Chapter 24

Bodies swayed to music: The temporal arts as integral to ceremonial ritual

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Some sort of emotional experience is probably the main reason behind most people's engagement with music.
Juslin and Sloboda (2001, p. 3)

24.1 Introduction

The primary context for the temporal and performative arts in small-scale societies is in ceremonial ritual, where these activities—or *this activity*, since they occur together—appears to be essential and universal. The temporal arts—singing, playing instruments, expressive gesture, movement (clapping hands, marking time, dancing, performance)—are the behavioural means for conveying the message of the ceremony: they mark its importance and may even be used to provide some kind of fundamental change in individuals' consciousness (Alcorta and Sosis 2005; Nettl 2000, p. 468).

There are a number of ways in which ritual (as ceremony) can be approached and understood. Some scholars are concerned with its meanings to a society or to individuals—what the ritual is about. Others are concerned with what a ritual accomplishes—its effects on individuals or on the society as a whole. Still others are interested in how ritual accomplishes its meanings and effects.

The present chapter is concerned with the last-mentioned, specifically, some of the ways in which ceremonial ritual (as a behavioural manifestation or conduit of the beliefs transmitted by the ceremony), through the temporal arts, allows a group of individuals to enact and share emotional and non-verbal, as well as 'cognitive' (cultural or social) meaning. That is, although participants in the ceremony may construct and wear antelope or chameleon masks made from particular natural materials and dance in a certain way, and although the ceremony may be 'about' attaining a new age-grade or celebrating a good yam harvest, these peculiar means and these particular practical ends acquire force and conviction through the emotional and bodily meaning that is developed and transmitted by means of the temporal arts that are integral to the ceremony—some might say *is* the ceremony. Most ceremonies are temporally organized events based on protomusical capacities that emerge and are developed in infancy to enable emotional coordination and concord with another person (Dissanayake, Chapter 2, this volume).

Such a view of ceremony will not be fashionable today, either with anthropologists or ethnomusicologists (their fields being critical of what are called essentialist, overly general, or scientific approaches) or even with evolutionary psychologists (who emphasize cognition and consider

emotion primarily as a proximate phenomenon that alerts or guides behaviour to ultimate adaptive ends). Adaptationist studies of the arts are typically concerned with aesthetic *features*, insofar as they arise from perceptual and cognitive predispositions for adaptive choices (beneficial features of landscapes, vivid colours and sounds, Gestalt-like forms that are cognitively satisfying, literary plots with romance and resolved conflict) or with aesthetic *works*, insofar as they illustrate or are based on abstract categories of behaviours and goals ('mating', 'parenting' and 'competing for status'). Rarely are aesthetic *capacities or mechanisms* considered—the behavioural and emotional means by which features or works have their effects.

But the arts do not have their adaptive (or any other) effects simply because they activate cognitive modules that direct us to good mates, or because they contain the colour red that connotes biologically salient stimuli such as blood or ripe berries. If the mere stimulus were sufficient (say, a pornographic image or a gushing wound), there would be no need to embed these categories or features in art works at all, where they are arranged with relation to other stimuli and otherwise manipulated. It is the *manipulations*—what is done, the means to the end of the art—that produces emotional responses or effects of the arts. And it is in the temporal arts—which take place in time—that one can perhaps first begin to formulate principles about how emotion is created and manipulated to expressive and eventually adaptive ends.

As just mentioned, most adaptationist studies of the arts deal with static, physical entities—visual art objects or literary works, both of which exist concretely even when not being perceived or perused. As aesthetic objects or works, they are the *residue* of behaviour, and often represent life-like subject matter. In contrast, performative (or processual) arts, such as music and dance, may not show or tell a story 'about' anything. They are behaviours (not static objects or works) that have noticeable changing characteristics and effects as they take place in time and then cease. Their emotional effects are found by perceivers in formal and expressive properties as much as or more than in subjects and themes. In the temporal arts, participants and audiences are figuratively, if not literally (in Yeats's phrase), bodies 'swayed to music', there and then. They are *moved*, emotionally if not overtly physically—as the word 'e-motion' itself indicates (Panksepp and Trevarthen, Chapter 7, this volume).

