

Echoes of Our Forgotten Ancestors

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CONTENTS

Echoes of Our Forgotten Ancestors

Articles

Victor A. Grauer	Echoes of Our Forgotten Ancestors	5
Bruno Nettl	Response to Victor Grauer: On the Concept of Evolution in the History of Ethnomusicology	59
Jonathan P. J. Stock	Clues from Our Present Peers?: A Response to Victor Grauer	73
Peter Cooke	Response to "Echoes of Our Forgotten Ancestors" .	93
Victor Grauer	"Echoes of Our Forgotten Ancestors": Author's Reply	101
Miscellanea		
Jeanne Zaidel-Rudolph and Martin Watt	Musical Symbiosis in Jeanne Zaidel-Rudolph's Lifecycle	135
Marin Marian-Bălaşa	Ghizela/Gisela Suliţeanu: An Indicative Bio-Bibliography	151

Book Reviews (Helena Simonett, ed.)

Karen A. Peters	Donna A. Buchanan, Performing Democracy:	
	Bulgarian Music and Musicians in Transition	163

Giovanni Giuriati	Deborah Wong, Sounding the Center: History and Aesthetics in Thai Buddhist Performance	165
Carol Fisher Mathieson	Liz Garnett, The British Barbershopper: A Study in Socio-Musical Values	168
Kim Kattari	Cheryl L. Keyes, Rap Music and Street Conscious- ness; Joseph G. Schloss, Making Beats: The Art of Sample-Based Hip-Hop	171
Tess J. Popper	Dalia Cohen and Ruth Katz, <i>Palestinian Arab</i> <i>Music: A</i> Maqām <i>Tradition in Practice</i>	176
William P. Malm	Henry Johnson, The Koto: A Traditional Instrument in Contemporary Japan	178
Mark Slobin	Anna Shternshis, Soviet and Kosher: Jewish Popular Culture in the Soviet Union, 1923-1939	179
Mariano Muñoz-Hidalgo	Kimberly DaCosta Holton, Performing Folklore: Ranchos Folclóricos from Lisbon to Newark	180

Recording Reviews (Kevin Dawe, ed.)

John Baily	Homayun Sakhi: The Art of the Afghan Rubâb, Smithsonian Folkways; Khaled Arman: Rubâb Raga, Arion, and Kabul Workshop Trigana, Tinder Records	183
Ruth Hellier-Tinoco	El ave de mi soñar: Los Camperos de Valles —Mexican Sones Huastecos, Smithsonian Folkways and Mexique/Mexico: Sones Huastecos—Los Caimanes de Tampico, Archives Internationales de Musique Populaire	185
About the Contributors		189
the world of music		191

Echoes of Our Forgotten Ancestors

Victor A. Grauer

Abstract

Recent developments in the field of genetic anthropology suggest that our earliest fully "modern" ancestors originated in Africa between 150,000 and 200,000 years ago, and that a single band of their descendents migrated from that continent to Asia between 60,000 and 90,000 years ago, destined to populate the rest of the world. The so-called "Out-of-Africa," paradigm has opened the door to all sorts of new possibilities regarding our understanding of human history and culture. Drawing on experience gained during my years of involvement, with Alan Lomax, on the Cantometrics project, supplemented by extensive independent research, I attempt to demonstrate how the new genetic findings could lead to a general re-evaluation of the history, development, and significance of mankind's earliest music.

It was a barbaric symphony, an unheard-of blend of primitive sonorous materials, of metal, wood and hollow reeds. The melody rose ringing and metallic from the *genders*, far above the other instruments.... But it was the strange notes of the *anklungs* which gave the music its primeval resonance. One after the other, in rapid but irregular succession, they trembled as the players shook them, creating a mysterious tremulo background, insistent, soft, like the low sound of wind in the *lalang* grass. Over and over, like a record caught in a groove, the melody repeated, relentless, without the least change of expression. It had a very narrow range, for there were only four different notes in the scale of the instruments, and the completely strange relation of these notes to each other, the strangeness of their tuning, gave the music a quality I cannot describe, created an atmosphere of incredible antiquity. It was like tracking music to its source.... Suddenly, without warning, the music stopped. What brought the men to a final halt I could not determine at all. Crow Stealing Eggs said the *klian*. But when I asked him the meaning of the title, Ah! He could not say. It was old, very old! Perhaps from the very beginning...

A House in Bali, Colin McPhee

1. Prologue

During the summer of 1961, I had the honor of collaborating with the distinguished folklorist, ethnomusicologist, and author, Alan Lomax, in the development of a radically new approach to the comparative study of world vocal music, which he was to name "Cantometrics." Our collaboration resumed early in 1963 and continued through early 1967, when I entered the music program at SUNY Buffalo as a graduate student in music composition. Alan, with the assistance of a remarkable team, continued to develop and expand the project for many years, until a pair of devastating strokes tragically forced his retirement.

As Lomax has described it, "The cantometric system sets up a behavioral grid upon which all song styles can be ranged and compared (see, for example, Figure 1). This grid was...designed...to rate [musical performances] on a series of...scales (loud to soft, tense to lax, etc.) taxonomically applicable to song performance in all cultures. Thus song can be compared to song, song to speech, and hopefully to other aspects of behavior" (Lomax et al. 1968:3). Lomax's innovation was to put aside traditional music notation, with its focus on the specifics of scale and structure, in favor of a more generally applicable, behavior oriented, rating system which could do justice to the sort of large-scale stylistic patterns which seem to control the overall shape of the musical picture worldwide. More information on this very rich and complex project can be found in, to cite only one of many publications, the book Folk Song Style and Culture (ibid.). While the following essay should not be understood as a summary of Cantometric findings or a reflection of Cantometrics as Alan conceived it, it is very much influenced by my involvement in the project, and my association with Lomax, who for many years served as teacher, guide, inspiration, mentor, and even, to some extent, father figure. While I feel that I did truly function as a collaborator, our relationship was not equal. Cantometrics was Alan's idea—the outgrowth of many years of research and insight on his part-he was director of the project and it was at every point under his control.

Though I had previously studied ethnomusicology for two years, under the expert guidance of David McAllester, and completed a Master's degree in that field, my knowledge of world music was enormously enhanced by my four plus years of intensive research on Cantometrics, listening to, rating, analyzing, and comparing music and statistical data representing every corner of the world, often with Alan by my side, guiding, discussing, trading ideas, debating research strategies, sometimes arguing. Many of the ideas expressed in the essay below first emerged during these discussions and can be considered outgrowths from Alan's insights, though at this point it is no longer possible for me to completely sort out which idea was whose. Suffice it to say that the following could not have been written if I had not worked on Cantometrics and received the benefit of Lomax's guidance and inspiration. I am not at all sure whether he would completely approve of the approach I have taken here; I see it as in certain ways a continuation and in some sense a vindication of aspects of his



work, but it would naturally be unfair to hold him responsible for any of its weaknesses or errors.

I must add that Cantometrics is in one sense simply a method for cross-cultural comparison of musical style, and that is how I have chosen to deal with it here. I cannot deny, however, that in certain quarters it has become a veritable emblem for a whole set of ideas, theories, and conclusions which became highly controversial. In what follows, I treat Cantometrics as an essentially heuristic methodology, not perfect by any means, but eminently useful as a diagnostic tool for the provisional sorting and comparison of world singing styles in a meaningful manner. It is, however, in my view, *not* capable in itself of producing totally objective results of the sort required by strict scientific method. For that purpose more rigorous and objective tests would be necessary. I follow a path inspired by, but in many ways different from that ultimately favored by Lomax and have no intention, at least for now, of reviving any of the old debates regarding his most controversial theories and constructs. No knowledge of Cantometrics is required for a complete understanding of what follows.

2. Ancestral Voices?

One of the mysteries that most intrigued Alan Lomax and me from the beginning of our collaboration was the very interesting and strange relationship between the musical styles of the two most intensively studied surviving groups of hunter-gatherers in Africa, the Bushmen of the Kalahari Desert and the Pygmies of the tropical forests.¹ Both groups vocalize in remarkably similar ways. In Cantometric terms, their group performances can be described as interlocked, with maximal vocal blend, polyphony, precisely coordinated rhythms, yodeled, with open, relaxed throats, no embellishment, short phrases, meaningless vocables, etc.. Particularly interesting is the production of a continuous flow of sound, based on the dovetailing of repeated or slightly varied, motives.

