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World Musics in Context

A Comprehensive Survey of the
World's Major Musical Cultures

Peter Fletcher

With a Foreword by Laurence Picken

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Peter Fletcher

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'Generalist' books usually contain a distillation of the specialist work of others, and this book is no exception; it could not have been written without drawing on the publications of hundreds of individual scholars. To have listed all sources in the text would have made it unduly cluttered; individual scholars, therefore, have been named only when their *theories* have been presented at some length. This does not lessen indebtedness to the work of specialists, and all sources are recorded in the footnotes.

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I . . . asked my audience to question carefully,
even sadly if they wished, the future of a world
whose cultures, all passionately fond of one
another, would aspire only to celebrate one
another in such confusion that each would lose
any attraction it could have for the others and
its own reasons for existing.

CLAUDE LÉVI-STRAUSS

We shall not cease from exploration
And the end of all our exploring
Will to be arrive where we started
And know the place for the first time.

T. S. ELIOT

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Foreword

The context in which musics of the world are here to be examined is that of geography, history (in the old-fashioned sense of who did what to whom and when), and social structure (in the basic sense of who were at the bottom of the heap and who on top).

There are those who will say that so simple-minded a project should never have been attempted in a post-Claude-Lévi-Straussian-and-Charles-Seegerian world. Evidently, to attempt a necessarily brief account of the history of any one of the great cultural zones of the planet is hazardous in the extreme. Specialists themselves will differ about both 'facts' and their 'interpretation'; specialists, as they read, may wish to qualify virtually every statement made. Old charges once preferred in the history of ethnic-music studies will be revived. Like anthropologists of a previous generation, who referred (with touching possessiveness) to 'my people', many with extended, specialist knowledge of a particular region will be affronted by this invasion of their territory; many toes will be trodden on.

Such reactions are to be anticipated. It remains fact, however, that the approach adopted has revealed a worldwide positive correlation between the vicissitudes of what the ordinary person regards as 'history' and the character—in the broadest sense of that word—of music today in any such given cultural zone.

In any society under investigation, it is important to distinguish sharply between relationships of *correlation* between aspects of culture, and relationships of *causation*. Some decades ago, a crypto-hypothesis seems to have persuaded certain fieldworkers that the structure of a society, in the socio-anthropological sense, determined (in a manner never explained or defined) the organization of all aspects of music in that society. There are, indeed, areas of behaviour where social

constraints—the required duration of ritual music in a particular ceremonial context, for example—may determine temporal limits, but this is scarcely to be equated with *causation* in the process of generating a music. For some workers it became sufficient to make parallel statements describing social organization, and the position of musicians in that society, on the one hand, and musical forms and institutions, on the other, without specifying the nature of any linkage between the two.

One of the most trenchant criticisms of ethnomusicological studies came in a letter (addressed to Charles Seeger) from Howard Becker, himself a sociologist.¹ The gist of his observations lies in this statement: ‘... ethnomusicology, as a field of scholarly endeavor, has in some ways painted itself into a corner, theoretically if not practically.’ Listing Seeger’s demands for a multidisciplinary approach, he argued that the job was not doable. What Becker believed could not be done will be stated at the end of this Foreword; but his prescription, for doing what is practicable, may be given here and now: in practice to ‘subordinate multiple facts and approaches to one particular approach’.

As its name tells us, the science of ethnomusicology is the *logos* of the musics of other people. (Those who would construe this compound as meaning ‘the ethnology of music’ are mistaken.) To some extent, the difficulties of those investigating this particular *logos*—the difficulties of ethnomusicologists—are due to the character of music. It is the case that no cultural trait is invested with greater power to affirm cultural identity than is music; and yet we are unable to state in what that power resides.

Reaching the end of her study of music-making over the previous thirty years in an English town, a study embracing every category of music, Ruth Finnegan turned, in a final chapter, to examine the role of music, and the function of musicians, in an ordinary, down-to-earth, present-day, Western society.² She observes that ‘musicians like priests and seers bear their necessary part in public events...’; that ‘the participants in musical rituals can achieve a self-fulfilment conjointly with loss of self and of the everyday mundane affairs of life in a somehow transcendent and symbolic enactment’.³ She notes an unspoken but shared assumption among the participants in local music that there was

¹ Howard Becker, ‘Ethnomusicology and Sociology: A Letter to Charles Seeger’, *Ethnomusicology*, 33 (1989), 275–85.

² Ruth Finnegan, *The Hidden Musicians: Music-Making in an English Town* (Cambridge: Cambridge University Press, 1989).

³ Ibid. 338, 332.

something *sui generis*, something unparalleled in quality and in kind about music, which was not to be found in other activities of work or play; there was also something about music which for the participants set it apart—something akin perhaps to the spiritual meaning of religion.

With insight she continues: ‘... music is both similar to and different from language as a basic characteristic of humanity.’⁴ Language is seen as a cognitive mode, its capacity deep in the mind, while music is not essentially cognitive, and extends beyond mind, beyond the body.

That music and language are not part of the same system is manifest in the absence of dependence of one on the other: musical skill is maintained in severe aphasia (loss of the ability to speak); and autists may combine musical ability with subnormal IQ and poor language function.⁵ Moreover, the domains are spatially separate in relation to the cerebral hemispheres. Aphasias nearly always result from damage to the left hemisphere, while amusias (loss of musical ability) follow damage to the right hemisphere.⁶

Some Attributes of Music and Language

In the light of this antithesis, as restated by Finnegan, it may be helpful once more to consider, in general and very elementary terms, some of the attributes of music.⁷ Very remarkably, its most distinctive attribute, that which sets it apart from all other arts except dance (with which it is inextricably linked), is never (or but rarely) mentioned in definitions. It is: that music exists only in time; it is a process. Many years ago now, in conversation, Alan Lomax said: ‘Music is reality; it has to be lived through’—adding that, if, in our impatience, we switch to ‘fast forward-wind’, music is transformed or even destroyed.

⁴ Ibid. 340.

⁵ Rachel Gelman and Kimberley Brenneman, ‘First Principles can Support both Universal and Cultural Specific Learning about Number and Music’, in Lawrence E. Hirschfeld and Susan A. Gelman (eds.), *Mapping the Mind: Domain Specificity in Cognition and Culture* (Cambridge: Cambridge University Press, 1994), 375.

⁶ Ibid. 376.

⁷ In search of a general discussion in philosophical terms of theories of music, the reader is directed to Professor Malcolm Budd’s critique: *Music and the Emotions: The Philosophical Theories* (London, 1985, 1992, 1994).

A perceptive essay by Ruth A. Solie on organicism and musical analysis' redressed the balance, and reminded us that Schenker himself regarded 'the concept of organic coherence' as 'the secret and source of the very being' of works by the great masters.⁸ It is important, however, that we beware, lest we find ourselves embroiled with that 'entel-echy'—that 'life-force'—that Schenker evidently found so seductive as an adjunct to 'explanation' of the creative process, but from which the biologists have found it so difficult to escape, once admitted as a concept. The concept of any 'force' driving the process is surely fallacious. The secret lies in the nature and details of the process, yet to be determined.

Commonly we tend to identify music with melody; but this equation is invalid, since whole areas of music are constructed from quasi-non-pitched or complexly structured sounds. Even where melodic music is concerned, we can recognize many musics of the world, from many different historic periods, on hearing a specimen of no more than a few seconds' duration—at times even less. In so doing we are (admittedly) identifying a brief sample; but nevertheless such a sample possesses extension in time, and it is proper, not withstanding the brevity of the sample, to speak of it as 'music'.

We tend to forget that not only the Great Apes, but all the Primates—and for that matter all the Vertebrates—possess systems of non-verbal, vocal communication, as well as all their other systems of non-verbal communication: odour, gesture, facial expression, bodily contact. Vocalization, independent of language, is part, too, of the Hominid scheme of communication. Let us briefly examine an aspect of neurological, anatomical structure in ourselves: Primates, genetically less than 2 per cent different from the Chimpanzee; indeed, more closely related to the Chimpanzee than is the Gorilla or the Orang-utan.⁹

The neural pathways that control vocalization in Primates (including humans), descend, from regions of the brain cortex (the anterior limbic cortex) that control emotional arousal, to a region of synaptic relay in the midbrain; and motor axons run thence to the larynx, tongue, and muscles of the face.¹⁰

⁸ Ruth A. Solie, 'The Living Work: Organicism and Musical Analysis', *19th Century Music*, 4 (1980), 147–56.

⁹ Desmond Morris, *The Human Animal* (London: BBC, 1994), 7.

¹⁰ Terence W. Deacon, 'The Human Brain', *The Cambridge Encyclopedia of Human Evolution* (Cambridge: Cambridge University Press, 1992), 133.

On the other hand, pathways essential for human language originate in those superficial cortical areas of the forebrain (specifically of the left cerebral hemisphere) that control, in general, skilled behaviour; successively these paths too come to innervate face and jaw muscles, larynx, and tongue.¹¹

In humans, these paths work together, so that the larynx is brought into play, both in cries and in speech. In humans, too, the pathways that function in Primate vocalizations in general are involved in 'innate calls' (shrieks, sobbing, weeping, laughter) and may affect speech intonation, tone, and rhythm of utterance. Under conditions of great emotional stress, such innate calls may (as we are all aware) usurp the function of language, so that, in a sense, we revert (as regards communication) to the condition of our speechless Primate relatives. Unlike them, however, we can weep; they cannot.

All such vocalizations (and indeed those other components of the non-linguistic system of communication) are manifested through time; and the sonic character of each vocalization exhibits change in form and content through time.

Music is not a language, in the sense in which we commonly use that term for speech, even though (in structural terms) it may be said to have a 'grammar', learned by all members of a given society in regard to its own music; but, as Primate studies have shown, the amount of information conveyed—by vocalizations—between members of a given species is enormous. Only in the assessment of the relative contribution of intention, cognition, and affect, in these exchanges, is there difficulty in making comparison with language itself. (Even in human speech, however, these aspects are difficult for an observer to assess.) Furthermore, it is important to be aware of the structural complexity of such vocalizations that frequently cover 'a broad frequency-band from a few hundred hertz up to near ultrasonic range (about 40,000 Hz)'.¹² A call lasting less than one second may manifest a highly variable temporal pattern in amplitude, superimposed on wide swings in frequency range, from audible to ultrasonic.

If our recognition of a music from a particular geographical region depends not on what a musician might mean by 'structural features' of a musical style, but on characteristics inherent in a sample of no more than a second-or-so's duration, it would seem likely that the domain of

¹¹ Ibid.

¹² Elke Zimmermann, 'Communication by Non-Human Primates', *The Cambridge Encyclopedia of Human Evolution*, 124.

music lies primarily in that region of brain function which is involved in the emotion-charged vocalizations of Primates in general. The 'language of music' is, in the simplest terms (it is suggested), the same kind of 'language' as weeping, sobbing, shrieking, laughing.

Staying for a while with this outrageous simplification in significance of the term 'music', it is conceivable that the 'otherness' of music, the universal acceptance of music as the medium of communication with the spirit world, becomes intelligible: for such vocalizations are indeed *our* 'other voice', *our* 'other language'—in evolution a primary medium of self-expression, not merely in intraspecific communication, but also (seemingly) in intercommunication between members of different orders of mammals.

On 31 July 1994 the evening programme of the British Broadcasting Corporation's BBC 2 included 'a light-hearted examination of the relationship between animals and music', in the first issue of a new magazine series on music (*The Score*), presented by David Pearl. This demonstrated the response of the canine inhabitants of the Dogs Home, Battersea (London, UK) to playback of a CD of *The Song of the Humpback Whale*. The demonstration made widely known a prior observation of the Dogs Home staff that a previously all-barking community of caged dogs falls silent under these conditions, save for tiny sound gestures—the whimpering that occurs when dogs are in a very particular state of mind. Under the influence of the whale's song, some dogs retired to their sleeping baskets; many cocked an ear to listen. As we shall see, in human societies also, the song of a different *class* of vertebrate may at times have profound emotional significance.

Even the smallest, one-second sample of a music may exhibit all the basic elements of what we usually imply when referring to a 'music': a structure in time, derived from periodic changes, in amplitude and frequency of vibrations in an elastic, oscillating medium.

Out of such microstructures, larger entities can be assembled, having greater temporal extension, structures that unwind at so slow a pace that we, as humans, can perceive temporal sequence, and change in content. We may look down the time axis (as in a diagram drawn in polar coordinates) and see the sequence of musical events as a uniplanar spiral about a centre: as *tablā*-improvisations have been represented by Hindustani musicians; as David Rycroft saw African songs;¹³ as Andrea

¹³ David Rycroft, 'Tribal Style and Free Expression', *African Music*, 1 (1954), 16–27; 'Nguni Vocal Polyphony', *Journal of the International Folk Music Council*, 39 (1967), 88–103; see also 'Africa', *The New Grove* (1980), i. 149.

Nixon summarized the pentatonic structure of Mongolian Long Song: *urtyu duu*.¹⁴

If, as suggested, music is primarily a process in which manipulation of changes in frequency and amplitude of air vibrations within the human auditory range occur, what might be meant by *causation* in these sequential changes?

Musical analysis commonly implies, and seeks to persuade, that the action of analysis discloses the mainspring of the creative process. It is here suggested that nothing of that kind is disclosed. Schenkerian Analysis displays, with great elegance and clarity, the stratified levels of analytical insight into the structure of Western art music; but (it may be argued) this is only description—progressively enhanced and refined description—of what is happening in time. In isolation, no detached moment is ‘explained’ by what precedes, or itself ‘explains’ what follows.

To have knowledge of *causation* we must know what (in a monody, let’s say) determines the pitch and other characteristics of the note that follows a first note. It may be the case that the two notes together are themselves a gesture from a thesaurus of musical gestures, something ‘given’ in the mind of the tune-maker by virtue of being a member of a particular society; but, even if the gesture be subsequently completed, we still do not know what factor or factors determined its choice.