The vast and complex subject of musical emotion can hardly be addressed in a short essay (for an introduction to the subject, see, for example, Kivy 1989, Langer 1953, Meyer 1956, and comprehensive essays in Hodges 1996 or Juslin and Sloboda 2001). Here, I present ideas and findings from ethology, evolutionary psychology and neuroscience that will, I hope, contribute to a continuing discourse on the question of the generation and manipulation of emotion in the arts of time.

24.2 Ritualization and aesthetic operations

In Chapter 2 of this volume, I described 'multimedia' or 'multichannelled'—that is, audio-acoustic, kinesic, visual and tactile—interactions between mothers and infants that evolved to enable an emotional bond between the pair and, at the same time, to reinforce 'affiliative neural circuits' in the mother's brain, thereby helping to assure her continuing care of and attention to her baby. The coordination of behaviour and emotional expression between the pair is made possible through 'musical' or 'protomusical' components—temporally organized expressive vocalizations and movements of face and body that are conspicuously altered versions of similar expressive signals of friendliness and accord between adults.

The head-nods, raised eyebrows, sustained smiles and undulant sounds made by mothers to their babies resemble, at an abstract level, features of special kinds of communicative behaviours that have evolved in other animals, especially birds (Huxley 1914). Ethologists have called this evolutionary process 'ritualization' (Hinde 1982; Tinbergen 1952).

In ritualization, a movement from a practical, ordinary context (say self-grooming, or flapping the wings before flight) becomes altered (formalized, repeated, exaggerated and elaborated) so that attention is drawn to it, and it then communicates a new social message. No longer does preening indicate simply cleaning one's feathers, but when ritualized means: 'Notice me. I want to mate with you.' Wing-flapping, when ritualized, no longer indicates preparation for flight, but means 'Note: this is my territory and I will defend it.' In its ritualized form, the precursor behaviour has been subjected to various manipulations that make it look as well as mean something different. These manipulations or 'operations' include simplification (as stereotypy or formalization), repetition (regularization), and exaggeration in time (longer or shorter, faster or slower) and space (larger or smaller, higher or lower). The resulting signal becomes conspicuous and attracts attention. Ritualized behaviours are typically used in agonistic or cooperative and affiliative contexts.

Mothers' unusual vocal, facial and kinesic movements to infants are derived from adult affiliative signals and are, in essence if not fact, ritualized (Dissanayake 2000a). In interactions, a smile to an infant is typically wider and sustained longer than to adults or even older children. The head bob is arrested in its backward position, nods are regularized and repeated rhythmically, the eyebrow flash is held, emphasizing the open (interested and friendly) eyes; speech to infants has exaggeratedly higher pitch, lilting contours, repetition of words and phrases, and longer interspersed pauses than adult communication. Unlike ritualized behaviours in other animals, which are generally quite stereotyped, mothers at times vary or elaborate the vocal, kinesic and facial expressions used with infants, and as infants mature, mothers begin to manipulate their expectation through pauses and delays, and by using more dynamic or changing features. However, as in ritualized behaviours, all of these operations on the precursor communicative signals are 'spontaneous, or unself-conscious.

One can say that in human music and dance, the operations of ritualization are also used, but in an individually or culturally deliberate, conscious manner. For example, ordinary body movements from everyday life, when formalized, repeated, exaggerated and elaborated, become 'dance'; the ordinary prosodic or paralinguistic aspects of spoken language, when formalized, repeated, exaggerated and elaborated, are 'song', just as the ordinary syntactic and semantic aspects become 'poetry' (and so forth with other arts). As in ritualized behaviour, these same operations convert the precursor or ordinary behaviours to something distinctive. They attract attention and have the potential, when organized temporally, to further elicit and shape emotional response (see also Watanabe and Smuts 1999, Alcorta and Sosis 2005).[1]

I suggest that we can call the operations that characterize ritualizations, when used spontaneously by human adults in interactions with infants, protoaesthetic or, because they comprise the mechanisms of mutuality of mother–infant interaction, protomusical. Capacities to engage in and respond to protoaesthetic operations are then available as a sort of reservoir for later intentional aesthetic operations. That is, what people do in all media when they are making 'art' is to formalize, repeat, exaggerate, elaborate and manipulate expectation with respect to movements, sounds, materials, objects, words, surroundings, themes and ideas. Attention is drawn to these by means of the aesthetic operations that give them a different or additional meaning from what