The similarities are as striking as the style is distinctive. Yet there seems to be no history of interaction or exchange of any kind between the various Bushmen groups, based in the desert country of southern Africa, and the many Pygmy bands, spread out over hundreds of miles of dense tropical forest, far to the north. A systematic comparative study of the vocal style of these hunter-gatherers is the basis of an LP with accompanying pamphlet, edited by Gilbert Rouget, entitled "Bushmen Music and Pygmy Music." Summarizing his observations with respect to both music and dance, Rouget concludes that "the Pygmies and Bushmen would thus have a music and a choreography closely related and at the same time distinct from other African peoples" (Rouget and Grimaud 1956:2-3).

The book, *Mapping Human History*, by Steve Olson (2002), summarizes in a fascinating manner much of the most recent research in what could be called "archaeological genetics," or "genetic anthropology," including some very intriguing DNA findings regarding both groups. He writes:

Judging from their mitochondrial [female line] and Y [male line] haplotypes, the ancestors of the Bushmen had to be one of the first groups to become established in Africa. Similarly, several tribes of Forest Dwellers [Pygmies], who today live in scattered remnants in central Africa, have very old mitochondrial and Y lineages. And like the Bushmen, the Forest Dwellers seem to have been much more widely distributed at some time in the past.... Africans described by the term "black" tend to have more recent mitochondrial and Y haplotypes, though it is unknown where and when these haplotypes diverged from the ancestral types. (*ibid.*:50-51)

What Olson is saving is that both the Bushmen and Pygmies might well represent the original inhabitants of Africa. He provides a map showing the entirety of south and east Africa populated with the ancestors of the Bushmen, much of the central area populated with the ancestors of the Pygmies, and a smaller portion of west central Africa occupied by the ancestors of the "Central Africans" or "Bantu" peoples, representative of the bulk of all other native African groups. A widely quoted study led by geneticist Yu-Sheng Chen estimates that the ancestors of the Biaka Pygmies diverged from a hypothetical founder population between 76,200 and 102,000 years ago, with a divergence time for the Kung Bushmen between 41,000 and 54,100 years ago. A sampling of Senegalese Bantus is given a much more recent divergence time of between 17,900 and 23,200 (Chen et al. 2000:1371).² The Bantus, initially confined to a single, relatively small region, would eventually expand, roughly three to four thousand years ago by most estimates, through all of sub-Saharan Africa, forcing the Pygmy and Bushmen peoples into marginal areas. According to Olson, basing his conclusions on genetic research by Himla Soodyall and Trevor Jenkins, "The DNA of modern Africans clearly reflects this Bantu expansion" (Olson 2002:53).

What Olson does not mention are the very special musical relationships among these groups. When we ask ourselves why the singing styles of almost all Pygmies and Bushmen today are so strikingly similar, despite the enormous geographical distances among all the many populations involved, there is no easy answer. Such a high degree of similarity strongly suggests, however, that what I've called Pygmy/ Bushmen style could date all the way back to the time when the ancestors of both were a single population (by Chen's estimate, roughly 77,000 to 102,000 years ago). Once these groups had subdivided and gone their own ways, it is difficult to imagine by what means such a practice could be transmitted from one to the other. And the style in question seems too complex and distinctive, too deeply ingrained into the culture of all these groups, to have been independently invented in so many different places.

Gilbert Rouget, after a careful study of both groups, their dance, as well as their music, concluded as much, already in 1956 (for a recent expression of his views on this matter, see Rouget 2004):

If, as it is traditional to do, one should consider the Pygmies and the Bushmen as belonging to two races entirely distinct, how can one explain the troubling relationship between their music and their dances? It cannot be a phenomenon of convergence, the resemblances constituting a system too complex and too coherent to allow for an explanation of this order. A reciprocal influence is also to be rejected, being given the distance as much geographic as climatic which separates the ones from the others. Is it necessary to believe, then, that the Pygmies and Bushmen are of common stock, and that their dance and music represent the remainder of a common cultural heritage? (Rouget and Grimaud 1956:3)

The principle at work here, anticipated many years ago by Lomax, could be called "sociocultural inertia," and defined as follows: *a tendency on the part of any human group to retain the most deeply ingrained and highly valued elements of its lifestyle until acted upon by some outside force*. The ancestors of the Pygmies and Bushmen *were* in fact acted upon by outside forces, in the form of the so-called "Bantu" tribes, and as a result many were probably killed. No doubt many others succumbed to the "outside forces" and were assimilated. What enabled the remaining groups to survive may have been their willingness to fall back into marginal areas, the tropical forest and the desert, where the others were unwilling to follow. Once these "aboriginals" were in place within their respective refuges, it is not difficult to see how they might be able to pursue certain highly valued traditions without interference.

Let us ponder for a moment the possibility that a certain type of musical practice could have survived for tens of thousands, perhaps over one-hundred thousand, years. That is a truly staggering thought, admittedly very difficult to accept. I take some comfort in the fact that I am not the first to think this way. Rouget, as we have seen, came to a somewhat similar conclusion, though he would have had no way of estimating the time span involved. Lomax had of course suspected as much for some time. Walter Wiora had similar thoughts (prompted by Rouget's observations): "Bushmen and African Pygmies have certain common traits in their music and dance that can be explained not as taken over by the one from the other, but only as springing from a common root" (Wiora 1956:25-26). As we have just learned, that "common root" may well have been the same root we all sprang from, the earliest manifestation of "modern" man (*homo sapiens sapiens*) in Africa.

3. Paths from Then to Now

Since anthropologists and ethnomusicologists tend nowadays to be extremely wary of broad generalizations, especially those regarding "archaic survivals," I would like at this point to take a closer look at the logic behind a hypothesis that goes so strongly against the grain of current thinking. Let us begin by assuming that, around 75,000 years ago (based conservatively on Chen's estimates), the common ancestors of the Pygmies, Bushmen, and Bantu, had a musical tradition quite different from Pygmy/ Bushmen style, perhaps some very simple type of one- or two-note chant, consistent with notions of "mankind's earliest musical utterance" so commonly held in the past.

As various groups subsequently diverged and dispersed, it might be expected that their music would, over thousands of years, gradually change. One would assume, therefore, that each group would eventually have evolved its own style, or styles, so we could anticipate a general divergence of musical types among all groups, even the most isolated. This might seem entirely reasonable.

But it is not the picture presented by the evidence. While Bantu groups do exhibit varying degrees of diversity, virtually all the many Pygmy bands now dispersed throughout the tropical forests currently vocalize in essentially the same style, as do most Bushmen groups, based in a totally different region.³ There are, moreover, certain groups of African farmers and/or herders who vocalize in clearly related styles, though usually without yodeling. Many others have developed very similarly organized polyphonic instrumental traditions. To account for the musical picture of today, one would be forced to argue that all these widely scattered groups must have independently evolved musically in the same direction, so that by the time we reach the twentieth century they are all singing (and in some cases playing) more or less the same way. By what means, however, could such an evolution have taken place? One might want to argue that environment might play a significant role in the development of musical style, so something about living in the tropical forest might have caused all the various Pygmy groups to develop very similar methods of vocalization and musical interaction, through some process of evolutionary convergence. However, the Bushmen inhabit a totally different environment, the Kalahari Desert.

Could one group have evolved such a style on its own at some time in the past, and then somehow influenced all the others? It is very difficult to imagine any mechanism by which such influence could have been transmitted. In a recent paper, genetic anthropologist Giovanni Destro-Bisol concludes, on the basis of a very thorough and critical examination of mitochondrial DNA evidence, that the two main Pygmy groups, the Eastern Pygmies of Zaire and the Western Pygmies of Cameroon, Congo, and the Central African Republic, diverged from one another more than 18,000 years ago (Destro-Bisol *et al.* 2004:212).⁴ Since there is such a "high density of vegetation, the large area that separates the Ituri Forest and the territories of Western Pygmies (*c.* 1,500 km measured as air distance) is very difficult to cross without the help of an adequate technology, such as the iron metallurgy practiced by Bantu peoples but unknown to African Pygmies" (*ibid.*:213). Given such immense distances and such impenetrable terrain it is very difficult indeed to imagine how any cultural practice could have diffused from one area to the other during the past 18,000 years.