Clearly we are very far from possessing that sort of knowledge in respect of any musical culture. We may describe correlations, such as determine a liturgical sequence, say; but we may not maintain that social structures determine, in the detailed sense of moment-to-moment causation, the flux of music: what is happening in sound.

Nevertheless, a people’s music symbolizes that people, perhaps more completely than does any other of their arts, or any other aspect of their culture. Perhaps, what we hear is the primal, Primate call, transformed by superimposition of a new, quasi-linguistic, intellectual modulation; a system of non-verbal, sonic communication evolved by humans, taking advantage of the existence in our species of both systems of communication, employing both in the creation of *our* music, as opposed, say to that of birds.

It would be impertinent to commend Professor Bruno Nettl’s survey of the history, principles, and aims of ethnomusicology,¹⁵ but it is surely

¹⁴ Andrea Nixon, ‘The Pentatonic Structure of Mongolian Long Song’ (Part II Music Tripos Dissertation, 1980), private communication.

¹⁵ Bruno Nettl, *The Study of Ethnomusicology: Twenty-nine Issues and Concepts* (Urbana, Ill.: University of Illinois Press, 1983).

permissible to express gratitude for, and indebtedness to, a work that summarizes so much of the changing attitudes, over time, of those interested in 'ethnic musics'; from the beginning, in the recognition of difference, to acceptance of the social-anthropological all-importance of cultural setting; from notions of the existence of universals to denial of such, and later to admission of the possibility of their presence.

His readers owe an enormous debt to questioners (fortunate enough to be present, along with him) at drinks parties where topics (unusual at parties for lesser mortals) were discussed. Perhaps an imaginary exostulation from an imaginary bibber may be introduced at this point: 'What! One second of music identifying an entire musical culture?'

The reply is 'Yes'; but there is of course more to be said. The one-second-or-less call of a Mouse Lemur (*Microcebus murinus*)¹⁶ of Madagascar may be dismissed as a specimen of 'music' in any civilized sense; but the 'song' of the Humpback Whale (*Megaptera novaeangliae*) impresses even the man-in-the-street as song, though it be song of a disturbingly unusual kind. Lois and Howard Winn,¹⁷ who have recorded songs of the Humpback for thirteen years in waters off Puerto Rico and the Virgin Islands, offer two initial impressions: 'some portions of the humpback song sound amazingly like birds chirping', and again: 'any one who has ever heard a group of humpbacks chorusing would find no difficulty in likening them to a heavenly choir.' The song may last from six to twenty minutes. One whale repeated its song for twenty four hours without interruption, and was still singing when recording ceased. Commonly the song is composed of six 'themes'; but in some years only four or five are used.

The song extends over three pitch levels. The highest pitch range is 4 KHz; but a majority of sounds are below 1 KHz. In all three pitch levels a number of types of call are distinguished; their variety (as expressed in onomatopoeic, verbal simulations) affords a glimpse of the acoustic complexity of the song. The 'Lows' are described as moans, groans, snores, and 'surface ratchets'; the middle range 'Modulateds' are characterized by frequency modulation; they include a majority of differentiated calls: waves, oos, ees, whos, wos, foos, yuos, mups, and ups, and are associated with particularly rapid frequency change. The 'Highs' embrace cries and chirps.

¹⁶ Deacon, *The Human Brain*, 133.

¹⁷ Lois King Winn and Howard E. Winn, *Wings in the Sea: The Humpback Whale* (University Press of New England for University of Rhode Island, 1985), 92.

Sonograms show 'themes' of up to twenty-five seconds' duration, with individual sounds ranging in duration from one to as much as five seconds.¹⁸ Katy Payne is quoted as having observed that, in the Bermuda area, songs change from year to year.

The Humpback has no vocal chords, and song production must depend on valves, sacs, and muscles in the larynx. Interestingly, the Tongans of Polynesia claim that Humpbacks *talk*, not sing; and one can see from the Winns' sonograms why they take that view. It is to be emphasized, however, that these sonograms are at relatively low magnification and corresponding resolution. We prefer to regard them as music.

A Humpback Whale's song of twenty minutes' duration is a little longer perhaps than certain Brandenburg *Concerti*. In terms of total acoustic complexity, as opposed to musical grammar and style, there may be little difference in degree between them. Human attention is unaware of the complexity of whale sounds, just as it is unaware of the sound-spectral complexity of musical sounds in general, to be ignored in listening. What is perceived as *musical structure* (by a Western, musical, human listener to Bach) is indeed lacking in the whale's song. A more serious lack, from our point of view, stems from the fact that the whale's musical gestures, though disturbing, are not as 'meaningful' to humans as presumably they are to whales.

'Meaningfulness', of an absolute kind, undoubtedly exists for us in our own vocal and musical world, but is not to be equated with semantic meaning. Music is rather a paradigm of a culture in a historical context; a complex signal, gratifying to the hearer for cultural reasons. Its order may tempt us to think of it as para-linguistic; we refer to its temporal segments as 'phrases', as if indeed it were speech. It is not. It has none of the attributes of speech; its 'grammar' and 'syntax' are not those of a language, even though in some senses and to some extent analogous thereto. Nevertheless, the fact that we tend to use such terms, if only figuratively, might already suggest to us that, in the creation of music, our primal, Primate call is undergoing a restructuring that involves not just the anterior limbic cortex, and the region of synaptic relay in the midbrain, but also the cortex of the left hemisphere, responsible for language.¹⁹

¹⁸ Ibid. 100, 101.

¹⁹ Deacon, *The Human Brain*, 133.

‘Meaningful Melodies’ in Mother-to-Infant Speech

There is now the best possible evidence that human vocal gestures exist that are musical universals, worldwide in their significance, irrespective of the language group of those who use them. As recorded by Anne Fernald and her co-workers,²⁰ Darwin recorded that his son of less than a year ‘understood intonation and gestures’;²¹ and it was Ferguson who first remarked that adults speak to infants in a special way: syntax is simplified, and both phonological and lexical modifications are made in their speech.²² The elevation of pitch, and the exaggerations in intonation, to which Ferguson drew attention have been observed across cultures: English, Spanish, Arabic, Comanche, Gilyak, and Marathi; Anne Fernald and her co-workers have extended the list to Japanese.²³

Very precisely Fernald writes of ‘meaningful melodies’ in mothers’ speech directed to infants of 12 months; ‘very precisely’ since the prosodic modifications show a higher fundamental frequency generated by the larynx: higher minima and maxima, greater variability; utterances are shorter, pauses longer. The ‘melodies’ relate to the categories of Attention, Approval, Prohibition, and Comfort. Fernald’s frequency contours reveal surprising similarity in all languages, within each category, with rising contours to attract attention; bell-shaped contours to maintain attention; and falling (rather than rising) contours to comfort. This is indeed song: the fundamental frequency of phonation generated by the larynx is varied systematically. Song is nothing else.

In the light of these observations, it is the case that in humans, and between mother and pre-speech infant, there exist universally comprehensible music gestures, structured vocal utterances, that have meaning in the sense of conveying behaviour-modifying information. Again it is to be emphasized that these are melodies of but a second-or-so’s duration (as judged from the length of the accompanying spoken texts in Fernald’s diagrams).

²⁰ Anne Fernald, ‘Meaningful Melodies in Mothers’ Speech to Infants’, in Uwe Jürgens and Mechthild Papousek (eds.), *Non-Verbal Vocal Communication: Comparative and Developmental Approaches* (Cambridge: Cambridge University Press, 1992), 262–82.

²¹ Charles Darwin, ‘A Biographical Sketch of an Infant’, *Mind*, 2 (1877), 286–94.

²² Charles Ferguson, ‘Baby Talk in Six Languages’, *American Anthropologist*, 66 (1962), 103–14.

²³ Fernald, ‘Meaningful Melodies’, 262–82.

The amplification of duration by a thousand times or more, in the organization of macro-musical forms, does not change the essential character of a musical utterance. In the axial direction of Time's Arrow—the direction in which, in a sonogram, the distribution of changing frequencies of vibration of the resonant medium extends—there is again a parallel between smaller-scale and larger-scale utterance. In speech, in phonation, the supra-laryngeal vocal tract filters the acoustic energy of the fundamental frequency, generated by the vibration of the larynx, and its higher harmonics. These filtered sounds are the unambiguous sonic elements that make possible the high rate of transmission of human speech; their essential feature is the formant-frequency pattern, a complex pattern of harmonics, changing in intensity and frequency, over time.²⁴ The duration of these individual patterns in speech is, of course, of the order of milliseconds, as compared with the maternal 'melodies' that last a second or so, in adult speech with infants; nevertheless, in recognizing a vowel in speech we are again identifying a sound that extends in time, a sound with a changing structure in both frequency and intensity—a 'chordal structure' on an infinitely small scale, a musical element.

What might be the fundamental difference between the song of the Humpback Whale and a Brandenburg *Concerto*, if we are now satisfied that the former, like other animal vocalizations, is music? It is, perhaps, a matter of the degree of organization of human sound-producing resources, imposed by the cerebral cortex of the left hemisphere: that cortical region, the actions of which seem to have been progressively extended and amplified in the evolutionary processes of language acquisition. Perhaps also primary gestures of pitch-inflection (of the same kind as those used in mother-and-infant melodies), used symbolically in adulthood, retain their capacity to generate states of mood, rather than control actions on the part of the listener. Furthermore, such gestures may acquire a symbolic life of their own, permitting display of private dramas, reflections of the emotional, non-verbal life of the composer.

The activity of the cerebral cortex would seem to be revealed by the frequency with which 'sophisticated' parts of the fabric of a musical structure may be inaudible in performance, so that the ingenuity of the builder is only evident in silent reading of the structure, as reflected in notation on the printed page.

²⁴ Philip Lieberman, 'Human Speech and Language', *The Cambridge Encyclopedia of Human Evolution* (Cambridge: Cambridge University Press, 1992), 134.

Recently Alexander Goehr suggested that unrestrained, aesthetic creativity, in such a work as Schoenberg's *Fourth String Quartet*, is revealed in relatively brief, episodic interludes, without evident contrapuntal, combinatorial justification.²⁵ Even in J. S. Bach's *Das wohltemperirte Clavier*, it is not difficult to find fugues (for example: Book I, *Fuga* viii, E $\flat$ minor) where emotional release, provoked by episodic creativity, outweighs the satisfaction of *stretti*, of combinations of *recto* and *verso*, or the surprising use of augmentation, however well contrived. Or, as a more mature instance, in the 15th *Contrapunctus* of the *Kunst der Fuge*, three episodic bars (224–6) between the end of a *verso* and the beginning of a *recto*-statement of the BACH subject. Head against heart; heart against head, perhaps.

Returning for a moment to Fernald's summary of her work on 'meaningful melodies' in the speech of mothers with pre-speech infants: 'Through this early experience of sharing feelings and intentions by means of prosody, speech first becomes meaningful to the infant... babies are learning "how to mean", when they express their desires and intention through intonation and gesture, before they express them through language.' The child in us continues to do so in music.

Thus far, non-verbal vocalizations have been considered only from the standpoint of *human* communication, as if their significance were entirely concentrated in the behaviour of the recipient. It is evident, however, as set out by Hartshorne,²⁶ that in animal utterances also, the emergence of rhythmic patterning, in calls ('song' as we understand it) is manifest, if only incipiently. He describes, for example, a frog varying the number of croaks in a 'stanza' and the length of pauses between. Apart from the mammalian order that includes the whales (*Cetacea*), 'birds are by far the closest of all creatures to man in their interest in sound patterns and skill in their production'.

Avian Music

It has, of course, been strenuously denied, and would still be denied by many, that birdsong is 'music'. Recently, Juri

²⁵ Alexander Goehr, in a Public Lecture on Schoenberg's *Fourth String Quartet*, given in the Concert Hall of the University Music School, University of Cambridge, with illustrations by the Endellion Quartet, 1994.

²⁶ Charles Hartshorne, *Born to Sing: An Interpretation and World Survey of Bird Song* (Bloomington, Ind.: Indiana University Press, 1973; Midland Book Edition, 1992).

Cholopow, in a valuable digest of the theories of Alexei F. Lossew²⁷ examined, in particular, his essay: 'Music as Object of Logic' (*Die Musik als Gegenstand der Logik*) (1927). Lossew is to be given credit for recognizing the all-importance of 'time', as a significant attribute of music, when he defines music as 'the structure of numbers in the flux of time' (*Die Zahlenstruktur im Zeitstrom—das ist die Musik*). In his essay, however, he takes opportunity to state: 'Accordingly, the song of the Nightingale, which so refreshes us, is no music; in this statement in sound, the Reason of Art is missing, that is to say, the essence of human Number' [that is, the essence of Number as employed by human beings, in the analytical description of the physical world] (*Darum ist aber der Gesang der Nachtigal, der uns erquickt, keine Musik; in diese Klangäusserung fehlt die Kunst-Vernunft, d.h. das Wesen der menschlichen Zahl*).

A major contribution to this discussion of the status of birdsong in relation to music was made by David Hindley (musician and composer), who, in the light of transcriptions from recordings (see p. 15), has shown that the fact that the music of the Nightingale's song moves at a speed beyond the capacity of humans to count, does not make it any less music.²⁸ Sixty-eight seconds of the Nightingale's song, slowed down by a factor of 4 (in a transcription by Hindley), become a 'modified strophic song' of 4.5 minutes' duration. A Skylark (*Alauda arvensis*), pouring out notes at the rate of 200 per second—discrete, pitched notes, in *staccato* delivery—sings, in fifty seconds, the equivalent of a through-composed work, in Western note values, of thirteen minutes' duration: thirteen minutes of *coherent, through-composed music*.