[1] Identifying these four operations of ritualizations is not meant to deny the existence and importance of other fundamental endogenous processual or 'narrative' influences on aesthetic trajectories that are expressed and felt as implications and realizations, antecedents and consequents, qualifications and subordinations, entailment, contrast, redirection, opposition, turn-taking, pacing, tension and release (Dissanayake 2000b, p. 404; Tarasti 1994; Panksepp and Trevarthen, Chapter 7, this volume).

they are in their ordinary communicative or existential context. What is considered art in modern times is a further emancipation or derivation from protoaesthetic capacities evolved first in ancestral mother–infant interaction, later developed in multimedia ceremonial contexts for religious purposes (Dissanayake, Chapter 2, this volume), and eventually unmoored for use as separate art forms in almost any context (see Brandt, Chapter 3, and Merker, Chapter 4, this volume).

24.3 Coopting mechanisms of mutuality for intimate social life

It is significant that protomusical (protoaesthetic) capacities are derived from signals that communicate affiliative intent. Sociality and affiliation are crucial to human existence, and it should not be surprising that the components that contribute to mother–infant bonding—in which emotions are expressed, shared and manipulated—should also become the components of group bonding. Humans are born ready to elicit and respond to these mechanisms of mutuality and we remain sensitive to them throughout our lives, ready to use them with infants and with other people when they are developed in ceremonial contexts, and, as today, in the temporal arts.

Until the domestication of plants and animals that made settled life, food surpluses and large groups possible, our ancestors were members of 'societies of intimates', as described by Givón and Young (2002), who contrast them with 'societies of strangers', the larger and more complex groupings that began to develop around 8000 to 6000 BCE.

Humans evolved to live and prosper in societies of intimates: for 99 per cent of human life on earth, they were the sole social form, which sometimes still continues to exist as enclaves within larger societies. Salient characteristics of such societies are small group size (50–150), a foraging economy (hunting and gathering), a restricted territorial distribution (within a 10–20-mile radius), a restricted gene pool, cultural uniformity, informational homogeneity and stability, a consensual leadership structure, and kinship-based social cooperation (Givón and Young 2002). In such groups, everything needed for life is obtained or made by people's own hands. Cooperation and reciprocity are not optional, and emotional mechanisms to ensure these have been selected for and retained.

Despite homogeneity and routine, subsistence lives are subject to anxiety about daily sustenance and preservation. As I described in Chapter 2, uncertainty leads to physiological and neuroendocrine responses that affect brain development, genetic expression, and other factors necessary to survival and reproduction. When supportive social ties are in evidence, these stress responses decrease (Taylor 2002, p. 13). The most supportive social tie of all is that between mother and infant (Keverne *et al.* 1999), and it seems reasonable to suggest that ceremonial arts, which make use of the mechanisms evolved to enable mother–infant mutuality, would contribute to the coordination, conjoinment and emotional reassurance of their adult participants, providing a sense of social support and of coping that ameliorates the deleterious effects of the stress response. Regularizing and repeating sounds and movements require actual physical control that—especially when performed with the social reinforcement of others—can generalize to psychological or emotional control.

The British anthropologist Radcliffe-Brown, like other 'structuralist functionalists' of his generation, is little cited by anthropologists today. However, his interpretation of the function of rites and ceremonies as he observed them in the Andaman Islanders, shows adaptationist thinking long before its time (Radcliffe-Brown 1922). Religion, he says, has a function in society apart from whether it does for the participants what they want it to do or think it does—assure prosperity, safety, health and abundance. Radcliffe-Brown considered the function of religion (as expressed in what he called 'rites') to be the maintenance of an orderly social life, which itself depends on the individuals having certain sentiments that affect and control their behaviour

with others. It is by means of rites [*ceremonies composed of music/movement and other arts*] that these sentiments [*emotions*] are [*aroused, articulated*], regulated, maintained, and transmitted from one generation to another. (The words in brackets and italics are my reformulations or additions to Radcliffe-Brown's statements).

I would additionally reframe Radcliffe-Brown's thesis and say that the temporal arts (made even more compelling and arresting by means of the visual emphasis of ornamentation and costume), based on the mechanisms of mutuality (see the previous section and Chapter 2), were elaborated to become the myriad kinds and styles of artful behaviours that we see in every society's ceremonial rituals, where they serve to coordinate and conjoin individuals and convince them of the truth of the message that the ceremony is meant to convey. How is such emotionally infused conviction and belief accomplished? What is emotional or bodily meaning?