Could this style first have evolved among the Bantu and then spread to other regions of Africa via the expansion of that population, *c*. 3,000 or 4,000 years ago? If the style were primarily associated with Bantu groups this might be a plausible hypothesis. But why would a practice originated by Bantu farmers be adopted almost exclusively by Pygmy and Bushmen hunters, who have traditionally interacted only sporadically with the Bantu? And why would we find that same style among virtually *all* Pygmy groups spread out over such vast areas of the tropical forest? Is independent invention a possibility? Only if one is willing to accept the extraordinarily high odds against so many peoples scattered throughout such a large area working out the same highly distinctive and complexly integrated style on their own. Even then one would need to explain the high degree of concentration among Pygmy and Bushmen groups. While it has been convincingly argued that certain modes of embodiment could be associated with such a style (see, for example, Velitchkina 1996 and Lomax *et al.* 1966:224-35), I see no conflict between that hypothesis and the one I have been presenting, as there is no reason to assume both bodily and musical practices could not have been part of the same archaic tradition.

Returning to our hypothetical "founding" band, let us this time assume that some form of Pygmy/Bushmen style had already become established as a tradition among them *prior* to the earliest dispersals. Could such a tradition subsequently pass essentially unchanged from generation to generation despite the inevitable divisions into geographically and even genetically distinct groups and subgroups as time went by? As counterintuitive as it might seem, if there were no good reason for such a tradition to change, at least among certain groups, then why couldn't it have remained the same among those groups, even for tens of thousands of years, according to the principle of sociocultural inertia posited above?

There are two basic scientific principles at work here, Leibnitz's Principle of Sufficient Reason, which insists that all "truths of fact" (as opposed to "truths of logic") must have a sufficient reason for their existence, and Occam's Razor, which states: "One should not increase, beyond what is necessary, the number of entities required to explain anything." According to the former, nothing can change without a sufficient reason for such change, meaning that any tradition can be expected to continue indefinitely from generation to generation unless something happens at some point to alter or destroy it. In other words, there is nothing "natural" or intrinsic about cultural change, it does not just happen on its own, for no reason. According to the latter, if there is no necessity to posit a more complex explanation for any given state of affairs, the simpler one should be preferred. While such a notion might seem arbitrary or capricious to some, it has remained one of the most important principles of scientific modeling to this day.⁵ Clearly an explanation based on the persistence of a single practice, since the time when the ancestors of all practitioners were part of the same population, is far simpler than the notion that practices which were initially very different somehow converged due to completely unknown evolutionary processes at work separately in each group.

When the earliest "Bantu" groups emerged, for whatever reason(s) (population bottlenecks, disputes, evolutionary processes, etc.), new sets of values and needs could have emerged with them, causing some features of the ancestral Pygmy/Bushmen tradition to be discarded while others were retained. Thus, certain of these more dynamic and innovative groups might have continued to vocalize polyphonically, but without yodeling; others could have modified their vocal polyphony into simple call-and-response patterns or supplemented their vocalizing with elaborate instrumental traditions, and so on, which would explain the musical diversity we see today among such groups. Meanwhile, groups like the Pygmies and Bushmen, marginalized but also to some extent protected by their retreat into dense tropical forest or desert, would have been free to maintain the original, ancestral tradition more or less intact. As I see it, a multi-faceted but continuous process of more or less this sort seems the most likely explanation for the stylistic distributions now evident throughout sub-Saharan Africa.

The perpetuation of archaic ancestral traditions need *not* entail stagnation or entrapment in a repetitive rut for thousands of years, as assumed by the "living fossil" paradigm. Pygmy/Bushmen (hereafter P/B) style is a very lively, very creative, imaginative, and fresh musical universe, sustaining itself in a great many different forms and varieties, melodic, harmonic, polyphonic, poetic, structural, etc., right up to the present day, when new compositions, forms, and techniques are still being created. I am talking about a tradition, not a fixed, rigidly established, repertoire of compositions, procedures, etc., passed on from generation to generation intact and unaltered.

Another thing to bear in mind at this point is the potential meaning of such an approach to tradition for ethnomusicology itself, which may well have to re-calibrate its thinking regarding the provenance of all the many styles encountered throughout the world. Much of the current genetic and archaeological research on pre-history cites relevant evidence from the field of linguistics, which is extensive indeed. Musical evidence is almost never presented, as though it could have no bearing on such issues. Indeed there is at present very little musicological research that could be of use in the study of human history and origins. And yet, as we have seen, all sorts of musical roots can go very deep indeed—profoundly so. Languages change, sometimes very rapidly. Technology can change overnight. Many Pygmy groups no longer speak their native language but that of neighboring tribes. They often make use of modern clothing, tools, etc.. But, as I have demonstrated, there is good reason to believe they still make music the same old way. There would thus seem to be a great deal musicology could accomplish in cooperation with other disciplines, to enhance our knowledge of the human saga. But it must first widen its scope, broaden its horizons, and renew its faith in its own latent powers of teasing meaning, historical and otherwise, from contemporary sources, through inference. It is on such a basis that I have proceeded here.

4. A Discourse on Method

Not surprisingly, in view of the hypothesis presented above, many Bantu and other non hunter-gatherer peoples would seem to exhibit certain key features of P/B style, but in a somewhat "watered down" manner. The ways in which solo voice(s) and chorus interact is especially interesting in this respect. While the overall effect is considerably simpler than that of Pygmy or Bushmen performances, there is a tendency for the various parts to overlap and even interlock polyphonically, in a manner clearly related to P/B interlock, with tight vocal and rhythmic blend, open throated voices, etc..⁶

It looked very much to Lomax and me as though P/B style were in some sense prototypical for much of Africa generally. But what can that mean? Aren't there many different tribal groups in this area, with many different modes of music making? And aren't some of these radically different from P/B style? Yes on all counts. Sifting through all the recordings, books, and articles on the music of the different tribal groups, evidence emerges of a tremendously rich and varied series of musical styles, sometimes several in each tribe. This is where Cantometrics comes in, because Cantometrics represents a deliberate simplification, which zeroes in on certain very broad, clearly defined parameters. The subtleties, the fine distinctions, the background, and the (immediate) context are tremendously important to a full appreciation and understanding of each tradition, each style. But, as Lomax recognized very early on, where broad based comparative study is concerned, they can sometimes get in the way. Cantometrics does not ignore the details, but it does prevent them from obscuring the big picture.⁷

Since our intention was to examine music more or less as a listener with no formal musical training would tend to hear it, we took into account certain very general yet often cross-culturally diagnostic elements, which would be, for many specialists, unimportant, uninteresting, or too obvious to consider. Operating in this relatively "crude" manner, Cantometrics perceives sub-Saharan African vocal music as, very generally (and with certain very interesting exceptions): socially interactive (though not typically as thoroughly interlocked as P/B style), with overlapped and/or interlocked leader-chorus or chorus-chorus antiphony, very well blended, often (though not always) polyphonic, with little to no embellishment, short phrases, wide intervals, repetitive (litany) phrase structures, with a high degree of variation, highly to moderately repetitive texts, relaxed, and open-throated voices. Here we have a Bantu profile close to the Pygmy/Bushmen profile in a great many respects, the most important differences occurring on line 1, social interaction: P/B style is more highly integrated and complex. As would befit a prototype, it is similar on many parameters, but often more extreme.⁸ It should be noted, moreover, that certain Bantu groups vocalize in a more complex, interlocked, and integrated manner, even closer to P/B style than is typical. And many such groups apparently employ P/B style as a model for highly interactive, interlocking wind ensembles, usually consisting of some combination of pipes, whistles, flutes, and trumpets.⁹

While there is certainly a great deal more to be said about Africa, which is among the most highly developed, complex, and varied musical regions of the world, I want to move on at this point to broader considerations. As I mentioned above, we now have good reason to believe, thanks to recent DNA-based genetics research supplemented by some of the latest findings of archaeology and linguistics that the Pygmy and Bushmen hunter-gatherers of Africa can, on the basis of their lineage, be regarded as the "aboriginals" of that continent. But the same research takes us much farther. According to the now widely accepted (though still controversial) "Out-of-Africa" theory, a single band of "native" Africans who moved off the continent into Asia at some point between 50,000 and 90,000 years ago, are now thought to be the ancestors of virtually every non-African "modern" human (*homo sapiens sapiens*) in the world.