As we see, and will see again in greater detail later, the time scale (in which numerical attributes of frequency and amplitude are expressed in such 'music'—the fine-structure of music in time) is infinitely smaller than that of the slow-moving units of duration, of 'phrases', of 'notes' even, in which humans perceive musical performance. Birdsong *is* song, and at a yet higher degree of resolution it would necessarily exhibit the essential attributes of Lossew's definition. As Hindley points out: 'whereas the Blackbird's song has strophes of fairly contrasted and dislocated material, the strophes of the Woodlark's song have a consistent texture, each one derived out of a unique opening motif.' As Schumann might have said: *Der Musiker spricht!*—both of the bird and of the human musician who champions it.

²⁷ Juri Cholopow, 'Über die Philosophie der Musik von A. F. Lossew', *Acta Musicologica*, 66 (1994), 31–40.

²⁸ David Hindley, 'The Music of Birdsong', *Wildlife Sound*, 6 (1990), 25–33.

What frequently arrests attention, in human listeners to birdsong, is the 'purity' of notes, and the harmonious relationship between pitches, even though phrases may last no more than 2–5 seconds. Repetition with pauses may yield a song of fifteen or more notes 'with many distinct pitch intervals'. The ability to transpose is widely distributed; key may change; interval inversion occurs; harmonic relationships between pitches are evident: thirds, fourths, fifths, octaves; such devices as *accelerando*, *ritardando*, *crescendo*, *diminuendo*, are manifest, as well as techniques of theme and variations: all of these have been observed and recorded. Moreover, birds have been observed 'playing at sound-making' by dropping objects from the beak, or pushing them off the top of a house or off a desk-top. The birds so engaged show signs of 'listening' for the resultant impact.²⁹

Human and Avian Musics

Birds sing when there is no evident stimulus to their so doing; when the bird is 'relaxed', 'free', or 'satiated'. These are conditions under which humans, too, frequently turn to the arts. That birds 'appreciate' song is suggested by the fact that one bird will imitate the song of another. That many birds create their song by a long-sustained process of improvisation, selective repetition, and reshaping of components has been known for many years. During this process, elements from neighbours of the same species, or from quite different species, may be incorporated, retained, or discarded after a while, as if the song, as a composition, were constantly under review and revision.

There is good reason, moreover, to suppose that the song of songbirds has also developed from a primary system of vocalization, dependent on regions of motor synaptic relay in the midbrain, coupled with accessory evolution of the *corpora striata* (the floor of the original, primitive forebrain of the vertebrates). This evolution is perhaps comparable with that of the cerebral cortex in mammals; it may be functionally responsible for the development of motor control of the syrinx (the distinctive sound-generating organ, unique to the birds); this in turn may be comparable with controls developed in humans, in relation to speech and language. (There is no evidence of *structural* asymmetry in the brain of songbirds, comparable with hemisphere-differentiation in

²⁹ Hartshorne, *Born to Sing*.

humans, apart from one minor feature of the brain-stem, but there may well be bilateral asymmetry in function.)

Surely, in the context of birdsong and music, one of the most remarkable ethnomusicological studies of all time is Steven Feld's *Sound and Sentiment*.³⁰ He presents sound as a cultural system in a society; a system of symbols of the Kaluli people of the four-membered Bosavi-group in Papua New Guinea. In general biological terms, however, it is much more than that. The focus of Feld's personal interest is the musical elaboration of human acts of lamentation, based on the calls of a bird; here, however, what engages our attention is the very fact of interaction between human being and bird. We learn from Feld what is offered, in bird calls, to listeners; and the relationship of that which is offered to musical forms of lamentation in a particular society. We come to see relationships with musical gesture elsewhere, and indeed to forms of lamentation elsewhere in other human societies.

It is one of the major problems now facing research, both in the humanities and in the sciences, that observations made, and recorded, by a previous generation are not readily available to researchers of a later generation. It is for that reason no criticism of Feld to mention that he seems not to have known of the first detailed examination of bird-song by Péter Szöke (observations made possible by slowing-down recorded tapes in playback, 16, and even 32, times); or Szöke's suggestion that humankind may have learned to sing from birds, precisely because, while the *syrinx* lends itself to the sequential generation of pitches in harmonic relationship, the *larynx* and the supra-laryngeal vocal tract of man, do not.³¹

Szöke states: 'only by tightening or slackening their vibrating vocal cords can human-beings change the pitch of their voices. This possibility is not regulated by any law that might give rise to something like a scale, such as the Law of the Harmonic Series which, on the whistle-principle, regulates note-production in birds.' He continues: 'Nevertheless, in all parts of the world, humans sing in systems of musical notes regulated by laws.' He adds that 'the elementary intervals of human melody coincide with the elementary intervals of avian melody'. In regard to birds he concludes that: 'The Law of the Harmonic Series

³⁰ Steven Feld, *Sound and Sentiment: Birds, Weeping, Poetics, and Song in Kaluli Expression* (Philadelphia: University of Pennsylvania Press, 1982, 1990).

³¹ Péter Szöke, 'Zur Entstehung und Entwicklungs-Geschichte der Musik', *Studia Musicologica Akademiae Scientiarum Hungaricae*, 2 (1962), 33-85.

was the physico-acoustical pre-condition, for the inner physiological, and entire biological, development of birdsong.³²

In this same paper he had already transcribed, in full, a recording of the song of the Meadowlark/*Heidelerche* (*Lullula arborea*), marking passages that exhibit transposition of motifs by a fifth, a fourth, and a major second; and he drew attention to quasi-'pentatonic' motifs, consisting of major-second+minor-third tetrachords, with a note or notes added above, and/or below. These first observations on the existence of quasi-pentatonic motifs in birdsong were of course at speeds beyond the powers of human ears to perceive in song at normal speed. In this same paper, and at this relatively low-level of acoustic resolution, he commented on the ability of a bird to sing at a speed of 100 to 130 notes per second.

Other studies³³ have shown that birds are capable, in the course of developing their song, of transposing harmonics down, out of their position in the natural series, so that they become available in a lower octave; and that many birds—like the *muni* of the Kaluli—are making use of entire pentatonic note-sets, or smaller sets based on the same type of tetrachord.

Wept-Song Lamentation of Kaluli Women

Kaluli believe 'that birds are... "spirit reflections" of their dead'; 'their calls are vocal communications' from such 'spirit reflections'. Furthermore, a 'melodic, sung-texted weeping' by women is based on one phase of the song of a particular bird, *muni*: the Beautiful Fruitdove (*Ptilinopus pulchellus*). A group of species of this genus produce both 'high, human falsetto-like' and 'melodically descending sounds'. The first phase of the birdsong is described as a shriek; the second, as a sequence of distinct, descending pitches, represented as successive steps of tone, minor third, and tone. A tetrachord of this structure provides the entire musical material for laments, both by women and by men. While men, when asked about its character, respond with a naturalistic imitation of the first call: the *vibrato*-shriek; in response to a question about the second, they spontaneously sing the

³² Szöke, 'Zur Entstehung und Entwicklungs-Geschichte der Musik', 72, 73, 71.

³³ Joan Hall-Craggs, Subdepartment of Animal Behaviour, Madingley, Cambridge, UK, private communication.

second phase in sustained notes, as set out by Feld, in minim values. (That doves should be involved in this human/bird musical relationship is highly reasonable,³⁴ inasmuch as the songs of doves commonly consist of relatively few notes, sung at speeds such that humans can readily imitate them.)

The structure of women's wept-song lamentation among the Kaluli shows verbal and musical creativity in the handling of the lower note of the minor third in descent. Verbalization tends to occur uniquely on this note, leaving the remaining three notes of the tetrachord as sustained minims; the first note of the three is stressed; and all three notes are sung (without verbalization) to the vowel [e]. The intimate, disciplined mixture of controlled weeping, and phonation of musical pitches, is surely compatible with the association, previously suggested, of music with the non-verbal vocal communication system. It is perhaps not without significance that the creative generation of text here in *women's song* is monotone in projection: a minimal intervention of speech pathways into emotional channels.

What strikes a biologist in this situation is: first, the overt recognition by the Kaluli of the source of this, their music for a major ritual of lamentation, in the song of a specific genus of bird; secondly, the intimate admixture of weeping and singing in the lamentation by women; thirdly, the choice of a descending musical phrase to carry the burden of grief—a choice encountered elsewhere in the construction of laments; and, lastly, the parallels between the responses to lamentation among this people and those recorded among other peoples in other contexts. The Kaluli exhibit to us, acted out, what Szöke proposed: humans imitating the song of a bird, and basing their most characteristic ritual music on the song of one particular bird.

In the lament tradition of Hungary (unknown to folklorists until accidentally discovered by Kodály in 1918, and subsequently shown to exist throughout Hungary³⁵) it was found that all improvised laments, whether shorter or longer forms, invariably descend to the final. Fifteen per cent of all laments exhibit descending lines only; a majority, however, consist of descending lines + arched phrases + monotone recitative, but always with overall descent to the final. Weeping occurs as an

³⁴ Ibid.

³⁵ Lajos Kiss and Benjamin Rajeczky, trans. Imre Gombos, *Collection of Hungarian Folk Music/A Magyar Népzene Tára, V. Laments/Síratók* (Budapest: Akadémiai Kiadó, 1966), 118.

integral part of Hungarian lamentation,³⁶ and the described response of singers to playback of their own laments strikingly resembles that of the Kaluli.

From Feld's account it is evident that singers, as well as members of the original audience, derive satisfaction from listening to their own performance on playback. This was precisely the experience of the Hungarians, and that of Lucy Durán in Western Crete.³⁷ Indeed, the latter found that women could readily be brought to repeat their laments (for them to be recorded), in a group situation, if the fieldworker first spoke of bereavement, and while so doing began to weep.

It is suggested here that the process of lamentation brings its own satisfaction, its own purging, cathartic 'comfort'; and it may not be inappropriate to remember the comforting attribute of the falling, mother-to-infant, 'meaningful melodies', in the widely cross-cultural experiments of Fernald. The collective release (experienced by the people of the Kaluli longhouse) is surely that component which is life-sustaining and essential to the society, rather than the ceremonial confrontation with death and separation, though these too are both explicit and important. Who has not experienced the consoling, refreshing release, and renewal, of a good wake?

Rhythms of Song and of Dance and the Maternal Heartbeat

A further link with avian culture (among the Kaluli) is present in the dance of the male singer of a lament of the *gisaló*-kind, which is restricted to performance in the dark, in spirit-medium seances and funerary ceremonies. In this lament, all pitches of the *muni*-bird call become word-bearing. Here the bird overtly imitated in the dance is the Giant Cuckoodove *Reinwardtoena reinwardtsi*. This is the bird that itself '*dances gisaló*'. The bird bobs up and down; and the dancer too, pacing the central aisle of the longhouse from end-to-end, performs such a movement, bending at the knees, so that the mussel shells of the rattle attached to his waist touch and brush the floor as he

³⁶ Kiss and Rajeczky, *Collection of Hungarian Folk Music*, 118.

³⁷ Lucy Durán, Centre for Music Studies, School of Oriental and African Studies, University of London, UK, private communication.

progresses. The rattle provides a regular pulse at a frequency of 125 to the minute, the duration of the crotchet in Feld's transcriptions. This is about twice the resting frequency (60 per minute) of the heartbeat of an athlete. Athletic, the *gisaló*-dancer must surely be; and the numerical relationship between dance step and heartbeat is perhaps no coincidence.

It is the case, of course, that before birth the human infant is experiencing the pulse, varying in frequency, of the mother's heartbeat. Certainly, the auditory apparatus of the foetus is fully functional by the beginning of the ninth month of pregnancy; indeed, even seventh-month, extra-uterine foetuses respond, by movement, to a loud noise. Moreover, there can be no doubt that the foetus responds to changes in the maternal heartbeat rate. Whether it can distinguish between frequency increase due to climbing stairs, and that due to emotional disturbance, is not certain, but is very probable.³⁸ Before birth, therefore, an infant is aware that the rhythmic sound of the heartbeat may vary in frequency. It may also be aware that such changes are correlated with changes in internal physiological conditions that may be either soothing, or alarming. It is possible, therefore, that the maternal heartbeat supplies a standard of rhythmic frequency that is basic in all human musical utterance, and to all human musical experience.

If this is so, the same may be true for vertebrates in general. Meijler and others have shown that the averaged heart rate in two Humpback Whales was 'on the order of 30 to 35 beats/min'.³⁹ This means that the frequency is of the same order (that is, within a factor of 10) as that of adult humans. Perhaps this determines the fact that its song moves in time in 'meaningful' sound units perceptible as such by human, as well as by other, mammalian ears. The intra-uterine whale foetus may acquire an ingrained notion of a serial pulse from its mother's heartbeat; and it may be for the reason that our pulse frequency is of the same order that we perceive the Humpback's 'song' as 'music'.

That time—for birds (and for songbirds in particular)—flows at an altogether different pace than for humans has been known for many

³⁸ Information from Dr Abbie Fowden, Physiological Laboratory, University of Cambridge, 1994.