24.4 **Creating emotional meaning**

Whether by philosophers or psychologists, most writing about emotion and meaning in music tacitly or overtly presumes a Western high art tradition, where music is played by highly trained and well-rehearsed performers from a written score, often in a special setting like a concert hall, for an audience of experienced listeners who have the hope of gaining a moving, even transcendent emotional experience. Writings from this viewpoint cannot be and are not meant to be generalized to music in all times and places.

From whatever viewpoint, however—and despite the widespread conviction that music *does* provide emotional experience—it is difficult to say what 'musical emotion' is or might be. In the simplest sense, emotions are positive and negative indicators of what is good and bad for us. Feeling fear, we freeze in place or flee from danger; feeling anger, we fight to defend something important. We feel pleasure or joy when with loved ones in familiar, safe surroundings. But emotion words such as fear, anger, joy, or even pleasure are inadequate to describe what is felt when we are engaged with the temporal arts, as participants or audience.

Rather than analyse *what* is felt, it is perhaps more fruitful to consider *how* emotion is created. In the space between the bare bones of emotion words and the subtle iridescent garments of contemporary aesthetic philosophy, I offer here a 'preliminary ethological taxonomy' of four sources of emotional response to music that apply to both ceremonial music and Western art music, as well as to contemporary popular music and other forms: (a) the appeal to inherent sensory and cognitive dispositions; (b) both innate and culturally acquired associations and connotations; (c) the use of entraining, tuning, driving, and 'build-up'; and (d) effects of manipulation of expectation (see also Dissanayake 2000a, pp. 209–18; 2005).

Within each of these 'types', which in actual experience will overlap and sometimes be indistinguishable, the mechanisms of mutuality described earlier—formalization, repetition, exaggeration, elaboration, and manipulation of expectation—will attract attention and contribute to the emotional effect of the music (here referring primarily to music and movement together—as in the temporal arts of ceremonial ritual).

24.4.1 **The appeal to inherent sensory and cognitive dispositions.**

Everywhere, the arts make use of attractive and emotionally captivating forms, colours, sounds, and movements that have intrinsic sensory and cognitive appeal. A new field, evolutionary aesthetics, seeks to understand how these fundamental stimuli were (and are) adaptive to those who are drawn to them and consider them beautiful (see Voland and Grammer 2003). It is hardly an accident that ceremonies make use of striking colours and forms, energetic and graceful movements, and exciting rhythms, or that performers are often young adults in the prime of life,

whose skill and beauty capture admiration and attention. In West African masquerades, Afikpo men display their sexually desirable attributes for women, with conspicuous presence, competitive performance, rhythmic motions, and physical strength all being used as forms of flirtation (Ottenberg 1982, p. 180).

Although inherently attractive elements are essential to ceremonies, it is important to realize that additional emotion is generated by making the elements even more striking or extraordinary than they normally are. Maskers in West Africa violate normal standards of dress, vocalization, movement, and behaviour (Ottenberg 1982). For example, costumes are either very bright or very drab. Voices may also be 'masked', using guttural, strange sounds, animal cries, or even silence. Embellishment and exaggeration make clear that the masker is not an ordinary person. Masked Chapeyakas in Yaqui Easter ceremonies in the American Southwest perform tasks left-handed or backwards, sometimes improvising movement en route such as walking with trotting steps, assuming the stance of a bull, or scratching like a flighty chicken (Goodridge 1999). Additionally, it is important to remember that 'fundamental aesthetic stimuli' occur in a context—often one of active, ongoing participation—that unfolds in time (Scherer and Zentner 2001, pp. 376–377). It is the unfolding temporal structure, more than any affecting element, that produces musical emotion.

24.4.2 Innate and culturally acquired associations and connotations.

As with the strains of Wagner's and Mendelssohn's Wedding Marches, music typically calls attention to the beginning, ending, and other parts of a ceremony such as marriage. Even before the bride enters the hall, we may begin to feel tearful or to weep. Our emotions are structured by expectations and associations 'in' the music, which may suggest festivity, excitement, romance, group pride and invincibility, control of disorder, the possibility of trance, and a host of other emotive states.