The "grand metanarrative" I am about to unfold draws to some extent upon this research, though admittedly much of it remains controversial. The genetic findings especially are sometimes puzzling and contradictory, as might be expected from a science still in its infancy, and might well require some adjustments and revisions in the future. Certain aspects of these theories make a great deal of sense to me, however, so I have no problem drawing upon them here. But I must make it clear that the ideas I will express about the evolution and meaning of *music* are not completely dependent on any research in any other field. The new theories help to explain and clarify the picture I am presenting, but other, quite different, explanations might ultimately prove more convincing. While I am attempting in these pages to interpret the evidence as best I can, drawing a picture both comprehensive and comprehensible, my most fundamental intention is to open doors on new possibilities and new approaches to some very old but still fascinating issues. If my work revives an interest in the broad comparative study of world music and leads to further dialogue and inquiry along the lines set forth here, I will be very pleased indeed.

5. Out-of-Africa

Geneticist Luca Cavalli-Sforza pioneered the use of genetic science as a tool for investigating the origins and migrations of early humans in the late 1950s and early 1960s and has continued to make important contributions in this field to the present day. In his monumental *History and Geography of Human Genes*, he summarizes years of meticulous research as follows: "The most important difference in the human gene pool is clearly that between Africans and non-Africans.... This suggests that the split between Africans and non-Africans was the earliest in human evolutionary history." Combining archaeological findings with the genetic results, he goes on to propose that: "the movement from Africa to Asia must have occurred after the origin of [anatomically modern humans] in Africa" (Cavalli-Sforza *et al.* 1996:93-94).¹⁰

The "Out-of-Africa" theory stemming from the pioneering work of Cavalli-Sforza and his colleagues has, in recent years, led to an explosion of interest and a spate of books aimed at the general audience. One of the most successful authors, Stephen Oppenheimer, is also a very interesting, though rather speculative, synthesizer. In his fascinating new book, *The Real Eve* (2004b), he summarizes the DNA evidence quite succinctly:

[O]nly one small twig (Out-of-Africa Eve) of one branch, out of the dozen major African maternal clans available, survived after leaving the continent to colonize the rest of the world. From this small group evolved all modern human [*homo sapiens sapi*- *ens*] populations outside Africa.... I cannot overemphasize the importance of the simple and singular fact that only one African line accounts for all non Africans. *(ibid.:*64)¹¹

The chapter "The Great Migration: To Asia and Beyond" from Steve Olson's *Mapping Human History* presents a map indicating the most probable path of "modern" man's earliest migration out of Africa (2002:135). Oppenheimer's *The Real Eve* offers a very similar map tracing an almost identical route, starting, according to this author, somewhere very roughly around 85,000 years ago,¹² from the horn of Africa across the Red Sea, northeast along the coast of the Arabian desert, then southeast along the coast of India, and from there following the coastline of the Indian Ocean eastward all the way through Indonesia, which was apparently, at that time, part of the Asian mainland, and on to Melanesia and eventually Australia. Oppenheimer estimates the entire trip, starting with the initial crossing of the original band from the Horn of Africa to Yemen and thence from the Arabian coast all the way to Indonesia, might have taken no more than 10,000 years (Oppenheimer 2004b:70-71). According to Oppenheimer:

If all non-Africans share one ancestral origin [i.e. Africa]...all their trails should lead back to one point in space and time; and all the colonies, left behind en route, should hold genetic and even physical keys to who went that way. This is the case.... Along the coastline of the Indian Ocean we still find small colonies of aboriginal peoples who may be descended locally from those first beachcombers....

Curiously, some of the best, if not the only archaeological evidence...comes not from India, South Arabia or Africa, but from the later parts of the trail—the Malay Peninsula, New Guinea, and Australia (*ibid*.:156, 159).

If Olson and Oppenheimer are correct, is it possible that some such "aboriginal peoples," still living along the Out-of-Africa migration route, might be perpetuating musical traditions that originated in Africa 85,000 years ago or more? Is there any evidence of this?

To answer that crucial question, we need to backtrack a bit to consider one of the most characteristic and significant aspects of Pygmy/Bushmen style, their use of a technique often referred to as "hocket." This term, coined during the Middle Ages in Europe, literally means "hiccup," a derisive reference to a style popular in the church music of the time. Strictly speaking, *hocket* can be defined as the tossing of a single melodic line back and forth between two or more performers. In extreme cases, as in a bell choir, or certain African wind ensembles, each performer plays only one or two notes. In my view, however, the term can be extended to include more complex practices, such as the tightly coordinated polyphonic interlocking of brief, complementary, motives found so commonly among the Pygmies and Bushmen. This, in any case, is how I have chosen to define it for the purposes of this study.¹³ Vocal "hocketing" in a similar sense can be found among certain "Bantu" groups in various parts of Africa. The *influence* of hocket can also be felt quite strongly in much African leader-chorus response, where, as noted above, alternating parts often tend to interlock and frequently complement one another both textually and musically, in a manner related

to hocket. Hocketing in its purest form is, on the other hand, quite common in Bantu *instrumental* music, as found, as already mentioned, in a great many ensembles of horns, flutes, whistles, panpipes, etc.. Hocketing is also the basis for many other types of Bantu instrumental music, including ensemble xylophone performance and even drumming.

Cantometrics accounts for hocket, and other highly integrated performance types, under the heading "Interlock," at the rightmost extreme of line 1 of the coding sheet, labeled "The Social Structure of the Singing Group." A systematic search for the occurrence of this trait worldwide (Grauer 1965) turned up examples of interlocked vocalizing mostly among the African Pygmies and Bushmen, but also: certain Bantu tribes, an indigenous "pygmy" tribe in Taiwan (known at that time as the Sajek), the Dani people of New Guinea, the Ainu of Japan, the Jivaro and Campa of South America (though Amerindian "interlock" tends to be more diffuse rhythmically than the other examples), the Hupa tribe of California, some yodeling cattle herders in Switzerland, and a group of Italian stevedores singing in "Tralalero" style. Since then a great many additional instances have been identified, largely among aboriginal peoples located along a path stretching from Southeast Asia, Taiwan, and the Philippines, down to Indonesia and beyond, to New Guinea and many of the smaller islands of Melanesia.

Some excellent recordings from all these regions are available, many accessible via the Internet, where clips from most tracks can readily be sampled (see the Discography for more information). In order to fully grasp the points I am making regarding the distribution of various styles, and the many similarities and differences entailed, I urge the reader to listen to as many examples as possible, either from the discs themselves or via the Internet.

A truly wonderful CD set, Voices of the World, a veritable treasure trove filled with beautiful singing/chanting from some very out of the way places, contains a variety of remarkable recordings from many of these areas. Every single track is well worth listening to—and studying. Disc 1, track 34, from Guadalcanal, is a remarkable example of yodeled polyphonic vocalizing in the Solomon Islands. Over a sustained vocal drone, two female voices, one high, one low, interweave brief tetratonic, hocketed motives in counterpoint, featuring a consistently yodeled leap of a perfect fourth to the highest pitch. This can readily be compared with the women's voices on track 32 of the same disc, a Bushman (Ju'hoansi) curing song. Aside from the difference in tempo, and the greater complexity of the Bushmen performance, there are some striking similarities, including yodel, wide intervals, predominance of "nonsense" vocables, and, of course, continual hocket. Disc 1, track 35 gives us an opportunity to experience a rarely heard type of European polyphonic yodeling, also with wide intervals, relaxed, open voices, and nonsense vocables. This is from Switzerland, forming a variant of P/B style featuring more sustained and extended vocalizing with cowbells in the background. The Cantometric profiles for all three of these tracks would be almost identical. All involve interlocked polyphony, smoothly blended, highly coordinated voices, and nonsense vocables. All are highly repetitive, featuring wide intervals, with no embellishment; clear, relaxed, open-throated voices; and slurred enunciation.¹⁴

Some especially interesting vocalizations in a style that seems closely related can be found on the remarkable set of CDs Steven Feld compiled from his many years of fieldwork among the Kaluli people, in the Bosavi region of Papua New Guinea (*Bosavi: Rainforest Music From Papua New Guinea*). An example of P/B-style hocketed, yodeled vocalizing can be heard on disc 2, track 1, "Men's Work Group Clears a New Garden." Beginning with some isolated, yodeled whoops, the workers segue smoothly into multi-part, interlocking polyphony, based on a pattern of descending thirds, tossed back and forth canonically among all participants. For comparison, see *Namibia: Songs of the Ju'hoansi Bushmen*: track 3, "The Eland," also built around a similar kind of yodeled canonic hocket.