³⁹ F. L. Meijler, F. H. M. Wittkamp, K. R. Brennen, Verne Baker, Claes Wassenaar, and Earl E. Bakken, 'Electrocardiogram of the Humpback Whale (*Megaptera novaeangliae*), with Specific Reference to Atrioventricular Transmission and Ventricular Excitation', *Journal of the American College of Cardiology*, 20 (1992), 475–9. We are indebted to Mr Greg Donovan of the International Whaling Commission for finding this reference and supplying a xerox copy.

years. We are incapable of discriminating sounds shorter than 1/20th of a second, while birds can separate sounds of two-hundredths of a second's duration. R. J. Pumphrey commented that 'temporal discrimination in birds is probably ten times more acute than in humans',⁴⁰ and C. H. Greenewalt suggested that the factor may well be 50–100 times.⁴¹

Number and Music

Gelman and Brenneman have provided evidence that 'infants attend selectively to some fundamental aspects of number and music'.⁴² They suggest 'the presence of innate, skeletal principles' in both domains, principles inherent in 'the structure of the information-processing mechanism'. Their coupling of the domains of number and of music chimes strikingly with the philosophical insights of Alexei Lossev and the latter author's definition of music as number structure in the flux of time. As evidence for the 'existence of a skeleton of nonverbal counting' in infants, they cite the fact that infants exhibit preference for 'one of a pair of slides that depicts the number of household objects *matching the number of drumbeats they hear*' (emphasis added). Here surely we are offered unmistakable evidence that the domain of number is indeed linked with that of music, for the drumbeat is quite as much music as is a pitch sequence. It is apparent, however, that Gelman and Brenneman do not recognize the possibility of a music of pure percussion.⁴³

We may perhaps also have been offered here the first evidence of the significance of the maternal heartbeat rhythm in furnishing a skeletal basis for the temporal framework of music. The heartbeat supplies an experience of sequence, with implications both for time/rhythm, and

⁴⁰ R. J. Pumphrey, 'Sensory Organs: Hearing', in A. J. Marshall, *Biology and Comparative Physiology of Birds* (London: Academic Press, 1961), ii. 69–86.

⁴¹ C. H. Greenewalt, *Bird Song: Acoustics and Physiology* (Washington DC: Smithsonian Institution Press, 1968), 142.

⁴² Gelman and Brenneman, 'First Principles', 369.

⁴³ They also reject the view that 'meaningful melodies in mothers' speech' are music, on the grounds that 'music is based on contours provided by the relationship between discrete notes', and infant-directed 'parent-ese' is characterized more by glissandi. Their hesitant 'more' is suggestive; were the distinction absolute, music would cease to be music whenever a singer executed a *portamento*. It is a matter (yet again) of time scale, and the effect of time scale on perception.

for the sequential enumeration of objects. Furthermore, the heartbeat establishes a pattern for all future experience of rhythm; indeed it is the child's first music and the child's first clock. In that experience is learned the possibility of variation in time's pulse, as well as the correlation of various affective states with such variation. Again, already in the womb, a paradigm of all *process* will have been established through the phenomenon of heartbeat. Nor must it be forgotten that the graded, frequency-sensitivity scale of the cochlea may be looked upon as furnishing a perceptual number series in frequency terms, on which inborn, intervallic gradations may already have begun to be registered.

'The beat'—that all-important component of popular music world-wide—is assuredly far more important than any melodic aspect, if popular music is to afford satisfaction to its listeners. Notwithstanding the fact that 60 per cent and more of the energy output of any mixed, instrumental ensemble comes from the percussion, it is evident to an observer that, when adjusting levels of amplification prior to a 'rave', what is important to the sound engineers is not amplification of melodic resources, but amplification of the heaviest items in the percussion battery. What is important (it is suggested) is this reflection (reminiscence, perhaps) of the maternal heartbeat. At a distance of, say, 250 to 500 metres, any melody line will be inaudible; only the percussion bass reaches the ear; and *that* is evidently the essential aspect of the music. Increase, not merely in intensity, but above all in frequency, of a drum beat can bring a crowd to a state of frenzied hysteria; DJs are aware that a beat frequency exists which may not safely be exceeded. Perhaps the use of chest-drumming by the Great Apes reflects *their* intra-uterine experience.

Mediational Ritual Role of Players and their Instruments

The relationships between man and animals in *Yurupary*—a secret men's cult of Northwestern Amazonia, examined by Stephen Hugh-Jones⁴⁴—differ from such as Feld established in Papua New Guinea. A major difference is that avian, mammalian, and reptilian vocalizations and other natural sounds, such as thunder,

⁴⁴ Stephen Hugh-Jones, *The Palm and the Pleiades* (Cambridge: Cambridge University Press, 1979).

are simulated by means of 'sacred flutes and trumpets'. (The term 'Yurupary' itself conveniently covers 'sacred flutes and trumpets taboo to women'). Both sets of instruments are regarded as the living dead, and also as 'pets', since they are seen as animals, coming from the forest to live in the house. The 'trumpets' (in fact, megaphones = voice-disguisers) are used to amplify vocalizations of low pitch, equated with the sounds of jaguar and thunder, for example. The flutes are equated with birdsong, and are made from a tree that grows only in swamps, and itself could be said to mediate between sky, water, and earth, so that the flutes also are mediators: between water, earth, and sky.

A prime concept is that of *He* (open [e] as in 'hen'), a state of being, prior to, and now parallel with, human existence; a man-animal condition, from which the human emerges. At birth, humans leave the *He*; at death they return thereto.

Initiation of adolescents takes place in two stages, separated by a gap in time. The first extended ceremony: Fruit House, is an attenuated imitation of the second: *He* House. To a degree, this ritual retraces steps in the development of proto-humans to humans. The trumpets and flutes, despite their being man-made, are uniquely associated with the initiation ceremony of *He* House, and are themselves mediators, to be identified with shamans, jaguars, anacondas, and so on.

The absence of detailed information regarding musical aspects of the rites described prevents discussion in terms such as were possible in the case of Feld's studies. It is apparent, however, that certain vertebrate (non-human) and human (shaman) vocalizations are being used as the most secret (in the sense of most highly taboo) aspects of major rites of initiation. The use of an *accelerando* scalar descent, from long sustained notes to notes of minimal brevity, at the mid-afternoon playing of long flutes in the Fruit House ceremony, reminds one of the falling melodic character throughout the bird-based vocal music of the Kaluli; and (more generally) of the appeasing, comforting effect of such vocal gestures—on a very different time scale—in mother-to-infant 'meaningful melodies'.

Notwithstanding the implications of mortality, both in Fruit House and *He* House ceremonies, the overall impact on the condition of the community remains that of soothing, of confirming bonds, of regulating relationships between different age groups, of collective celebration of that which sets it apart from all other communities, something infinitely calming and reassuring. As noted by Hugh-Jones, the rate of

change of groups of performers playing instruments is notably high, with three or four changes during the afternoon. This again suggests recognition by the society of the mediational role of the *players*, as well as that of the instruments played. Something of the spiritual rubs off on to those who manipulate the instrumental vehicles of spirit voices. 'Myth may exhibit order in thought, but it is through ritual that this order is manipulated to produce order in action and in society at large.'⁴⁵

Limitations of Emic Description

The endeavour to envisage any aspect of a given culture in emic terms (in terms employed by bearers of the same culture) is both laudable and justified, to the extent that it enriches our perception of the value, to that community, of the particular cultural trait in question. Nevertheless, it is always important, for the understanding of a given cultural phenomenon, to have the benefit of observations made by those who stand outside the culture. Both in the instance of the Kaluli people, and of the Yurupary rites, we see that the purpose of the rites, both that which is overt to the enactors, and that which is symbolic, does not exhaust the significance of the rites in either culture. The general, tangential benefit to the communities is not spelled out in the emic description.

Reading ethnomusicological writings of the last decade, a biologist is at times saddened to witness the attempt to comprehend, and give definitive, all-embracing description, to complex ritual processes. Our minds are not equipped so to do; our most useful intellectual attribute is that of analytical discrimination. Comprehensive description, whether diachronic or synchronic, eludes us. The modern abusive use of the term 'reductionist' is symptomatic of the age. At times it seems to be used almost as if any analytical approach to any aspect of culture is to be regarded as 'racist'.

We need to be on guard against being frightened by the threat of appearing to be 'reductionist'. It is not the case that the analytical cast of mind is peculiar to the West, and therefore to be rejected in pursuit of a 'non-racist' approach. Those who would so argue forget, or ignore, the contribution of the Muslim-Arabic world, or the South Asian world, or the East Asian world, to mathematics, to analytical thought; forget the

⁴⁵ Hugh-Jones, *The Palm and the Pleiades*, 260.

remains of the giant astronomical observatories in Central Asia at Maragah (thirteenth century) and Samarqand (fifteenth century), in China (thirteenth century), in Korea (seventh century). All these bear witness to a zeal for 'reductionist', analytical, astronomical, and calendrical enquiry quite as strong as that of the West.

The values of the emic approach in assessing the significance of cultural traits are positive; but it should never be supposed that the etic (seen from the outside) analytical approach is to be dismissed. Let it be repeated: we have no other means of intelligent enquiry. To know the 'meaning' is not necessarily to 'understand'. The insights of Jakobson and Lévi-Strauss that led to a view of all aspects of a culture as a multidimensional grid were insights of genius; but it is necessary to remember that the structuralist grid is a construct of the observer; it is not a structure defined in emic terms by the society itself.

The Role of Music in Ritual

Perhaps the most moving accounts of societies and their musics come from opposite ends of the world: Feld in the rain forest of Papua New Guinea, and Anthony Seeger in the rain forest of Central Brazil.⁴⁶ Surely much of the appeal of these accounts is due, first, to the fact that both authors are highly musical; secondly, that both authors (and in Anthony Seeger's case his wife as well) lived with their hosts as participant members of the respective societies—the Kaluli in Feld's case, the Suyá in that of the Seegers.

The descriptions of extended rituals, given by both, are deeply moving, in particular the ending of the Mouse Ceremony of the Suyá, wherein (as Seeger states) in full darkness—as in the longhouse of the Kaluli, where men lament as birds—boy-initiates ('mice') become combinations of mice and men. The Suyá ceremony ends with each of the mice/men being 'wounded' by an arrow-thrust from a sister, through the woven crowns of their capes. The sisters then strip the capes from the dead mice/living men, and rinse the wearers with gourdsfull of cold water, before all the men, both old and 'new', bathe in the tepid river. After fourteen days of musical ceremony, and fifteen hours of singing on the final day, the ceremony of boy-initiation is completed; and, in the

⁴⁶ Anthony Seeger, *Why Suyá Sing: A Musical Anthropology of an Amazonian People* (Cambridge: Cambridge University Press, 1987).

regret of the chief ritualist—that it is indeed over—one glimpses, perhaps, the real ‘meaning’ of the ceremony for the community at large. It is: the bringing of a community to a physiological state that is far more than the mere termination of a process of verbalization.

What impresses here, as in Feld’s account of lamentation and of a spirit-medium seance, is the sense of the engagement of an entire community and the role, in that engagement, of music as a means of extending the time dimensions of ceremony. In many respects, the basic musical materials of both societies are structurally similar. Their source in both types of society is overtly animal, but most explicitly—and indeed audibly—from a particular bird, among the Kaluli. Among the Suyá, music (through this extended period of time) is said to have ‘helped express and create the euphoria that should characterise Suyá ceremonies’.⁴⁷

Even though, in Kaluli ceremonies, the capacity to induce weeping seems to be the yardstick by which to measure the quality of a singer, it is plain from Feld’s account that both lamentation and spirit-medium seance have other functions than the mere expression of grief. They are clearly cathartic, in the ancient sense; but they are also major ceremonies that serve to integrate their society; the esteemed singers are performers, quite as much as were actors in a Greek tragedy. The singers are aware of what they do in manipulating the feelings of members of the audience, and they are self-congratulatory in their estimate of their own success. In this there is similarity again with the attitudes of singers of laments in the Hungarian tradition, already described, as also in that of Western Crete.⁴⁸

Were the *texts* of songs of the Kaluli and of the Suyá merely spoken, they would be recited complete in a matter of minutes. Even so, these texts themselves are surcharged with verbal redundancy; and that redundancy seems to be present in order to make possible the almost indefinite extension of meaningful, musical gestures in time. The use of song, as a bearer of text in words, makes possible the creation of an extended performance. This structure, however, is a structure in *the other voice*; not in the voice of speech, but in the voice of tears themselves.

Even a society such as that of the West, in part long divorced from cohesive, community binding ceremonies, hears and listens to this voice. We no longer have ceremonies in which the mythic structure of the immediate world, as well as that of the cosmos, is rehearsed and

⁴⁷ Ibid. 127.

⁴⁸ Durán, private communication, 1994.

reimplanted. We have a framework of natural science that relieves us both of the need for mythic explanation, and of the consequent need for ritual enactment of the substance of myth; but, as Ruth Finnegan demonstrates, for those who participate in the creation (in any sense) of music, that act still engenders the catharsis of ritual.⁴⁹

That which would begin to make sense of 'ethnomusicology' as a scientific discipline is a primary recognition and acceptance of the 'otherness' of music, as compared with language. Wordless song is capable of evoking, in us, an entire gamut of changes in mood, as in the birds, and probably in the Humpback Whales also. The weeping-inducing songs (of the Kaluli) exploit, in extended sequence, the weeping, falling gestures of the *muni*-bird; but we know from our earliest childhood that such pitch descents are fundamentally soothing and comforting.

Rituals are to be seen (in value terms) precisely as leading to a sort of purgation—using this term in a generalized way to designate the final physical and mental condition of the participants. Anthony Seeger came close to expressing this in his use of the word 'euphoria' to describe the end-condition. 'Well-being' is perhaps a better word, however, since 'euphoria' commonly carries with it an implication of 'over confidence' or 'over optimism', not applicable to the condition of the community at the close of ceremonies such as those here described.

The widely differing scenarios of myths, and of the rituals to which they give rise, are irrelevant from that standpoint; they are 'accidents'—almost in terms of scholastic theology. The reality, the 'substance', is quite other. By all means let rituals be recorded: the poesis of ritual is indeed a legitimate object of study and record; but its detail is irrelevant to the achievement of a particular, resultant, physiological state.

The role of music in such processes is twofold: (1) it greatly extends the duration of the process as compared with the time that would be occupied were a simple spoken recitation of the mythical content of the ritual to replace its musical presentation; (2) of itself, and in its use of universally meaningful sound gestures (with meaning already learned by the infant), music progressively induces the desired, essential, ultimate, physiological condition; and it does this, independently of any language content, through the physical work of dance, and through the by-no-means inconsiderable physical labour of singing.