There are more subtle associations that music calls up—synaesthetic intimations where sounds have colour and texture, melodies have shapes, and movements seem to echo inside our own bodies. These intimate inarticulatable sensations can perhaps be traced, mechanically in abstract scientific language, to the neurobiology of mother–infant interaction, described in Chapter 2 and in 24.2, above. In these interactions, the signals from vocal, visual, and kinesic modalities are processed *cross*-modally. That is, in both partners, visual, tactile, auditory, and olfactory sensory input converges in the orbitofrontal cortex, which projects extensive pathways to subcortical motivational and emotional integration centres (Schore 1994, p.35; Tucker 1992). The several senses are experienced inseparably and even in terms of one another—what Stern *et al.* (1985) call 'intermodal fluency'.

If music is built upon such intermingling of multisensorial–emotional foundations, it is not surprising that its emotional expressiveness has been attributed by writers from Plato to the present as due somehow to its 'resemblance to', 'analogy with', 'representation of', or 'mimesis of' human expressive behaviour and expression (Kivy 1989, p. 171) or that it should be considered to be 'metaphoric' (Blacking 1971) or 'symbolic' of human feeling (Langer 1953). Steven Feld (1981) describes metaphors in the musical theory of the Kaluli (in the Southern Highlands province of Papua New Guinea), for whom kinds of water become 'kinds of' sound. The descending minor third, called *sa* or 'waterfall', is the most basic interval and stands as a symbol of sadness, isolation, and loss (see also Feld 1982). In Apache Mescalero ceremonies, in which girls are literally 'sung' into womanhood, repetition of melodies, plus their clear contour with octave leaps, triadic outlines, and sectional structure, gives them an aesthetic design that matches other parts of the ceremony, from the tipi shapes against the sky to the geometrical designs painted on the *Gaahe* (Shapiro and Talamantez 1986, p. 85).

Daniel Stern's notion of 'vitality affects' is also relevant here. These occur (in infant and adult experience) as qualities of shape or contour, intensity, motion, duration, and rhythm—supramodal properties that exist in our minds as dynamic and abstract, not bound to any particular feeling or event—such as surging, fading away, fleeting, or being drawn out, each of which apply to a variety of circumstances in visual, auditory and kinesic modalities (Stern 1985). Similarly Bunt and Pavlicevic (2001, p. 195) describe 'the communicative and expressive mechanisms of basic emotions, that is, those of intensity, contour, tempo, rhythm, timbre, and dynamics'. As such, music 'bears resemblance to the "structure" of our emotions' or 'resembles our expressive behavior' (Kivy 1989, pp. 37, 52), without being confined to a particular emotion (joy, sadness) or any emotion at all.

24.4.3 The use of entraining, tuning, driving, or 'build-up'

Apart from some insects or frogs (which produce synchronous courtship sounds), humans are unique in the animal world in their ability to synchronize or entrain their behaviour to an extrinsic common or isometric pulse (Merker 2000). This capacity for entrainment is prefigured in the 'coordinated interpersonal timing' of vocal interactions between mothers and infants as young as two months of age (Feldstein *et al.* 1993) and in their expectation of social contingency as described by Murray and Trevarthen (1985) and Nadel *et al.* (1999), where experimental perturbations of attunement in behaviour and affect are distressing to both infant and mother (see also Miall and Dissanayake 2003, p. 339, who call this capacity 'interpersonal sequential dependency').

Simply keeping together in time with other persons produces a feeling of well-being or euphoria. The historian, William H. McNeill, has given a name—'muscular bonding'—to the phenomenon of fellow feeling that he experienced as a young army draftee during close-order drill, and speculates that it evolved because of its contribution to group solidarity. He described it as 'a strange sense of personal enlargement; a sort of swelling out, becoming bigger than life' (McNeill 1995, p. 2).

In a number of studies, neuroscientists Andrew Newberg and Eugene d'Aquili have investigated neurobiological sources and concomitants of the ability of human ritual to produce 'emotional discharges, in varying degrees of intensity, that represent subjective feelings of tranquillity, ecstasy, and awe' and 'transcendent unitary states' (see Newberg and d'Aquili 2001, and d'Aquili and Newberg 1999 and 2000 for references to their own and others' work). Although their primary interest is in mysticism and altered states in contemporary religious experience, their findings seem applicable with respect to the repetitive use of music and movement in any sort of ceremonial ritual behaviour.