The most common type of vocalizing Feld discovered among the Kaluli was called by them "lift up over sounding." This style, based on the interlocked reiteration of similar motives to produce a kind of "echo" effect sounds to me like a variant of certain types of Pygmy/Bushmen canonic interlock. Certain tracks on discs 2 and 3 of the *Bosavi* CD set just cited provide examples of this type of vocalizing, which I will call "canonic/echoic" style. In some cases the parts can be quite loosely coordinated, but in others the coordination is, as with P/B style, relatively tight. In my view, the canonic/echoic performances of all these groups are closely related to P/B style, as is apparent when comparing disc 2, track 5 from Feld's *Bosavi* collection with examples of African Pygmy polyphony which feature canonic interplay (see *Anthology of the Music of the Aka Pygmies*: disc 1, track 1; disk 2, track 1).¹⁵

We can now move on to compare all of the above with strikingly similar examples of canonic/echoic vocalizing from the Jivaro, in, of all places, South America (see, for example, *Music of the Jivaro of Ecuador* track 102). There are some other really amazing tracks on this disc, such as track 205, a "shrunken head dance" containing both canonic/echoic singing and hocketed shouting, in a style resembling the Dani of New Guinea as well as Ainu and Inuit "throat singing."

All sorts of hocketing are common in Indonesia, though most recorded examples are instrumental. Relatively rare vocal examples from the island of Flores can be heard on *Music of Indonesia 8: Vocal and Instrumental Music of Flores* track 2, "Lero," where hocketed vocalizing can be heard behind the more prominent solo voice, and track 5, the strikingly beautiful "Oambele," where the hocketing is more distinct, if sporadic. The best known hocketed vocalizing from Indonesia is, of course, the famous Monkey Chant of Bali (see, for example, *Music of the Morning of the World* track 10), with its uncannily rapid interchange of shouted, almost barked, cries among large numbers of perfectly synchronized participants. Though now consciously staged, the chant is generally considered to be based on traditional possession rituals predating Hindu influence. While the aggressive hocketing of the Monkey Chant might seem a long way from the gentle yodeled counterpoint of the Pygmies and Bushmen, that is not really the case. The last track on Rouget's Bushmen-Pygmy comparison, for example (*Music of the Bushmen and Pygmies* side B, track 4), is an extended recording of a Bushmen *Choma* initiation ritual for boys. After a very brief, gently yodeled, introduction, we hear loud, shouted, and complex interlocked hocketing, mostly on a single note, reminiscent of certain passages in the Monkey Chant. Another recording of apparently the same ritual (this time spelled *tcoqma*) made some 40 years later by Emmanuelle Olivier (*Namibia: Songs of the Ju'hoansi Bushmen* track 1) is strikingly similar, despite a completely different introductory vocalization. A great many other examples of hocketed vocalizing of one sort or another could be cited. There is, indeed, no shortage of tribal groups, strewn all the way from Southeast Asia to Indonesia, the Philippines, New Guinea, and other parts of Melanesia who vocalize in a manner closely comparable to that of the Pygmies and Bushmen of Africa.¹⁶

6. The Panpipe Enigma

Though our Cantometric search involved vocal performances only, we can add, from other sources, the following cultures where purely *instrumental* hocket has been found: the pipe, flute, whistle, and horn ensembles of several African Bantu tribes, as already noted; also, among certain indigenous peoples of New Guinea, the Solomon Islands, Indonesia (Flores, Bali, Java, among others), the Philippine island of Mindanao, Vietnam, and certain other enclaves in Southeast Asia, and China. We find similar practices, both instrumental and vocal, in certain villages in Russia and other parts of Eastern Europe, and also the Andes and other regions of Central and South America.

Let us begin in the least likely place, with a consideration of an extraordinary, little known tradition of panpipe playing in Russia as described in a remarkable multimedia essay by Olga Velitchina (1996) currently available on the Internet. Scrolling down the Introduction, there is, in the left margin, a link to a brief video clip (labeled "Video 1") of a panpipe performance by four women. Of this example, Velitchkina writes: "On first listening, this music seems closer to African forms (for example, to the Ba-Benzele Pygmy music) than to any European folk instrument traditions. Yet panpipe musical practices similar in many respects to those of Russia are found across Europe on limited territories of Serbia, Romania, Komi Republic (North Russia, Ugro-Finnish population), and Lithuania." To my ears it does, indeed, sound like an instrumental equivalent of Pygmy music (as well as other types of hocketed pipe and panpipe ensemble common among many Bantu groups), and in more than one respect: for one thing, it is definitely hocketed, with each part closely interlocking with every other; for another, it presents a continuous, seemingly "breathless" flow of unphrased interwoven polyphony. Could such close resemblances to Africa be purely fortuitous? Can there possibly be a connection between the women of this Russian village and the tribal traditions we have been considering?

Let us move on without further comment to consideration of a completely different culture, that of the 'Are'Are people of Malaita in the Solomon Islands, where a very similar type of continuous, hocketed panpiping can be found (for example, see Chants of the Solomon Islands 1994, disc 1, track 2, "Paane Ni Rokera"). Some other, equally intriguing examples of 'Are'Are music can be found on the Internet at Buenconsejo 2001. Scrolling down almost halfway there are three audio clips, the first of which is another panpipe ensemble, also organized (after an introductory passage) as continuous, interlocking hocket. (There are also two very interesting clips of stamping tubes and slit drums which we will leave aside for the moment.) If the aural resemblance with Pygmy/Bushmen style is not obvious from these examples, listen to the 'Are'Are Lullaby on the same page, a bit farther down. Here we have a tightly interlocked canonic/echoic vocal duet, in a manner very close indeed to both P/B style and the "lift over sounding" practice of Feld's Kaluli recordings (interlocking, polyphonic voices, with wide intervals, highly repetitious or nonsense text, canonic imitation, unembellished line, wide open and relaxed throat, relaxed accent, slurred consonants, etc.). Even closer to "classic" P/B style is an 'Are'Are "Divination Song" filmed (in darkness) by Hugo Zemp (Zemp 1979, vol. 2), combining a florid solo voice with an interlocking, hocketed vocal group, sometimes "hooting" in a manner close to yodel. Another Zemp recording, on the same video ("Pounding Song") is a vocal duet between two men pounding grain in a similarly "hocketed" manner.

When, many years ago, I first saw Zemp's pioneering cinematic studies of 'Are'Are music making, the examples he presented seemed to me almost like a kind of musical Rosetta Stone, with all sorts of fascinating links to other traditions, some geographically quite distant. When I mentioned this to Zemp, however, I was surprised and disappointed to learn he had no interest whatever in such connections, but simply wished to document and study 'Are'Are music for its own sake. That is unfortunate, in my opinion, because what he had discovered on that island was as potentially important for musicology as was, indeed, the discovery of the Rosetta Stone for linguistics. For example, let's return to the lullaby just mentioned. Not only does it strongly resembles P/B vocalizing, but also it bears a remarkable resemblance to another singing style from South America. As I have already pointed out, loosely coordinated "canonic/echoic" singing of this type is quite common among certain groups on this continent.¹⁷

Returning to a consideration of panpipes, it is important to recognize that there are at least two different styles of 'Are'Are panpipe hocket: 1. a continuous, unphrased, interlocked stream, similar to P/B style, exemplified by the first two 'Are'Are examples above; 2. a phrased, "harmonized" melody, with all instruments playing in essentially the same rhythm (see *Solomon Islands: the Sounds of Bamboo* track 10, "Closing Piece"). But the same stylistic dichotomy can be found in the Americas. (For an example of style 1, see *Primitive Music of the World* track 106, from Panama, which may be compared with examples of style 2 from *Bolivia: Music of the Calcha* track 1, "Carnaval-Jant'arki," and Peru—*Kingdom of the Sun* track 4, "Panpipe ensemble.") If style 1 had been from the Solomons and style 2 from the

Americas one might possibly be justified in claiming that the two are completely different and thus unrelated. Both styles are found in both regions, however.