To adopt the posture that all musics are so different—because of the difference in their ethnological, and detailed ritual, mythic contexts—

⁴⁹ Finnegan, *The Hidden Musicians*.

that no comparison between musics is legitimate is unsound. Of course, it is the case that rituals of all kinds enhance the stability of, and facilitate communal, structural renewal of, societies organized in a multiplicity of different ways; but those who describe ceremonies hardly ever seem to perceive the real outcome of ritual (in physiological and psychological terms); or to recognize that that final condition, and its achievement, is the purpose of ritual. It is because of this that the most tragic and grief-fraught occasions end in profound comfort and corporate renewal.

In his introduction to that remarkable study *Zen Training* (by the Zen Master, Katsuki Sekida), the zoologist A. V. Grimstone, who edited the text, refers to Sekida's 'writing of the physiology of *zazen*'.⁵⁰ (The term '*zazen*' is the Sino-Japanese reading of Chinese *zuochan*: literally 'sitting meditation'). He continues: 'to describe a phenomenon in scientific terms is not necessarily to diminish it. The grandeur of the Alps is not reduced by giving an account of their geology; the two are separate, and can co-exist . . . I believe it would be possible . . . to mount a convincing refutation of the argument that the discovery of a physiological correlative of, say, the state of *samādhi* necessarily diminishes the value of that state.'⁵¹ We would urge the same in putting forward the essentially physiological quality of the consummation of ritual.

There exists, however, an even closer parallel between the achievement of *samādhi* ['the condition of total stillness . . . "body and mind fallen off"']⁵² and the climax of ritual. Both pupil and master approach that condition through a species of bodily 'music' in which, first, the breathing frequency begins to be actively controlled; a controlled rhythm of intake of breath and exhalation is established. Secondly, this is linked with counting of the breaths, breathing with the lips parted—that is, making a breathing sound—and either saying '*Mu*' (= non-existing), or slowly counting.⁵³ That is to say, the subject is vocalizing. A rhythm of controlled breathing has been established, a rhythm of sound generation (however minimal) has been added, and the pulse rate will be falling. Of course, this occurs on a very different time-scale from the Mouse Ritual of the Suyá; but it is nevertheless a ritual, with its own concomitant 'dance' and 'music'.

From the standpoint of a biologist, both anthropologists and ethnologists seem prone to attach too much importance to words, in ceremon-

⁵⁰ A. V. Grimstone, Preface to Katsuki Sekida, *Zen Training Methods and Philosophy* (New York, 1975).

⁵¹ Ibid. 19, 21.

⁵² Ibid. 12.

⁵³ Ibid. 66–8.

ies, and in descriptions of music-making by informants. The current recognition of the importance of 'body language', in human intercourse, is a timely reminder of the extent to which we daily depend on far more than spoken language in the evaluation of every kind of human encounter, even with those of our own language group. It is essential to look beyond how societies interpret their own behaviour; essential to observe what, in fact, people (in reality) do; and what, in fact, are the results of their actions, thinking all the time *in terms of their total behaviour as animals*. That includes much more than any verbalizations about conduct.

The motto chosen by the Royal Society of the United Kingdom, when a second charter was granted in 1663: *Nullius in verba*, was understood by the society as an expression of determination to withstand dogma and to verify all statements by an appeal to facts. Perhaps we may regard it also as an admonition never to accept that what is expressed as *words* is all, when it comes to evaluating human behaviour.

And what was it that Howard Becker said could not be done? He said that 'music in context' cannot be studied. He was speaking, however, of a study that incorporated the multiplicity of Charles Seeger's facets and approaches. What Peter Fletcher has done has been, virtually, to follow Becker's prescription: 'to subordinate multiple facts and approaches to one particular approach'. In fact, he permits himself one-and-a-bit approaches. His chief approach is through historical geography; but in addition, and to a small extent, he offers a minimal outline of social structure, though scarcely what might be called 'sociology', still less 'social anthropology'. His book is an extensive guide to sources of ethnomusicological study. It demonstrates that, as a formative influence on regional musical styles, history is at least as important as social structure. It offers ethnomusicology a path away from 'The Anthropology of Music' back to what—in a more literate age—those who invented the term 'ethnomusicology' meant by that term: 'the science of the music of other people'.

One of his general conclusions—that the inhabitants of Western Europe and their descendants in North America display musical affinity with peoples of Sub-Saharan Africa—runs parallel with recent data on blood-group genetics. As set out by W. W. Howells an evolutionary tree, based on the frequencies of fifty-five different blood-group genes, shows an East–West division, with Europeans and Africans opposed to Asians, Australo-Melanesians and native Americans.⁵⁴ It is to be emphasized,

⁵⁴ W. W. Howells, 'The Dispersion of Human Populations', *The Cambridge Encyclopedia of Human Evolution*, 395.

however, that the study of molecular patterns in human relationships is still in its infancy. Nevertheless, this coincidence is suggestive. If valid, these observations begin to tie musical character to the most profound level of biological organization, the level at which Schenker's 'life-force' is seen to be an aspect of molecular structure and behaviour.

It was the Greeks for whom *mousikē* was not *technē* ('craft'), but *mimēsis* ('imitation'), as were poetry and sculpture also. In music we are imitating—but what? Perhaps: remembered musical gestures in the first, meaningful sung melodies, addressed to us by our mothers, before we were capable of speech, before we had knowledge of words.

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Introduction

Content and Format of the Book

Awareness of musical traditions other than those of Europe and North America has increased greatly in recent years: tourism has led to familiarity with once-distant lands and peoples, while ever-advancing technological developments have facilitated the wide dissemination, on tape, video, and film, of the sights and sounds of other lands and peoples. Irresistibly, different musics of the world have been forced on our awareness through radio and television. Simultaneously, the ethnic mix of peoples that now exists in most countries of the Western world has created its own imperatives, necessitating the adoption of a global view of cultures and their musics. This book adopts such a view. It aims to lead students and teachers, and also all those who practise Western music, towards a deeper understanding of the various musical traditions that contribute to the modern, multicultural environment. To this end it offers, among other things, a compendium of information currently available in a bibliography of global range.

The book is principally concerned with the development over time of the world's differing civilizations, the place of music in that development, and the relevance of that development today to music and culture. It does not address in detail a principal concern of ethnomusicologists: namely, the placing of living music in its contemporary social-anthropological context. From that latter standpoint, the living music of any culture is, in effect, contemporary music; and the historical process may appear unimportant or irrelevant. This book is concerned with an infinitely longer time-span of observations on human societies and their musics than that of the immediate social-anthropological context. Such

a view does not in any way devalue the social-anthropological position, nor the immense increase in musical knowledge to which it has led. Rather, it complements that position by stressing the importance of historical process as a determinant of what is to be observed in music throughout the world today.

The book's structure was planned to encourage the making of connections in time and place, but the book itself is not a 'history'. Different cultures and their musics do not share a common history, even though common historical features may be present. Moreover, music itself is but one aspect of the integrated pattern of human behaviour that constitutes a culture; and musics of disparate cultural systems cannot properly be understood in isolation from other cultural traits. Necessarily, this book covers a wide field, embracing (where relevant) history, geography, religion, philosophy, language, other arts, and technology. Such an essay could not hope to be comprehensive, nor could it treat all the subjects covered in depth. The choice of subject matter must, to some extent, be personal; footnotes serve to direct the reader towards appropriate further study (as well as to document sources for particular statements). Music, in any case, is best understood by listening to it, and recordings of world musics are increasingly available. One aim of this book is to provide a useful complement to such listening.

Many of the footnote references are to articles in readily accessible sources, such as the *New Grove Dictionary of Music and Musicians* and *The New Oxford Companion to Music*; these afford relevant and at times detailed information, from acknowledged experts, summarizing their own original researches. Most of the books and journals referred to are to be found in any major academic library.

Part One of the book describes aspects of musical style and function in relation to the early development of the civilizations of West Asia, Egypt, India, Central Asia, and Europe, as a background to a study of later transformations. (Because China and South East Asia were relatively isolated from developments further west, they are treated as separate entities in Part Two.) Knowledge of the distant past is not a prerequisite for an understanding acceptance of musical genres and styles as performed today; but, to the extent that these genres and styles originated in antiquity, and acquired regional characteristics as they spread between different civilizations in Africa and Eurasia, knowledge of the distant past can contribute significantly to a world view of music. Specific sections in Part One may usefully be read in conjunction with corresponding chapters in Part Two.

Part Two describes the predominant musical traditions of Sub-Saharan Africa, West Asia, the Indian Subcontinent, South East Asia, and East Asia. Each of these regions displays sufficient unity of musical style to justify a synoptic approach, while each exhibits sufficient individuality of style to warrant treatment as a separate zone. Historical synopses are included, as these help to explain contemporary social and political contexts for music; and the synopses are combined with summaries of musical history, where clear evidence of such history exists. References to other aspects of culture serve to amplify the context, as appropriate. The depth in which these other aspects of culture are treated, and the order in which they are examined, varies from chapter to chapter, according to the cultural characteristics of the particular region. The sub-headings are designed to enable readers to locate topics of immediate interest, to assimilate varying amounts of detail, or to use the book for reference.

The musics described in Part Two developed as oral–aural traditions; in consequence, direct knowledge of performance style can come only from recordings, films, and videos made during fieldwork by musicologists and anthropologists. Knowledge of what the music sounded like in the past must be speculative (as must, to some extent, such knowledge of Western music). Nevertheless, in the case of the major traditions of the Chinese, Indian, and Persian–Arab spheres of cultural influence, the present is connected to an identifiable past not only by recorded history but also by theoretical writings on music (some of which date back to the first or second millennium BC), and also, in some cases, by ancient systems of musical notation. Although such literature does not of itself recreate the music, it provides some explanation of *why* the music sounds as it does now, and it encourages an informed, imaginative, effort of reconstruction. In the Indian and Persian–Arab traditions in particular, there is accord, in broad terms, between past theory and present practice. Thus, in describing the musical styles of these regions, some emphasis has been given to theoretical systems.

‘Traditional’ musics are sometimes talked about as though they exist in a pristine condition, patiently awaiting inspection by the tourist, traveller, or field-researcher. This is far from the case. In many parts of Africa and Asia, the Western traveller is as unlikely, casually, to encounter ‘traditional’ music in its ‘traditional’ context as is an African or Asian visitor to Britain to encounter traditional British folk-singing during hay making. Since the matter of tradition and change is complex, it is treated as a separate topic in Part Five, and is only referred to

in Part Two where understanding of a particular 'tradition' requires consideration of this matter.

Because of the variety of styles that now coexist within the ambience of Western performing arts—popular, non-Western, and 'crossover', as well as 'classical', modern, and 'Postmodern'—it is sometimes held that the 'classical' music of Europe may be regarded as 'traditional', in the sense that, for example, un-Westernized music-making in Africa, or gamelan-performance in Central Java, is regarded as 'traditional'. Although there is some logic in this contention, the subject is more complex than this summary equation suggests. The development of relatively precise musical notation in Europe, *as an integral element of musical performance*, has enabled Western music from the past to be performed and heard—albeit under contemporary circumstances—in a consciously historical perspective. Study of world musics does not necessarily affect an individual's *reaction* to such music; but, in causing Western music to be perceived within a geographically wider musical framework, it encourages questioning of accepted practice. Wider understanding of performance styles in Africa and Asia, for example—in which use of vibrato is limited (favouring clarity of multi-part textures)—may well have encouraged acceptance of 'period' performances of Western music.

In the light of such considerations, Part Three is devoted to a study of the development of European musical styles, against their cultural and historical background, and in relation to music cultures elsewhere. This part examines Europe's intellectual debt to earlier civilizations in Africa and Asia, which later made possible Europe's subsequent political and cultural colonialism; it also emphasizes aspects of music and culture, peculiar to Europe, which subsequently influenced most other regions of the world.

Chapter 11 describes in some detail the development of European music during the Middle Ages and early Renaissance. This is necessary in part because knowledge of these periods of musical history (and of their political and social contexts) is not widespread, and in part because these periods illustrate important ways in which European music diverged from musics of other major cultural zones. Chapter 12 does not, however, detail the course of post-Renaissance music in the baroque and classical periods, since such knowledge is widespread, and information is readily available elsewhere. Instead, it deals with concepts of music and culture (peculiar to Europe during these periods) that shed light on attitudes to European music today. Chapter 13 deals more

specifically with musical issues, and charts those aspects of nineteenth- and early twentieth-century music and culture that led increasingly to disintegration of the universality (in Western European eyes) of eighteenth-century cultural systems, and to the melée of musical styles that characterizes the 'global' musical culture of today. Chapters 12 and 13 both examine, *inter alia*, the relationship between the twin senses of cultural superiority and racial superiority that came to pervade the thought of post-Renaissance Europe.

Part Four examines the musical consequences of Europe's appropriation of the Americas. It pinpoints the differences between Latin America (where, notwithstanding the imitation of European ecclesiastical architecture and music during the seventeenth and eighteenth centuries, the 'high arts' of European culture did not take lasting root), and the USA (where, despite the absence of such early influence on material culture, these same arts did). It considers the idiosyncratic way in which European music was perceived in the USA, and how that idiosyncrasy enabled Africans there to create and develop jazz. It also examines the rise of American pop styles, and the divorce of these from 'classical' styles to which, in earlier times, they would have been complementary.

Tourism sometimes finds charm in poverty; and those areas of the world in which 'traditional' musics still survive in relatively un-Westernized conditions are also, regrettably, areas that suffer most from economic depression. Though it may be desirable to retain existing traditions in such areas, television has altered the expectations of peoples throughout the 'developing' world. For the first time in history, and whether for better or worse, there appears to be only a single, basic model of social organization for emulation; politics apart, economic advance, modernization, and Westernization prefigure a common goal. Part Five, accordingly, considers the nature of tradition and change, examines some African and Asian musical styles in their colonial and post-colonial contexts, and considers, in broad historical perspective, the effects of Westernization. Specific sections in this chapter may be read in conjunction with corresponding chapters in Part Two. In the final chapter, and in conclusion, the consequences *for the West* of global Westernization, and of increasing cultural interchange, are examined.