Newberg and d'Aquili report that the emotional qualities associated with ritually induced states appear largely to be the result of the effects of fast or slow repetitive rhythms on the autonomic nervous system and other parts of the brain (Newberg and d'Aquili 2001, p. 88; see also Gellhorn and Kiely 1972). Techniques for 'tuning' the central nervous system and eliciting these states, sometimes called 'driving behaviours', are also described by Lex (1979). Behaviours such as dancing vigorously to rhythmic accompaniment excite sympathetic neurophysiological structures and eventually lead to parasympathetic rebound (an effect of the body's tendency to maintain homeostasis), which induces an 'altered' state felt as trance or ecstasy.

A representative example of the phenomenon is perhaps the Giraffe Dance of the !Kung of the Kalahari Desert, in which dancers aim to reach a state of *kia* that enables them to heal others. Both men and women may dance for hours until, 'almost imperceptibly, the mood intensifies [as] the singing and clapping become more spirited, the dancing more focused' (Katz 1982, p. 40). *Kia* is an intense, emotional state and under its influence the !Kung practice extraordinary activities such as performing cures and handling or walking on fire. The dancing itself is considered to be exciting, joyful and powerful, enabling participants to confront uncertainties and contradictions. 'Being at a dance makes our hearts happy', say the !Kung (Katz 1982, p. 34).

24.4.4 Effects of manipulation of expectation.

It is not only intense build-up that produces strong emotions. Newberg and d'Aquili (2001) report that both fast and slow rhythms can drive the brain to unitary states, although these happen through slightly different mechanisms. In either case, rhythmic behaviours cause the 'orientation association area' (the posterior superior parietal lobe, which orients the individual in physical space) to be blocked from neural flow.

> The intensity of those unitary states depends upon the degree of neural blockage. Since the degree of that blockage can increase by any increment, and theoretically until there is a total blocking, a large spectrum of increasingly unitary states is possible.
>
> Newberg and d'Aquili (2001, p. 115)

For example, sustained slow repetitive activity such as chanting or contemplative prayer stimulates the parasympathetic system and, when pushed to very high levels, the inhibitory effect opposite to that for sympathetic arousal occurs with a similar emotional effect of ecstasy, boundary loss, or 'flow' that may be subjectively interpreted as transcending the ordinary self and attaining altered forms of consciousness or connection to a 'higher' power.

It is well established that the neuropeptide hormone oxytocin and endogenous opioid peptides (also called endorphins) are released in maternal and other affiliative behaviours, producing heightened positive affect, even elation and euphoria (Carter *et al.* 1999). These hormones also characterize social interactions such as sports or dancing (Flinn *et al.* 1996). To my knowledge, no studies have identified the brain chemicals that are released in either participants or observers engaged in ceremonies, but it seems highly likely that the repetitive, interactive sounds and movements of the temporal arts, underlain by the protoaesthetic mechanisms of mutuality described above, will affect the affiliative neurocircuitry of individuals engaged in them and promote a sense of union with other participants. Listening to East Indian ragas or Western art music or jazz requires concentrated attention to the works' temporal unfolding. Studies show that for contemporary Western individuals, 'music' is one of the primary sources of 'peak experiences' (Laski 1961, p. 190; Maslow 1976, pp. 169–170), characterized by strongly felt motor–sensory responses and a feeling of emotional fusing or merging (Gabrielsson 2001, p. 432).

To keep time with a common pulse makes possible not only entrainment but other interactive abilities such as alternation of sounds and behaviour, a practice common in musical events (as well as in mother–infant interaction), and fitting in between the beats of another. Isometric timekeeping also allows anticipation and the manipulation of expectation, which is an acknowledged way of creating and shaping emotion in Western musical aesthetics (see Meyer 1956; Sloboda 1999). In the Southern Highlands of Papua New Guinea, performers in the important *gisalo* ceremony make audiences weep by 'jostling expectancies, getting under the surface, reframing usual thought patterns, and evoking a dramatic response' (Feld 1982, p. 132). The 'aesthetic operations' derived from mother–infant interactions (described in 24.2)—formalization, repetition, exaggeration and elaboration—can be used to manipulate expectation and create emotional meaning in the arts.

Newberg and d'Aquili (2001, p. 89) emphasize that autonomic activity alone is insufficient to create the intense states experienced during ceremonies (or artistic display), but these states are dependent on other body sensory input and, most importantly, the cognitive context in which a ceremony is performed. Emotional experiences of art and ceremony entail remembering what came before, anticipating what might come next, and connecting what is perceived with other parts of experience—all cognitive activities. Stylistic norms entail expectations and 'structures of signification' (Tarasti 1994) that invest musical events with dynamism and expressivity.