Panpipes are played in hocketed ensembles in Africa as well, though it is not clear whether this instrument originated there. Apparently neither Bushmen nor Pygmy groups have panpipes, but certain Pygmy groups often play single pipes or whistles in concert using a similar type of hocket. Examples of such pipes, called *Hindewhus*, can be heard on the CD *Anthology of World Music: Africa–Ba-Benzele Pygmies*. On track 1, a Pygmy sings and plays alternately on a *hindewhu*. A group of these instruments can also be heard on the following track, hocketing along with a mixed choir. Such effects can be compared with strikingly similar practices in New Guinea, as, for example among the *Huli* people recorded on *Voices of the World* disc 2, track 29, where a male singer alternates between singing and playing on a reed pipe. Hocketed flutes and voices, very much in Pygmy *hindewhu* style, but also from New Guinea, can be heard on *Primitive Music of the World* tracks 102 and 103. Velitchkina describes a strikingly similar practice in her essay on Russian panpipes.¹⁸

The panpipe is currently found as a traditional instrument among certain peoples, often described as "aboriginals," "tribals," or "peasants," of Southeast Asia, Indonesia, Melanesia, South America, Africa, and Europe; records exist of its provenance in Polynesia, though the performing tradition seems to have died out there; historical records and archaeological artifacts place it in the world of ancient civilization as well: Mesopotamia, Turkey, Greece, Egypt, China, and possibly India.¹⁹ It has not been found, apparently, among the traditional instruments of Central Asia, Siberia, Australia or, aside from archaeological remains, America north of Mexico. Since it is found in so many different parts of the world, so apparently unrelated to one another geographically, historically, or culturally, its distribution is especially difficult to understand. Can the "Out-of-Africa" migration considered so far shed some light on this question, and others of a similar sort? Before attempting a response, I would like to consider yet another instrumental practice.

7. From Stamping Tubes to Gamelans

Let us continue by returning to the afore-mentioned "Rosetta Stone," the 'Are'Are, to examine a somewhat different type of hocketing, this time by percussion instruments, specifically *stamping tubes*. Here each performer holds a single tube, each with a different pitch, stamped vertically on the ground in precise synchronization with all the others to produce an intricately woven melodic interplay in classic hocket style (for example, *The Solomon Islands: The Sounds of Bamboo* track 20 and *Solomon Islands: 'Are'Are Intimate and Ritual Music* track 6) A similar type of hocket-ed percussion can also be heard in Indonesia, for example in the *tektekan* ensembles of Bali (*Music of Bali* 3 track 2, "Rama Budaya").²⁰ We find closely related types of interlocked performance, as well, in a great many of the slit drum traditions of both Indonesia and Melanesia.

Hocketed percussion resembling that of slit drums, only this time with metallophones, can be found in the Philippines among aboriginal peoples living on the Island of Mindanao. Several excellent recordings of a gong ensemble of this type, called a *Kulintangan*, can be heard on the CD *Kulintang: Ancient Gong/Drum Music of the Southern Philippines*. Track 4, *Titdu II*, gives a good sense of how the different instruments relate by introducing them one by one. Each instrument presents a very clear "tattoo" that is then repeated. Every individual rhythm is carefully designed to interweave with and complement all the others to produce a richly textured "resultant" typical of hocketed ensembles generally. Simpler gong ensembles have survived on the island of Flores, just East of Bali (*Music of Indonesia 8: Vocal and Instrumental Music of Flores* track 4, "Gong Gladung Blabat").

The *anklung* is a set of tuned rattles, shaken back and forth with both hands. Once common in Indonesia and possibly other parts of Southeast Asia, it is now a rarity. Three or more performers interact to produce a type of interlocking, rhythmic interplay, very similar to the examples just cited, with the added element of (roughly) tuned pitches.²¹ Made entirely of bamboo, the *anklung* is a "primitive" ancestor of the bronze instruments so common today in the *kulintangan* and other hocketed gong ensembles, as well as the more elaborate gamelans of Bali and Java. It is always heard as part of an interlocked, hocketing group, often with additional gongs and drums. Another equally simple Balinese gamelan, featuring a type of jaw's harp called the *genggong*, is based on similar hocketing principles (see *Sampler: Indonesia, South Pacific Music from the Nonesuch Explorer Series* track 11, "Lagu Kodok").

Such ensembles typically perform in the rapid, repetitive, "tattoo" style of the slit drums, stamping tubes, and *tektekan* ensembles already described. Percussion ensembles of this type are strongly reminiscent of the *kotekan* parts in certain Balinese gamelans, a practice Michael Tenzer has described as follows:

Each [melodic] layer is assigned to one of four main instrument groups.... The densest one, usually at four notes per beat, is played by the highest-pitched metallophones and gongs. A common technique employed by these instruments is that of interlocking parts, or *kotekan*, which allows for rapid filigree to be played by pairs of musicians faster than any individual performer could. Though divided into rhythmically interesting separate parts, however, the composite *kotekan* proceeds in an unbroken rhythmic continuity and should be heard as a melodic component integral to the composition. (Tenzer 2000)

Tenzer's reference to *kotekan* as both interlocked and continuous (i.e., unphrased) marks this practice, for me, as closely connected to all the various types of continuous, P/B-related vocal and instrumental hocket under examination (characterized as "type 1" above). To my ears, the similarity with the 'Are'Are stamping tubes is striking. A link to a brief example of recorded *kotekan* can be found on Tenzer's web-based presentation (*ibid*.).

But what about the rest of the gamelan? Is *kotekan* the only link with hocketing? In most gamelan performances, Javanese and Balinese, there is a slow, stately, continuous procession of alternating gongs in the background, constituting the so-called colotomic or "punctuating" layer of gamelan structure, the regularly cycling temporal basis on which all the other layers rest. An especially instructive example can be found on disc 1, track 2, "Banjaran," of the CD set Indonesia: Wayang Golek. As this piece moves along fairly briskly, it is not difficult to hear a relationship between the interplay of the "colotomic" gongs and that of the hocketed gong ensembles already introduced from Flores and Mindanao, the former sounding like a stretched out version of the latter. Even more stretched out are the slowly cycling, colotomic gongs so characteristic of the statelier, classical gamelans of the Javanese court (for example, Java: Javanese Court Gamelan track 1). It would seem, therefore, that the hocketing tradition I have traced is echoed at both the highest and lowest levels of a much more evolved, complex, and refined gamelan-based court music. Colotomic "hocket" plays a similar regulating or "punctuating" role in other East Asian traditions, notably in the court-based gagaku of Japan. Some fairly clear examples can be found on the CD Gagaku: Imperial Court Music of Japan, especially track 5, Hassen, if we ignore the *hichiriki* (oboe) and flute, concentrating mainly on the gong and drum parts.

8. Survival, or Independent Invention

In Section 5, after discussing the "Out-of-Africa" theory, I asked whether there was any evidence to support the notion that descendents of some of the earliest "colonies" left by the theory's "beachcomber" migrants might still be singing and playing like their African ancestors. In the remainder of that section, and the two following, I have presented all sorts of very tantalizing evidence, suggesting the possibility of musical survivals of a sort that would seem at least consistent with such a notion. To summarize my argument thus far: 1. the distribution of Pygmy/Bushmen style in Africa suggests it might well be the survival of an archaic musical tradition practiced by our ancestors from at least the period of the earliest genetic dispersals, possibly anywhere from 70,000 to over 100,000 years ago; 2. the presence of more or less the same highly distinctive style today, in both vocal and instrumental variants, along segments of the same path as that now hypothesized for the "Out-of-Africa" migration, suggests the possibility that the original migrants were an offshoot of the same ancestral group, perpetuating the same musical tradition, which might now survive more or less intact in the performance practices of a number of "aboriginal," "tribal," and/or "peasant" groups living along the original migration path and beyond. By the same token, it appears as though we need not posit some unknown process of cultural diffusion²² to account for the presence of P/B style vocalizing and hocketed instrumental performance in East Asia, Southeast Asia, Melanesia, Indonesia, etc. Such similarities, as with those among the Pygmies and Bushmen, might more straightforwardly be explained, to quote Wiora (1956:25-26, cited above), "as springing from a common root."

What are we to make of such a hypothesis? Are there other ways of interpreting the same evidence? We have already encountered, in my discussion of African music, one very common explanation for the distribution of similar traits and trait complexes in various parts of the world: "independent invention." It is often argued, for example, that a particular artifact or practice might well have been created "naturally," and "as a matter of course," in various places and at various times, simply as the result of some innate human need or desire. While "innateness" has recently become a popular theme of cognitive science, ethnological research has consistently revealed that most if not all cultural practices are social constructs, not "givens" of nature. In the case of P/B style, one must ask why such a need, desire, or propensity would be innate only among certain peoples and not others.