A book of this nature cannot deal equally with all regions of the world; nor can it deal with the multiplicity of folk musics that may exist in a given region. Folk musics usually influence, and are influenced by, classical styles developed over a wide geographical area; they have been

described here only where such description serves to elucidate the development of those wider, classical styles. (The terms 'folk' and 'classical', as used in this book, are defined on p. 39.)

To avoid repetition, certain geographical areas, the musical styles of which overlap others treated elsewhere, have not been considered as separate entities. This is the case, for example, with Central Asia: the Islamic styles are described under West Asia, and more archaic styles in Chapter 4. It is also the case with East Europe: Balkan folk styles are described, briefly, under West Asia, and East European folk styles, under Western Europe in the context of nineteenth-century nationalism.

The difficulty of summarizing, in brief, a diversity of styles within a single region has likewise caused a number of important musical cultures not to be treated separately—those of Malaysia and the Philippines, for instance. Moreover, musical styles of Polynesians have not been treated at all; nor, with the exception of Aztecs and Incas, have those of Native Americans. This is partly because of the diversity of these styles, and partly because they have not borne directly on those wider traditions that form the backbone of the book. In Part One, for similar reasons of cultural diversity, Africa is treated less comprehensively than are other major cultural zones. The musics of Canada and Australasia do not receive mention—apart from a brief description of some aspects of the music of Australia's Aboriginal peoples—because, notwithstanding their intrinsic vigour, they are not seen as influencing the course of world musics.

This book need not be read consecutively: each chapter is complete in itself. Most of the place names mentioned in the text of Part Two are shown on maps that precede each chapter.

Musical examples are provided where these help to elucidate descriptions of musical systems. For the most part, however, detailed transcription of music from oral–aural traditions has been avoided. Such music is basically monodic in style; it did not evolve in the shadow of the printed barline; and the detail of content tends to vary from performance to performance. Indeed, the *manner* of performance is often *more* important in execution than is pitch and duration of notes. What Westerners call 'ornamentation' is frequently not an imposed device but, for the musician, an intrinsic aspect of the notes 'ornamented'.

Western musical notation provides not only a series of instructions to the performer, but a means by which skilled musicians can 'hear' the music in their heads, without its being performed. That sense of 'hearing' is heightened by the exactness of notation in terms of pitch and

rhythm, and by the important role that harmony plays in the music. In the case of oral–aural traditions, Western notation enables musicians to ‘hear’ the music in that way only if they are familiar with the style of performance of the tradition notated. The notation does not convey timbre, and non-tempered pitch systems require additional signs that are neither exact nor easily imagined. Staff notation conveys only the bare bones of the music’s essence and, to the non-specialist reader, may make the music itself seem disappointingly arid and uninteresting. Transcriptions of oral–aural musics are useful for musical analysis; but for the purposes of this book, preference has been given to describing musics in elementary terms, in the contexts in which they arise.

Notes on Terminology and Transliteration

A book about peoples, their cultural systems, and their musical styles needs a technical terminology; but since these same elements are seldom homogeneous throughout a major geographical region, terms used in classifying and comparing can be misleading. Increasing sensitivity to the variety of peoples and lifestyles of the world, and the consequent erosion of former hierarchical values, have caused many such terms, commonly used in the past, to sound pejorative today. Since terminological matters are germane to this book, a brief explanation of their use here may help clarify the text.

The mix of peoples that occurred from the start of the Neolithic makes meaningless the word ‘race’; it does not have even the weight of ‘variety’. The concept of ‘race’ in common speech is a cultural construct. It has no genetic validity.¹ Provided that parents are fertile, all ‘inter-racial’ crosses between humankind result in progeny. The word is here used sparingly, usually only in quotes, or in the context of racism. When used in conjunction with ‘nation’, ‘race’ is disinformative, since ‘nation’, too, is a construct, a political one that overrides ethnicity. The word ‘nation’ is used only in the conceptual sense of ‘nation-state’, and ‘nationality’ only in dialectic. ‘Country’ is used to define a geographical area currently recognized as an autonomous state. The word ‘region’ may be applied to a part of the world or a part of a country: it is used here in either way, where its indeterminacy is advantageous.

¹ See Steve Jones, *The Language of the Genes* (London: Flamingo, 1994), 245–63.

Cardinal allocations are used only adjectivally. 'The Far East', for example, was once 'far' and 'east' when viewed from the 'west'; but it is no longer 'far', and promises soon to be neither East nor West, but Central. In particular, no reference is made to 'the Middle East', except in quotes. It is a handy term for describing a geographical area within which Islamic musical systems predominate, but it is vague in terms of world geography; it renders unclear, for example, to which part of the 'east' the Indian Subcontinent belongs, and how much of North Africa is included. Moreover, use of the term detaches Sub-Saharan Africa from North Africa, and withdraws attention from the enormous contribution made by Africans to world cultures, in the past, and in the present.

For the most part, the words 'tribe' and 'tribal' have been avoided, because they are sometimes perceived, pejoratively, as antithetical to the words 'civilization' and 'civilized'. Besides, we all belong to some 'tribe' or other. The word 'civilization', from the Latin, *civitas* (city), still has meaning in so far as it refers to the *scale* of human integration, and it is only used in that sense. Its effects are described in Chapter 2, and its growth is described in subsequent chapters.

Where possible, the words 'white' and 'black' have been avoided as descriptions of peoples. The terms encourage a ridiculous assumption that people who are not 'white' are 'black', ignoring the extent to which different peoples have intermarried. It has sometimes been necessary to use this terminology in the context of the USA; but wherever possible the term 'African American' (as being the most generally acceptable) is used to describe US citizens of African origin. It is recognized, however, that some US citizens of African origin prefer to be called 'American African' or, simply, 'African', underscoring their African identity; and that some others prefer to be called 'American', thus emphasizing their acculturation in the USA.

'Culture' is an ill-defined and currently overworked word. In its early uses it was a noun of process, indicating cultivation, basically of crops and animals.² During the eighteenth century, it came also to indicate the process of change in human society. During the nineteenth century, it became synonymous with 'civilization', and acquired a plural usage in the context of 'national' and 'folk' cultures. Over the past century, 'culture' (like 'civilization') has tended to be equated with arts of the élite, in implicit contrast to popular arts. Recently, however, the word

² Raymond Williams, *Keywords: A Vocabulary of Culture and Society* (London: Flamingo, 1983), 87–9.

has come to embrace both *élite* and popular arts, and to encompass all facets of life in a particular society.

In an increasingly multicultural society, the application of the word 'culture' to a single society, country, or perceived 'nation' has less and less meaning. Here, the word 'culture' is used only as a noun when a limiting adjective is added; the common reference is to a 'cultural system', or 'systems', where the term 'system' indicates an integrated pattern of human behaviour. Since this book attests the continued existence of cultural systems, the overall character of which derives from ancient civilizations, the word 'culture' is at times applied to persistent, over-arching customs and achievements common to a particular time or to a broad category of people (for example, 'medieval'; 'Chinese'; 'Indian'). In no instance does the word carry *élite*ist overtones.

'Tradition' is another overworked and vague term. It derives from the Latin *tradere* (to hand over or deliver) and is commonly used in the sense of transmission by 'handing down'.³ Although, in one sense, a tradition may be established instantaneously, the word tends more often to be used in the sense of 'age-old' tradition, and to imply some element of ceremony, duty, and respect. The word is used here to contrast cultural systems that have changed little over centuries, or millennia even, with those that appear to be essentially modern. This issue is discussed in Chapter 18.

Louis Armstrong (among others) is accredited with the aphorism: 'All music's folk-music, leastways I never heard of no horse singing it.' A modern city subsumes, for example, 'folk' who attend traditional dancing classes, as well as 'folk' who attend opera performances, or rock concerts. Nevertheless, terms such as 'classical', 'folk', 'popular', and 'art' still have broadly accepted, if not precise meanings, when applied to musics in particular contexts.

The word 'classical' refers to styles acknowledged as yardsticks of excellence, in their time, and through succeeding generations; such 'classical' styles are recognized in a number of distinct geographical areas. (In no way is it implied that such yardsticks are, or are not, applicable to our own time.) The word 'folk' refers to styles practised in rural communities, where such communities are, or have been, distinct from urban communities. The word 'urban' refers to styles—usually, though not necessarily, modern—that originated and were (and are) popular in urban communities. The word 'popular' itself—as distinct

³ Ibid. 319.

from the stylistic category of 'pop'—refers to music that is, literally, popular, usually contrasting with a 'classical' style that belongs essentially to an élite. Where a number of élite styles coexist, it is convenient to refer to 'art'-music. The word 'music' is only used in the plural when referring to a multiplicity of élite and popular styles that subsume individualities of style.

The use, on occasion, of the terms 'non-European' and 'non-Western' is necessitated by the extent to which European/Western cultural systems have come to influence, and dominate, virtually all others on the planet. The terms indicate no value-judgement or implication of disparity; the prefix 'non-' is used comparably in respect of other major cultural zones.

All categories overlap, and a purpose of this book is to indicate the extent of that overlap. The corollary, of course, is to indicate also the extent of their separateness. The inexactness of terms reflects the inexactness of the field of study; this said, however, the terms indicate broadly recognizable, and usefully discriminated, categories. *No value judgements are associated with them*, and they are used hereafter without quotes.

In the interests of thoroughness, instruments, styles, and genres have been referred to by local names, followed by translations in brackets. Because a profusion of such terms is generated by a text of this nature, the translation has been repeated when terms recur, rather than referring the reader to a glossary.

The profusion of terms is a consequence of a profusion of foreign languages, and the transliteration of such languages, for a general readership, is problematic. Scholarly transliterations often employ diacritic signs, many of which are only fully understood by specialists. In this book, commonly understood signs used regularly in European languages have been retained. Macrons widely employed in transliteration of non-European languages have also been retained, because their function of lengthening the sound of the vowel over which they are placed is readily appreciated. Other diacritic signs, less widely understood, have been replaced with 'Anglicized' forms of spelling. With regard to the Chinese language, the now customary *Pinyin* system of transliteration has been retained, without further explanation. No system for multi-language transliteration can be wholly effective for non-specialist readers, but it is hoped that this mixture of diacritic and phonetic transliteration will enable foreign-language words to be perceived, and pronounced, with relative accuracy.

A few specialist terms may be unfamiliar to those with experience only of Western cultural systems: 'autochthonous' ('sprung from the earth') describes the original, or earliest known, inhabitants or cultural traits of a country; 'acculturation' describes the process of adaptation to new cultural systems; 'enculturation' describes the process of absorbing, from birth, the cultural traits of a particular environment.

'Heterophony' is a musical term that contrasts with 'homophony'; it refers to melodic material performed simultaneously by different voices or instruments, in slightly different versions, appropriate to the particular voices or instruments concerned.

A tetrachord spans four notes in no specific intervallic relationship, but approximating to the interval of a perfect fourth. A pentachord spans five notes under similar conditions. When tetrachords are conjunct, the lowest note of the higher tetrachord is the *same* as the highest note of the lower tetrachord. When tetrachords are disjunct, there is an interval—normally a tone—between them.

A pentatonic scale contains five different pitches within the compass of an octave. A hemitonic pentatonic scale includes at least one interval approximating to a semitone; an anhemitonic pentatonic scale contains no such intervals; in an equi-pentatonic scale, the intervals are approximately equal. A 'gapped' scale contains one or more intervals larger than a tone.

The word 'ethnomusicology'—the *logos* (study/science) of the music of other people—has not been used. There seems no reason why, for example, the study of Javanese or Chinese music should be more 'ethnological' than the study of Italian or Russian music. Java, China, Italy, and Russia do not represent single ethnic entities; nor do any other nation states. The study of any style of music, other than study directed to proficiency in performance, is a form of musicology. To deny this is to deny even the *possibility* of a common musical language.

Listening to World Musics

Western musicians listening for the first time to musics outside their own tradition may need time to grow accustomed to aspects of quality markedly different from those of the West. Most conspicuous among these is timbre; indeed, by timbre alone it is often possible to identify the region of origin of a piece of music, within seconds of its start. The timbre of traditional singing styles can seem

particularly alien to those accustomed to Western, classical voice production. Vocal music is often intended for open-air performance, where high notes carry further and more clearly than low notes, and where simultaneous, discordant notes carry better than do concords. Timbre itself depends on the complex set of harmonics of different intensities that constitutes a single 'note', whether sung or played; and voices are often focused in such a way as to generate a vocal sound rich in harmonics of a high frequency.

In some Japanese ritual music, flutes play in minor seconds or ninths, the acoustic beat adding stridency to the sound, enabling it to carry further and, perhaps, drive away evil spirits. In Serbia, Macedonia, Bulgaria, southern Albania, and northern Greece, vocal performance over a fixed or variable drone often incorporates the use of major or minor seconds, for initial, intermediate, and final notes, or even for parallel movement; to performers and listeners in these areas, the interval of the second is not perceived as a dissonance. Two- and three-part Lithuanian songs called *sutarine* ('concord', 'singing in concord') frequently feature parallel seconds throughout.⁴

Whether in indoor or outdoor use, the voice has usually been considered the paramount medium of musical performance; even in Europe, where instrumental music acquired an unusual degree of importance, vocal music was considered superior to instrumental music up to the early nineteenth century. In many music cultures, instruments are designed to 'shadow' a continuous vocal line by imitating the contour of the melody a little behind the vocalist. (A similar process occurred between congregation and priest in 'lining-out' singing of Nonconformist hymnody in both Britain and the USA during the nineteenth century (see p. 542).) Notably in the Hindustani music of North India, such a continuous vocal line may become an extended, virtuosic, wordless vocalization. To Westerners accustomed to musical statements in strongly marked rhythms, with varied articulation, India's frequent, continuous interlinking of often fast-moving vocal notes may appear monotonous, even absurd, until it is understood how precisely the music conforms to the intricacies of Indian modal systems and rhythmic cycles.

