation, given, among other things, its ephemerality. However, arguably a case can be made that like the sorts of practices cited above, its purpose was social binding, the markings on the flesh signalling membership in different groups. See Kathryn Coe, The Ancestress Hypothesis: Visual Art as Adaptation (New Brunswick, NJ: Rutgers University Press, 2003).


(21) Lewis-Williams, The Mind in the Cave, 224.

(22) Lewis-Williams, The Mind in the Cave, 224.


(24) Lewis-Williams, The Mind in the Cave, 236.


(28) Indeed, some archaeologists have suggested that music ‘could have contributed to the maintenance of larger social networks and thereby perhaps have helped to facilitate the demographic and territorial expansion of modern humans.’ Quoted by John Noble Wilford in his article ‘Flutes Offer Clues to Stone-Age Music’, The New York Times, 24 June 2009, available online at <http://www.nytimes.com/2009/06/25/science/25flute.html>.

(29) R. Dunbar writes: ‘Trying to hold together the large groups that the emerging humans needed for their survival must have been a trying business. We still find it difficult even now. Imagine trying to co-ordinate the lives of 150 people a quarter of a million years ago...Here, song and dance play an important part; they rouse the emotions and stimulate like nothing else the production of opiates to bring about states of elation and euphoria.’ And this in turn translates into group solidarity. See R. Dunbar, Grooming, Gossip and the Evolution of Language (Cambridge, MA: Harvard University Press,
1996), 146. See also Bellah, *Religion in Human Evolution*, 129.

(30) The following discussion of spandrels has been deeply influenced by Stephen Davies’ excellent article ‘Why Art is Not a Spandrel’, *The British Journal of Aesthetics*, 50 (2010): 333–41. See also The Artful Species: Aesthetics, Art, and Evolution by Stephen Davies (Oxford: Oxford University Press, 2012). This book represents the most rigorous and comprehensive examination of the relation of art and evolution from the viewpoint of analytic philosophy.


(32) See Denis Dutton, *The Art Instinct* (New York: Bloomsbury, 2009). I have also been influenced by Mohan Matthen’s excellent critical review of this book which was delivered at the Central Division Meetings of the American Philosophical Association in Chicago in February 2010.

(33) Nor does the sexual selection hypothesis fit a great deal of the data of the history of art. Were those monks who were slaving away illuminating sacred texts in the Middle Ages signalling to prospective mates? And does the sexual selection hypothesis have a story to tell about women artists?

(34) I have not considered the question of whether art is what is called an exaptation. I suspect that if art is not an adaptation, it is probably an exaptation, just because nearly everything probably is.

(35) According to Edward O. Wilson, ‘Group selection is differential longevity and lifetime fertility of those genes that prescribe traits of interaction among members of the group, having arisen during competition with other groups.’ In this chapter, I have identified emotional contagion as a hereditary propensity that promotes social cohesion that is advantageous in circumstances of group competition. The arts represent one channel of said emotional contagion. Thus, individuals with an inherited susceptibility to such emotional contagion will have a selective advantage in contexts of group competition. See Wilson, *The Social Conquest of Earth*, 242.