Another, related hypothesis, now largely out of favor, is the notion that all societies evolve along more or less the same lines, so that we can expect to find similar artifacts and practices cropping up in various groups at similar stages in their "development." If all or most hunter-gatherer societies in various parts of the world sang and/ or played in similar ways one might possibly want to at least consider such an argument here. But they do not. To cite only three examples, Eskimo hunters have a completely different type of music from African Pygmies and Bushmen, and the aboriginal hunters of Australia sing and play in a manner radically different from both. We will have occasion presently to ask ourselves why such differences exist. But clearly they do not reflect evolutionary stages.

Another common argument for independent invention pays close attention to the effects of the environment. Here we are on firmer ground, since environment has been seen as an important factor in physical evolution since Darwin. However, as we have already learned, the Pygmies of the tropical forest inhabit an environment radically different from that of the Bushmen, who have adapted in a great many ways to their desert habitat. The different environments might well explain certain phenotypic and genetic differences between these groups. But it cannot explain their musical differences since, as I have demonstrated, their vocalizations are extremely close stylistically, along a very large number of parameters indeed, to the point that even specialists trained in African music cannot easily tell them apart. Ethnomusicologist Steven Feld developed a very interesting theory, based on the self-perception of the Kaluli people of New Guinea, namely that the "lift up over sounding" style, discussed above, was created in response to certain features of their environment (Feld 1982, 1996). As we have seen, however, essentially the same musical practice, which I called "canonic/echoic," is widely found in many different environments, including an assortment of locations within Southeast Asia, Papua-New Guinea, island Melanesia, and South America.

Feld's idea is a version of a broader concept known as "functionalism," the claim, pioneered by Malinowski and Radcliffe-Brown, that most if not all cultural elements must originate in a real or perceived need to fulfill a particular function within that society. One might theorize, for example, that P/B style, canonic/echoic style, or hocketed panpipe playing can be explained, not as the perpetuation of some ancient

tradition, but as a creative response to a particular need that happened to arise in each society at a certain place and time, possibly due to certain structural changes in the society as a whole. Such a process could only be understood within the context of the society itself. For many functionalists, therefore, environmental or biological considerations aside, most if not all elements of culture can be understood only in what is sometimes called *emic*, as opposed to *etic*, terms (by analogy with the *phonemic* and *phonetic* aspects of linguistics), the former representing the view of the enculturated insider, the latter the view of the more objective, possibly "scientific," but uninitiated, outsider. Ethnomusicology, along with much of anthropology, has strongly tended to endorse the *emic* viewpoint for some time, placing far more value on the immediate cultural context as experienced by the "natives" than any more broadly comparative view, however "objective" or "scientific" in intent.

Anthropologist Marvin Harris has attacked the position that "all knowledge is ultimately 'emic'" as a fundamentally idealist strategy: "To deny the validity of etic descriptions is in effect to deny the possibility of a social science capable of explaining sociocultural similarities and differences" (Harris 1979:45). For Harris, therefore, once one has decided to take the "emic" position, it would follow as a matter of course that one would tend to reject all attempts to explain any cultural or social practice on the basis of observations drawn from some external context.

Rather than get into a long discussion of the epistemological issues underlying such debates, I will argue, simply, that the complexly integrated, highly distinctive nature of P/B style, along with its equally distinctive patterns of distribution, would appear to strongly resist explanations based on any model of independent invention, at least any that I have ever heard of. Here, as with my discussion of the meaning of P/B style in Africa, I will have recourse to two basic scientific constructs: the Principle of Sufficient Reason and Occam's Razor (see Section 3, above).

If the distribution of P/B style among so many "aboriginal" groups were due to independent invention, then there must be a sufficient reason for each one—or any— of those inventions to have occurred. If it were simply a matter of banging a stick on a hollow log, then perhaps all instances could be explained as the result of a need to communicate over long distances, a functional response to the environment. Once a slit is carved into that log, however, turning it into a "slit drum," an important cultural element has been added and the difficulty of explaining all instances as independent inventions increases considerably.

P/B style is far more complex than any slit drum, involving not only a high degree of social integration, coordination, and sheer musicality among all participants but also, in many, though not all, cases, a very distinctive style of vocalization: yodel. It is very difficult to see how a practice of such complexity and distinctiveness could have been invented out of whole cloth in so many different places so remote from one another. And if one would want to argue that the "variants" of P/B found by me in so many different places are not variants at all, but totally different styles reflecting totally different traditions, then how do we account for the presence of all such variants within a single group, the 'Are'Are?

To get an even better feel for this problem, let us focus our attention on the panpipe. The independent invention of that particular, very distinctive, instrument in so many different places, unlikely as it seems, might be regarded as a remote possibility. But the strong association with hocketing just about everywhere we find panpipes makes such an explanation far more difficult to accept. And it works both ways. If we might want to regard the presence of hocketing as an independent invention, we have to ask why it is so often associated with particular instruments, such as the panpipe and very distinctive forms of vocalizing, such as yodeling and so many of the other features associated with P/B style. One might argue that a particular type of instrument or a particular type of musical interaction could be independently invented. But for both to be independently invented in tandem, in so many different places? Leibnitz's principle is based on *sufficient* reason, not just any reason at all.

There is one more turn of the screw, in fact an *emic* consideration of great interest, which I have not yet mentioned. Throughout Southeast Asia, Indonesia, China, New Guinea, island Melanesia, and South America as well, the various instruments associated with hocket, especially panpipe ensembles, but also slit drums, and, in Indonesia, gongs and gamelans, are regularly divided into male-female pairs. While there seems to be little evidence of such pairing in Africa, the strong association with this type of symbolism in so many disparate places would seem to make independent invention especially unlikely.

Despite all the evidence against independent invention, if I want to explain the various distribution patterns of P/B style, hocket, yodel, panpipes, etc., as survivals of an ancient migration from Africa, a very serious problem remains. While independent invention seems incompatible with the Principle of Sufficient Reason, what about Occam's Razor? Can explanations based on ancient survivals be regarded as simpler than those based on independent invention? For one thing there is a huge gap between the Horn of Africa and Southeast Asia, which has to be accounted for. We do not find much if any evidence of hocket or interlock in Yemen, Arabia, Pakistan, or India. There is another huge gap, between Melanesia and South America, which seems almost impossible to account for. Finally, we have to explain why those panpipe-playing, hooting, Russian women studied by Velitchkina sound so much like BaBenzele Pygmies.

There are many aspects of P/B distribution that seem quite clearly patterned, no question, especially the entire complex linking so many indigenous groups in East Asia, Southeast Asia, Indonesia, and Melanesia, including New Guinea. Occam would not give us any grief over those. Extending our reach westward to Africa, eastward to South America, and northwestward to Europe, however, the simple picture blurs, as too many serious gaps are left unaccounted for. If independent invention is not a realistic option, then survival hardly seems any better. If we cannot find a simple explanation for the strange distribution of P/B style, then we will find ourselves lost somewhere between the Scylla of Leibnitz and the Charybidis of Occam.

9. Upcoast, Downcoast: From Asia to the Americas

As the analysis offered in the previous section makes clear, the musical evidence reviewed thus far, while in my view compelling, is not in itself sufficient to resolve the resulting epistemological dilemma. The distributions described above cannot satisfactorily be explained either on the basis of independent invention or survival. But there remains a lot more evidence to consider, musical, archaeological, and genetic.

I want at this point to return to a consideration of the 'Are'Are. They are especially important, not only because they perpetuate P/B style vocalizing and instrumental hocket but also because, as we have seen, they manage to preserve these styles in so many different forms—forms related to the practices of other, seemingly very remote, groups. For example, as I have already demonstrated, we find polyphonic panpipe hocketing in Central America, the Andes, and parts of Amazonia, but often in a much simpler form than P/B style interlocked hocketing, since all parts so often tend to play in the same rhythm, rather than contrapuntally. One might be tempted to claim this makes such practices completely different from African and Melanesian piping. But remarkably enough we find *both* types among the 'Are'Are, the P/B contrapuntal type *and* the Central and South American rhythmic unison type (see my discussion of types 1 and 2, in Section 6 above). When we add the fact that South and Central American panpipes are, as we have already learned, so often divided into male-female pairs, as is common in both Asia and Melanesia as well, a trans-Pacific relationship of some sort seems evident, though admittedly very hard to explain.