In many parts of Asia, important notes in a given mode are often highlighted by ornamentation. Wide vibrato (such as is practised in Indian and Islamic vocal and instrumental styles), yodelling effects

⁴ A. L. Lloyd, 'Europe', *The New Grove* (1980), vi. 309–11.

(as in Persian classical, and Armenian folk styles), or slow glissandos of approximately semitone steps (as used in Indian *dhrupad* or Lamaist chant), may disturb Westerners accustomed to the aimless practice of vibrato on every note. In Western classical music, unusually, bowed string instruments have come to be favoured over plucked string instruments, because of their capacity for producing sustained notes; whereas in many parts of Asia, plucked lutes and zithers were, and still are, valued for their capacity to 'bend' the pitch of a note as the sound dies away. An astonishing range of ornamentation can be achieved in this way. By deflecting the string away from the fingerboard, and thus increasing its tension, the pitch of a note can be raised by as much as a perfect fifth, and such ornamentation may last for several seconds. Reversing this operation at times generates a vibrato so wide as to appear grotesque to some Westerners; but it is worth noting that in Europe, until the end of the nineteenth century, vibrato was not practised continuously, but was likewise regarded as a form of expressive ornament, as was portamento, still widely used by string players in the early twentieth century.

Outside Western Europe (and in Western Europe too, until about the twelfth century), both art and folk musics commonly consist of a single melodic line, at times supported by drones, or other notes, but never supported by functional harmony. In ensemble, such a line is performed in heterophony. In Europe, from the time of the Renaissance, musical instruments were designed in homogeneous size-sets to blend and 'symphonize' with each other in polyphony and harmony; outside Europe, however, heterogeneous sets of instruments often play a given melody together, each performing it in slightly different ways, according to the physical properties and characteristics of the particular instrument and individual musical taste. Heterophony is a common feature of East European folk music; Gaelic psalm-singing (in the island of Lewis) and Irish keening (lamentation for the dead) are instances of vocal heterophony nearer to home.

Westerners are sometimes disturbed by tuning systems that yield intervals alien to those resulting from the system of equal temperament. The equal-tempered system facilitated transposition, and provided Europeans with a flexible musical resource. In the process of its evolution, however, the linear possibilities for scalar sets in music were reduced to two modes only, major and minor. Outside Europe, musical systems are usually constructed from a multiplicity of modes, or 'note-sets', and on melodic cells derived from components of them. Except in

areas where elaborate modal systems evolved, tunings of 'note-sets' are often peculiar to an individual society; they appear not to have developed as a result of any mathematical theory of acoustics, and do not necessarily contain a perfect fifth. Intervals sometimes vary considerably from those commonly used in the West.

There is no evidence that the human ear finds intervals with simple ratios (between the number of vibrations of each of their sounding notes) more agreeable than intervals with complex ratios: for example, the octave (2:1), perfect fifth (3:2), or perfect fourth (4:3), as opposed to the Pythagorean semitone (256:243—the difference between three pure octaves and five pure fifths). On the contrary, research indicates, for example, that the octave that musicians perceive to be consonant is usually slightly larger than the 'true' octave with a ratio of 2:1.⁵ Indeed, on the piano, the number of vibrations of a note played near the top of the keyboard in relation to a note played five octaves lower is, in the practice of the professional piano tuner, considerably greater than five times the number of vibrations of the lower note. This tendency to 'stretch' octaves was known already to the Greeks.⁶

The concept of precise intonation would appear essential for notes used in a Western, harmonic context: but research has demonstrated that, for notes used melodically, the ear—in the West as well as elsewhere—finds acceptable considerable variations in intonation.⁷ The similarity of pitches performed in different octaves appears to be a factor in most tunings of note-sets; but otherwise, the way in which humans *hear* music seems not to be intrinsically related to the arithmetical-acoustic laws of music, but rather to be a matter of habituation. It should not, therefore, prove difficult for ears trained to the Western system of tuning to adjust to other tuning systems.

It is not a purpose of this book to emphasize the *differences* between musical styles. The reader who follows through the accounts of these styles, and of the circumstances that contributed to their development, may be as much impressed by their similarities as by their differences.

⁵ E. Fransson and P. Tjernlund, 'Statistical Tone Measurements of the Tone-Scale in Played Music', STL-OPSR, 2–3, Department of Speech Communication, KTH, Stockholm, 1970; E. Terhardt, 'Pitch, Consonance and Harmony', *Journal of the Acoustical Society of America*, 55 (1967), 1061–9; and Peter Cooke, 'Exploring Musical Pitch Systems', *ICTM UK Bulletin*, 27 (1990), 6–22.

⁶ Natasha Spender, 'Psychology of Music', *The New Grove* (1980), xv. 398.

⁷ J. A. Siegel and W. Siegel, 'Categorical Perception of Tonal Intervals: Musicians Can't Tell Sharp from Flat', *Perception and Psychophysics*, 21 (1977), 399–407; and Cooke, 'Exploring Musical Pitch Systems', 8.

Nevertheless, functional harmony—with all the musical contrivances that emanate from it—is deeply embedded in the subconscious of Westerners as a norm of musical statement, as is becoming the case throughout much of the rest of the world today. The same holds true for the timbres of Western voices and instruments. Only familiarity with other musical styles can free the mind from such conceptions, so that Western systems of musical construction are seen to take their place in a much wider community of musical languages.

Approaching Unfamiliar Cultures

Understanding of a foreign musical style is assisted by a willingness to view the world from an unfamiliar perspective. One such perspective is obtained by turning a map of the world upside-down. When considering human origins, this is not an illogical thing to do. Gravity ensures a respect for things that are 'high'; and societies do not, commonly, place their heaven in the underworld. As it happens, with the map upside-down, Australia bears down on Asia, Africa bears down on Europe, and South America bears down on North America. This makes a stimulating change from Mercator's view of the world with Europe (top left) bearing down upon Africa, and with Asia (top right) handy for the taking.

In the present, more sensitive, intercultural climate, the word 'ethnocentricity' has been adopted to denote the viewing of foreign cultural systems from the standpoint of one's own. Europeans in particular, with their five-century-long history of imperialism, are often accused of 'Eurocentricity'. 'Afrocentrists', on the other hand, point with pride not only to East Africa as the site of human origin, but also to Egypt as the source of civilization. Africans, they conclude, taught civilization to the rest of the world. Although the truth is more complex, this selective use of facts is no more disingenuous than that of many Western historians. Alexander, for example, is known to every Western school child as 'The Great', and his conquests are usually extolled as 'achievements'. In Persia, however, Alexander was dubbed 'The Accursed', because he killed priests and burnt palaces. He is seen in Europe as 'The Great', rather than 'The Accursed', because for the past five centuries the world has been dominated by Europeans, and it is Europeans who have drawn the maps and written the histories. 'Eurocentricity' largely accounts for Western cultural arrogance.

Nevertheless, it is hardly possible—or desirable—to discard wholly one's own cultural background, or to make value judgements outside one's own sphere of culture. How, for example, should a Westerner judge a string quartet composed on the principles of Western integral serialism, by a Korean, performed by Koreans in Korea? By what structural system should it be analysed? In fact, the Westerner is scarcely in a position to make any judgement at all; only Koreans—or, at least, Asians—can judge what, within their cultural sphere, appears to them to have artistic integrity, even though they may argue over the matter as much as do Europeans. In the modern, multicultural environment, value judgements need not be discarded; but they carry more weight when they relate to the cultural systems to which the valuer is enculturated, or fully acculturated.

Westerners commonly believe themselves to be uniquely conditioned to see threads, continuities, and patterns in things. The concept is invalid, even though linear analysis has been intrinsic to Western thought until the coming of multi-dimensional structuralism. Nevertheless, the Western penchant for analysis has entailed, *inter alia*, categorizing certain peoples according to their 'racial' lineage. In Latin America, for example, people of mixed European and 'Indian' descent are referred to as *Mestizo*, and people of mixed European and African descent are commonly known as *Mulatto* (a term also used in Europe). It may not occur to Europeans to seek also a term for those of mixed 'Indian' and African descent, though there is one ('Cafuso'). In reality, the genetic mix of peoples in Latin America—and in most other areas of the world—defies precise description and categorization. It may be hard for Westerners to abandon use of those tidy little boxes that the Renaissance bequeathed; but the attempt must be made, if there is to be a genuine understanding and acceptance of the diversity of peoples and cultural systems now to be observed.

It was essentially as an aid to unlocking some of those boxes that this book was written.

Part One

Genesis

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Elemental Features

of Music

A Primary Mode of Expression

From time immemorial, music has been one of humankind's most important resources. It has eased the burden of work, and coordinated its rhythms. It has helped people in love, and calmed their fever. It has cemented social rituals, recalled ancestral history, and shaped codes of conduct. It has been held to appease gods and ancestral spirits, and to induce rain, or drive it away. Nor are such attributes mere relics of ancient superstition. Music still soothes the spirit in sickness or in love. It can still condition human behaviour. It still has strong historical associations. All over the world, people still sing or listen to music as they work, and they still celebrate their harvest in elaborate ritual. And music is still one of the most fundamental elements in religious and social ceremony. As technology makes musical styles from all over the world accessible to us, their fundamental similarities are as evident as their differences.

Despite music's importance as a means of individual and collective human expression, rational grounds for explaining its varying effects on mental states remain elusive. Music is a non-representational art; and, unlike other arts, it creates its own material. It can only be responded to visually through the symbolic movements of musical performers or dancers (or by painting to it). The foetus learns an equal-pulsed, in frequency varied, rhythm from the maternal heartbeat; and, at a primary level, it is possible that the response of humans to the first perceived rhythm remains an element in the perception of music, and the response to it, even in the most exalted contexts.¹ The body makes music in time as rhythm, and in space as dance; such ordered structure in time is, as yet, the only living 'organism' that man can create. If, more

¹ See Foreword, pp. 18–20.

than any other art, music has been held to link the natural world with phenomena that appear 'super-natural', it is because of its non-verbal, non-rational effectiveness in communication, where words fail.

Music is, nevertheless, a non-conceptual art: it cannot generate a predicate. But it possesses an inherent capacity to heighten the meaning of concepts expressed in words, and thus to enhance the impact of social and religious ceremonies. In most non-urban, non-literate, societies, song provides the very framework of community life. Some societies believe that their songs are actual gifts from remote ancestors (human or other animal); and song is a principal means by which healers appease disgruntled ancestor spirits lodged in the heads of the sick, or by which, in trance, the spirits of healers depart their bodies seeking knowledge.

Within literate societies, music has acquired extra-musical, cosmological associations. Babylonians of the second millennium BC knew that a direct correspondence exists between music and number, and this knowledge appears subsequently to have reached other civilizations across Eurasia. Such knowledge led the Chinese, for example, to make repeated attempts—and as a matter of prime importance—to adjust the fundamental pitch of music to harmonize with elements of the cosmos; and this continued up to the Revolution of 1911. It led the Greeks to conclude that musical intervals provide a means for calculating the orbits of the planets, a conclusion promulgated in Europe until the sixteenth century. When post-Renaissance European music subsequently became a vehicle for self-expression, aestheticians spilled much ink in the attempt to find rational links between music and emotion. To this day, they have no more been able to establish such links than have anthropologists to pinpoint the origin of human songs from animals. The non-representational character of music renders it a disarmingly irrational medium, for its symbolic gestures are susceptible of multiple interpretation.

Like music, humankind may act irrationally, though apparently driven by rational motives. Our genetic inheritance has enabled us to learn to select, enquire, and construct, to gain mastery over our natural environment; but we do not control our destiny.² We are trapped between what is predictable and what is not. As human beings, we live with an inherent duality. On the one hand, we claim to be creatures of logic; on the other hand, our imagination may precipitate us into a

² J. M. Roberts, *Pelican History of the World* (London: Pelican Books, 1988), 54.

world of irrational fantasy. The logic that binds us and the imagination that frees us are concomitant, yet contradictory. Tension between what we think and what we feel contributes to our creativity.

For individuals and societies alike, there are points of disjunction between the natural and the 'super-natural', between certainty and uncertainty. The evolution of religions and philosophies has helped to mitigate this condition. Like art, religion helps to balance rational and irrational aspects of our nature. Religion and art are born of the same dichotomy. Of all the arts, music perhaps reflects this link between art and religion in the most profound way; it is the only artistic medium that, of itself, has been held to have direct contact with the divine.

All religious practice appears to emanate from man's ambivalent relationship with nature and the 'super-natural'. Many peoples acknowledge a single, supreme god, too distant and mysterious to be approached directly, whose will is made manifest through the agencies of lesser gods or spirits. This supreme god is usually seen as the source, not merely of the creation itself, but of a mythological, personified pantheon that helps to explain the apparently perverse manifestations of the natural world, and the source of good and evil in human nature. Throughout the world, societies observe rituals linked with the cycle of the seasons, with the human life cycle, and with the appeasement of gods and spirits associated with both. Music is intrinsic to these rituals, and their efficacy depends on the accurate presentation of intricate songs and dances.

Ancestor worship has been a common element in religious practice, particularly among societies of hunters and foodgatherers; and song has usually been the medium in which ancestral genealogy and history were preserved. The practice of ancestor worship implies belief in the existence of a natural continuum between the living and the dead; through death a person becomes an 'ancestor', but may in turn be 'reborn' into the living world. A dissatisfied or discontented ancestor may be the cause of death and disease; and for this reason ritual contact with ancestors is often made at graves, at sites of ancestral habitation, or at spirit boxes, where, just beyond the walls of individual dwellings, spirits may be appeased with ritual offerings of food or money. Rituals associated with the dead are carried out with utmost precision; any mistake, or break in the continuity of the music, could invite death, or disaster.