In puberty ceremonies of Mescalero Apache girls, repetition (in the pulses of rattles and jingling cones on costumes, and in periodic recurrence of song formulas accompanied by ritual smoke) is used to shape the progression of the ritual and to provide a satisfying sense of regularity. Because the ceremonies last several days, other elements which help mark the passage of time—pulse, change, and silence—are carefully structured to sustain over time the experience of transcendence. Songs are formed and grouped to unify the diverse segments of the ritual, creating the impression that *no* time has elapsed and that this particular ceremony joins others in its own recreation of the realm of mythological time (Shapiro and Talamantez 1986).

Oliver Sacks has described how a disconnected and disoriented amnesiac patient, Jimmie G., would become completely 'reintegrated' during the rite of Mass, enabled through its coherence and unity—with every moment referring to every other, and filled with meaning—to recover, if only transiently, his own continuity. He became completely held and absorbed in 'an act of his whole being, which carried feeling and meaning in an organic continuity and unity' (Sacks 1987, p. 38).

24.5 **Functions of music in ceremonial rituals**

Countless scholars have had important things to say about rites, rituals and ceremonies and their functions (for useful summaries, see Falassi 1987 and Zuesse 1987). Nearly all have pointed out how rituals take place in and are meant to invoke a non-ordinary or exceptional time and space. However, although numerous types of rituals are described, one looks in vain in such studies for a suggestion of an ultimate function for ceremonial behaviour in a biological or adaptive sense.

In his classic text on the anthropology of music, Merriam (1964) distinguishes between uses and functions of music. Uses are what evolutionists would call 'proximate'—the expressed ways in which music is employed in a given society—whereas the ultimate function of a particular use of music may not be expressed or even recognized by its members. After summarizing influential views of other anthropologists, Merriam lists 10 major functions for music at a general, analytical level: emotional expression, aesthetic enjoyment, entertainment, communication, symbolic representation, physical response, enforcing conformity to social norms, validating social institutions and religious rituals, contributing to the continuity and stability of culture and contributing to the integration of society (Merriam 1964, pp. 219–27). One can see that these functions may overlap and that several may be operant in a given musical event.

Even though these functions of music, and others, have been described in scores if not hundreds of subsequent ethnomusicological studies (and even though it can be observed that music functions similarly in modern societies), the anthropological perspective does not go on to consider why these ends are humanly important, why and how music should have evolved to enable them, or how music can accomplish them. The evolutionary or adaptationist arguments of this chapter and Chapter 2 offer explanations or hypotheses about these questions.

In evolutionary psychology, emotions direct us to 'proximate behaviours' (such as participating in the temporal arts) that accomplish ultimate adaptive ends. This may seem a cold-blooded way to regard music, which—like love, religion, and the other arts—is a source of profound and precious meaning in our lives. Yet it is unarguable that music has been important to our species and must be considered adaptive (Alcorta and Sosis 2005; Mithen 2005). Song and dance are thought to be ancient human behaviours, quite possibly accompanying *H. s. sapiens* out of Africa around 100 000 years ago (Cross 2003). Anthropological and sociological evidence documents the fact that human responsiveness to music is worldwide (Hodges and Haack 1996). Van Damme (1996, pp. 50–51) cites a number of scholars who find 'processual' arts to be of greater import to non-Western societies' aesthetics than are static, visual arts.

The strong emotions elicited by the temporal arts create emotional dispositions that, in ceremonial rituals, lead to (and reinforce) cultural beliefs about the verities of one's society of intimates and to feelings of confidence and unity. The temporal arts are integral to ceremonies because, by elaborating their sources in affiliative behaviour, participants gain a felt sense of social identity (as in rites of passage) and identification (of belonging to their group). Additionally, through the temporal arts, ceremonies instil in individuals a sense of meaningfulness and significance of their group's messages and a felt sense of competence that the important and uncertain matters of the ritual can be dealt with. Belonging, meaning and competence are vital human emotional needs, and the temporal arts in ritual ceremonies help individuals achieve and sustain them. In ceremonies, bodies swayed to music result in minds relieved of existential anxieties, firmed by convictions, and bonded with their fellows in common cause.

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