Among extant hunter-foodgathering societies, the non-Westernized Aboriginal peoples of Australia may be taken as a single, and striking,

example of the close connection that still exists between music, religion, and social custom. Aboriginal peoples from many parts of Australia believe that their totemic ancestors—mythical beings who came from the sea, or rose from the land—travelled throughout the continent scattering trails of songs. Such songs are held to delineate ancestral tracks that define the ‘Dreaming’ sites: sacred lands where, at ‘Dream-time’, people honour their ancestors and the lands bequeathed by them.³ The songs are also held to describe the nature of the land over which the ancestors passed. They provide, therefore, a kind of tribal grid map of the ancestral land, and are usually performed at special ceremonies on ‘Dreaming’ sites.⁴ New songs are still received from ancestors in replacement of discarded songs. The correctness of execution of dream-songs, in all aspects of their performance, is fundamentally important, and errors may demand retribution, even summary execution.⁵

Attitudes to music in Australian Aboriginal society may be reflected in terminology. Among autochthonous peoples of Central Australia and the Western Desert, for example, *imma* means not merely music (in our sense) but also its mythical associations and behavioural context, exemplified in song, dance, and the design of body-painting. *Imma* thus implies overlapping layers of information and meaning. *Mayu* indicates both musical sound *and* its ‘flavour’; while their combination, *imma mayu*, refers to the melodic shape that encapsulates the ‘flavour’ of a particular ancestor. This ‘flavour’ is conferred by the pitch distance between pivotal melodic points, and by the length of time spent between them.⁶

Such attitudes are common to many cultures. The attribution of songs to ‘super-natural’ sources, for example, occurs also in the Americas, where autochthonous societies link the origin of their songs with the origin of their people; both are revealed in dreams.⁷ In remote

³ W. H. Edwards, ‘The Aborigines’, in *The Religions of the World* (London: Lion Publishing, 1982), 148.

⁴ Alice M. Moyle, ‘Australia’, *The New Grove* (1980), i. 715.

⁵ For an account of life in an un-Westernized Aboriginal society, see Douglas Lockwood, *I, the Aboriginal* (Australia: Rigby, 1962).

⁶ Catherine I. Ellis, ‘Australia’, *The New Grove* (1980), i. 715. For detailed discussion of musical structure in relation to social structure, see Fiona Magowan, ‘The Land is our *Märr*, It Stays Forever: The *Yothu-Yindi* Relationship in Australian Aboriginal Traditional and Popular Musics’, in Martin Stokes (ed.), *Ethnicity, Identity, and Music: The Musical Construction of Place* (Oxford: Berg Publishers, 1994).

⁷ Doris J. Dyen and Willard Rhodes, ‘North America’, *The New Grove* (1980), xiii. 70.

communities in Andean Bolivia, new tunes are collected from *sirinus*, demons that live in rocks or beside waterfalls.⁸ The existence of overlapping layers of meaning in words for 'music' is also common to many cultures: the East African word *ngoma* denotes a combination of music, dance, and drama; the Indian word *sangīt* incorporates music, poetry, and dance; the Greek word *mousikē* implied both the music *and* the ethical values associated with it; the Chinese word *yue* referred to the complex of ritual song and dance and associated musical instruments and dance properties.

Pitched Vocalization

The common relationship between music and religion transcends all types of 'religious' belief. Many societies regard the singing voice as a magical, 'other-worldly' voice, and have reserved its use for invoking divinities, using the speaking voice for purely social occasions and ceremonies.

Voiced sounds are produced when the lungs and respiratory muscles generate a stream of pressurized air that activates the vocal folds of the larynx and produces sound waves, amplified in the resonating cavities of the pharynx and mouth. When, by skilled control of the respiratory system, the air pressure is regulated so as to produce sound waves in regularly repeated sequences, at a frequency between (approximately) 18,000 and 15,000 times a second, the ear perceives notes of definite pitch.⁹ Pitched vocalization enables vowel sounds to be sustained in a way that they cannot in speech;¹⁰ short sounds can be contrasted with long sounds, and speech can be extended in time, as song.

Various acoustic features of the vocal mechanism render the basic tone of sung notes susceptible of substantial modification. For example, the 'envelope' formation (the changes in amplitude of the complex of wave formations) associated with a given note varies according to pitch and vocal intensity; formants (changes in wave form as a note is

⁸ Henry Stobart, 'The Sirens of the Andes', *Musical Times*, Feb. 1992.

⁹ Johan Sundberg, 'Acoustics', *The New Grove* (1980) i. 83, and Charles Taylor, 'Sound', *The New Grove* (1980), xvii. 546.

¹⁰ In speech, phonetic 'segments' (approximating to the letters of the alphabet) are transmitted at a very fast rate of up to 25 per second; see Philip Lieberman, 'Human Speech and Language', *The Cambridge Encyclopedia of Human Evolution* (Cambridge: Cambridge University Press, 1992), 134.

amplified) vary in the different vowel sounds; and formants are further modified by the different amplifications of the resonating cavities of the pharynx, nose, and mouth. Voices have different ranges, according to gender, physical type, and cultural norms; and within these ranges specific 'registers' are recognized. ('Registers' are groups of notes of similar tone quality felt to be produced in the same way.) Voices may also be 'focused' to yield different combinations of harmonic partials.¹¹ Pitched vocalization, therefore, enables the voice organ to be used in a variety of ways; and individual voice organs acquire distinctive musical personalities. As a consequence, special effects—such as nasalization, falsetto, the production of very low notes, and the use of voice distorters—have commonly been used to disguise the individuality of pitched vocal expression in the presence of the divine.

Although human societies usually develop their music *in conjunction* with language, the relationship between music and language is non-essential. In our own era, for example, Saint Augustine (in his *Confessions*, c.AD 400) suggested that singing without words expresses a joy too deep for words.¹² Wordless vocalization has been practised at least since the advent of *Homo sapiens*, since it is part of the system of communication of the Great Apes. Humans, therefore, may well have communicated through wordless vocalization before they communicated through structured language. It is known, for example, that the early hominoid Australopithicenes of East Africa were anatomically capable of singing.¹³

Music—in the broadest sense of ordered sound—is a means of communication common not merely to humankind but to all vertebrates. Animal sounds are extremely complex: their structure, in terms of harmonics, and the modulation of these in time while a sound is uttered, is such that highly specific information can be transmitted and understood. A gull in flight, returning towards a nesting site, can identify its own chick, amid hundreds, by the *detailed* structure of its call, even though all calls are in essence the same.¹⁴ Specific words form part of the sound repertoire of certain monkeys, who have an unambiguous word for 'snake', for example. Among pygmy marmosets, trills containing

¹¹ Taylor, 'Sound', *The New Grove*, xvii. 546.

¹² Richard L. Crocker, 'Melisma', *The New Grove* (1980), xii. 105.

¹³ Frank Livingstone, 'Did the Australopithicenes Sing?', *Current Anthropology*, 14/1–2 (1973), 25–9.

¹⁴ W. H. Thorpe, *Bird Song: The Biology of Vocal Communication and Expression in Birds* (Cambridge: University of Cambridge Press, 1961), 41.

acoustic features which make them easy to locate are used when animals are widely separated; but trills of a pitch and harmonic structure difficult to locate are used when animals are close together.¹⁵ The screams of juvenile *Rhesus* macaques vary in their acoustic features: certain screams are uttered exclusively in particular social situations, 'tonal' and 'pulsed' screams being used for relatives; and mothers appear to respond differently to the various types of scream from their offspring.¹⁶

Such matters are germane to the music of humans; humans, like other animals, categorize pitch, transforming in the process continuously varying acoustic signals into a set of meaningful auditory units.¹⁷ The development of such units into specific 'note-sets' appears to have occurred independently, in general, of knowledge of the acoustical laws of music (see pp. 43–4). Many societies have adopted different note-sets for use with different social functions. In the Philippines, for example, some societies use hemitonic *and* anhemitonic note-sets, separately, for separate repertoires with separate social and aesthetic applications;¹⁸ in Byzantium, the *oktōēchos* ('eight melody types') was the basis for dividing the liturgical year into eight-week cycles; in eighteenth-century Europe, a whole repertoire of musical devices came to be associated with specific musical feelings (known as 'affects'); indeed, the 'major' and 'minor' scales used in Europe, as well as individual keys, often acquired emotional connotations. The assembling of pitched notes into patterns, with symbolic meaning, would seem to be a process that links the sounds of the Primates and early hominids with the music of humans today.

Vocalization and Language

Perhaps the most important factor in the development of music by humans was language, in the structure of which

¹⁵ Robert M. Seyfarth, 'Vocal Communication and its Relation to Language', in Dorothy L. Cheney, Robert M. Seyfarth, Barbara B. Smuts, Richard W. Wrangham, and Thomas T. Struhsaker (eds.), *Primate Societies* (Chicago: University of Chicago Press, 1987), 445–7.

¹⁶ S. Gouzoules, H. Gouzoules, and P. Marler, 'Rhesus Monkey Screams: Representational Signalling in the Recruitment of Agnostic Aid', *Animal Behaviour*, 32 (1984), 182–93; cited in Seyfarth, 'Vocal Communication', 448.

¹⁷ J. A. Siegel and W. Siegel, 'Categorical Perception of Tonal Intervals: Musicians Can't Tell Sharp from Flat', *Perception and Psychophysics*, 21 (1977), 399–407.

¹⁸ José Maceda, 'In Search of a Source of Pentatonic Hemitonic and Anhemitonic Scales in Southeast Asia', *Acta Musicologica*, 111. 2 (Bärenreiter-Verlag, 1990), 208.

pitch is a crucial element. Many languages of the world—probably a majority—are ‘tonal’: that is to say, they incorporate segmental tone, whereby the meaning of a syllable depends on syllable melody and pitch, as well as on phonemic structure. Throughout much of East Asia and Africa, the shape of melody is conditioned, to greater or lesser extent, by the syllable pitches of language, a condition which may at times inhibit the development of a melodic style independent of such syllable melodies.

Humans have always made use of music as an extension of speech, even though music has a life of its own, independent of words. Epic stories, or linguistic constructs associated with rites, seem universally to be recited as syllabic chant. Such chant, when not strongly measured, usually employs no more than two, three, or four, different, short melodic phrases in its structure; and the overall compass of its notes tends to be no greater than a fourth. Yet there exists also an impulse to allow chanted music to break free of linguistic restraints: words, phrases, or ideas that require special emphasis are commonly enhanced by the use of melismas. (Melisma is Greek for ‘song’.) Melismatic chant makes use of more than one note per syllable; and when melismas are introduced, the note-span of syllabic chant is often considerably enlarged.

Melismas intrude upon the natural speech relationship between words and music.¹⁹ Melismatic singing often takes place *between* opening and closing syllabic statements, but it may also replace a final syllabic statement, or occur as a musical section reserved specially for its use. The performance of lengthy melismas is often assisted by inserting syllables without obvious meaning, or by adding extraneous syllables to the individual notes of a melisma (known as ‘troping’). In *measured* declamation—usually associated with dance or with some other physical action—the span of pitch compass tends to increase in proportion with the *extent* to which melismatic singing is practised. Melismatic chant, therefore, may be regarded as an amplification of the wordless vocalization.

Song and speech are seldom far apart. Among the Suyá people of Brazil, for example (as Anthony Seeger has shown²⁰), the telling of myths, to a group, is partly improvised, and is distinguished from

¹⁹ Crocker, ‘Melisma’, *The New Grove*, xii. 105.

²⁰ Anthony Seeger, *Why Suyá Sing: A Musical Anthropology of an Amazonian People* (Cambridge: Cambridge University Press, 1987), 30, and ex. 2.1 on accompanying tape.

normal conversation by the use of stylized speech, in which segmental tone, timbre, tempo, sliding pitches, and phonemic variations are formal devices. On the other hand, ritual invocations, used primarily in healing and performed while blowing on the patient, are remembered precisely, and are recited quickly and quietly.²¹ When, by contrast, instruction is imparted to a group in special ceremonies, the oration is usually in syllabic, single-note chant, descending by approximately a minor third at intermediate points and at ends of phrases.²² The Suyá do not, however, regard such forms of instruction and invocation as 'song'. (This attitude towards religious chant is common: it obtains within Islam, for example, where the Qur'ān is not 'chanted' but 'read', and among *Theravāda* Buddhist communities in South East Asia.)

Apart from these recitations, the Suyá recognize two broad categories of 'song', sharing similar verse-forms and performance structures: 'unison' songs, sung communally, usually at low pitch and of limited range; and 'shout' songs, sung by individuals either solo or in group heterophony, often starting on the highest note with forced voice, and progressing in spiralling pitch descent. In each song type, meaningless 'song syllables' are inserted.²³

Such distinctions between speech, chant, and song are common to many cultures. In societies differing widely in customs and beliefs, and in which *styles* of musical performance also differ widely, equivalent *forms* of musical construction, in relation to language, may be used, such that their musics are similar in function. This may be exemplified by a comparison of Suyá musical practices with those of medieval Christian Europe.

In the Divine Office, celebrated at regular hours in the churches of medieval Europe, priests intoned the scriptural 'lessons' in preference to reading them in the speaking voice, so as to secure clear delivery of the words.²⁴ The psalms, when delivered by a choir, were chanted, mainly on one note, in 'plainchant', but short melismas were inserted at beginnings, at endings, and on intermediate cadences, in melodic units rarely exceeding a fourth in compass. When psalms were chanted by soloists, however, cadences came to be expanded into elaborate melismas; and, in the Gradual of the Mass in particular, this led to

²¹ Ibid. 35, and ex. 2.3 on accompanying tape.

²² Ibid. 31–2, and ex. 2.2 on accompanying tape.

²³ Ibid. 40.

²⁴ David Hiley, 'Plainchant', *NOCM* (1983).