Similarly we find, among many Central and South American tribes, what seems to be a variant of P/B vocalizing, where each singer sings essentially the same tune either at his/her own pace or in a sort of roughly coordinated echo (what I called the "canonic/echoic" style above). Lomax and I debated over the best way to code this, as it has elements of both heterophony and interlock (we solved the problem by double-coding). Is it actually related to P/B style or a completely different practice? As I have already pointed out, the 'Are'Are provide us with an important clue, because they vocalize *both* ways, in "classic" P/B contrapuntal style *and* canonic/echoic style. It looks very much as though the two styles are related, yet another reason for positing some sort of interconnection, far fetched as that may seem, between the American groups and the "Out-of-Africa" P/B migrants.

The cognates do not stop there. The 'Are'Are also play stamping tubes, in a manner very similar to the hocketing interplay so characteristic of gong ensembles from Mindanao to Flores, Bali, and Java. If we knew nothing about 'Are'Are stamping tubes we might have some lingering doubts as to whether the hocketing of the gong ensembles could be related to P/B hocket. And let us not forget the various types of interlocked slit drum performance found in Melanesia, Polynesia, and South America, not to mention the most likely place of origin for this instrument, Africa.

Can all these various practices (not forgetting the Russian panpipers—we deal further with Europe presently) really be traced back to Oppenheimer's "Out-of-Africa" migration? Let us take a closer look at the most challenging case, the link with

Central and South America—and the absence of any *North* American link, which must also be explained. For a long time I felt sure there had to be a connection between those South American panpipes and Melanesia. But the only possibility I could see was a direct link via the Pacific Ocean, which had been all but ruled out by anthropologists. I remained skeptical on that score. There were just too many things, not just panpipes, which seemed to require a trans-Pacific connection. Now that the DNA evidence is in, I have learned to my disappointment that this too all but totally rules out any direct connection via the Pacific. It was only when I took a closer look at this same genetic evidence that another possibility emerged, via a far more indirect link.

The web site "Journey of Mankind" (Oppenheimer 2004a) contains an interactive "Genetic Map," developed by Stephen Oppenheimer, taking the viewer step by step through the "Out-of-Africa" migration that is the centerpiece of his book. By clicking along this map it is possible to easily track the general outlines of the migration discussed so far. I will summarize its contents here.

Though the map begins 140,000 years ago, we can skip to the dates 45,000-40,000 BC, as we are concerned at this point only with the peopling of the Americas. Moving along from this region of time, Oppenheimer traces a slow but sure progression of his Out-of-Africa "beachcombers," from southeast Asia northward along the east Asiatic coast, to be joined roughly 40,000-25,000 years ago by two other strands, arriving by two different routes, via Central Asia and Siberia respectively.²³ The following step shows all three groups progressing over the land bridge at Bering Strait, and then dividing between land and sea routes into North America. Note, however, that by the next stage, 22,000-19,000, the Ice Age maximum has made most of North America uninhabitable. One group in the southeast remains, apparently far enough south to survive. It is also possible that some of the nomads could have safely reached parts of Central and South America by this time.

According to Oppenheimer (2004b:300-13) if North America had been populated prior to the Ice Age, and there is now very good evidence that this is what happened, that population would have either been wiped out or forced to move when the Ice Age hit—either to refuges in the South, or back where they had come from in the northwest where at that time there lay a large land mass relatively free of ice, now referred to as "Beringia." The next two steps on his display show the southern group continuing south to populate most of South America while another group moves by sea (dotted lines) from Beringia to gradually populate the western coast of both continents. In the next segment we see North America repopulated, as the glacier recedes, by groups from both the northwest and south.

Oppenheimer had already posed an important question, "Why so little diversity in the North?" Since Beringia would have been by far the most likely entry point into the Americas, most theories would predict greater diversity, both genetic and linguistic, in the Northern rather than the Southern hemisphere. But the opposite is in fact the case. South America is far more diverse in both respects. Now he is in a position to answer this question. If most of North America were uninhabitable during the height of the Ice Age, it would therefore have lost most if not all its population, only to be repopulated later by NaDene speakers from the north and Amerind speakers from the south, with Aleut and Inuit speakers arriving at later dates. North America is less diverse than South America in his view because the original population was killed off or forced to disperse as a result of the Ice Age maximum.

To summarize, the Americas may have originally been populated by three different groups: an offshoot of the original Out-of-Africa "beachcombers," steadily progressing from Indonesia, up the coast of Eastern Asia to the extreme north; a now very different group from Central Asia, which had already broken off from the main line thousands of years earlier; and a third, different from the first two, from Siberia. All three might have made it across the arctic land bridge prior to the Ice Age maximum, but only certain groups might have made it far enough south to be safe from the maximum when it finally arrived. Could these have included direct descendents of the original beachcomber group, bringing with them the canonic/echoic variant of P/B singing style and their hocketing panpipes? If so, then, as they progressed further south, they would have populated certain areas in Mexico, Central America, the Andes, and the Amazon Basin, where their descendents would be living today. According to this line of thought, we do not find panpipes²⁴ or canonic/echoic singing north of Mexico because any stragglers from that group would not have survived the worst of the Ice Age. The groups taking refuge in Beringia may have represented the two other populations traced by Oppenheimer, whose history had taken them on a different course, through Central Asia and Siberia, where they could have lost touch with the original P/B traditions, since there is now, outside of the Inuit "Throat Singing" tradition (Nattiez 1999), little trace of P/B style singing, or panpipes, north of Mexico. Possibly due to their shared experiences in Beringia during the Ice Age, these northern groups have strong musical resemblances to one another, making America north of Mexico an unusually homogeneous style area. Further light on this is shed by Zago et al. (1995:4) who identified:

three predominant [Alpha]-globin gene haplotypes among Brazilian Indians [, a distribution that] has some features in common with the distributions observed in Southeast Asia, Polynesia, Melanesia and Micronesia.... The frequency of haplotype IIe among the Amazon Indians is the highest thus far observed in any human population. It occurs regularly in Oceanic and Southeast Asian populations but is absent in Europeans and sub-Saharan blacks.

[Additionally] all examples of haplotype IIa identified in our sample contained...a variant [which] when present is commonly associated with haplotypes IIa or IId in Southeast Asia, Polynesia, Micronesia and Melanesia.

After considering all this evidence, along with a considerable amount of additional genetic data gleaned from the research of others, the authors conclude: "the similarities between native [South] Americans and populations from the Pacific Islands are probably the consequence of ancient common origins that predate the peopling of the Americas and Oceania" (*ibid*.:5). Some basic questions regarding the distribution of song style and instruments in the Americas appear to be answered quite elegantly by the picture outlined above. Many years ago, as a student of Charles Seeger at UCLA, I compiled a bibliography of writings on the musical instruments of South America. To my astonishment I discovered that there was in fact a large corpus of publications describing a tremendous variety of pre-Columbian instruments: flutes, whistles, panpipes, "clarinets," bark horns, slit drums, etc. (see, for example, Izikowitz 1970). This picture is completely different from that north of Mexico, where there are basically three instrument types, the drum, the rattle and the flute, a discrepancy I could not account for at the time.

The scenario presented by Oppenheimer accounts not only for the distribution of panpipes and canonic/echoic singing but also the proliferation of instruments generally in the south. It also helps to explain why some of these instruments, not only panpipes, but hocketed bark horn ensembles and slit drums, are common in Melanesia as well. If we assume the original "beachcombers" were the ones that made it farthest the fastest, then that would explain both the similarities with the Solomons, where they could have left colonies such as the 'Are'Are, and several New Guinea groups with similar musical traditions and instruments. According to this theory, the nomads would have maintained similar traditions as they traveled north along the coast of East Asia, passed through Beringia and made their way down to Central and South America. The paucity of instruments in the north could be explained by the effects of the Ice Age maximum, which would have covered most of North America, thus wiping out most of the groups living there and forcing the survivors back into the only relative warmth of Beringia. According to Oppenheimer, life would have been brutally difficult for those survivors, in an environment that would have offered very few materials from which to build instruments. Thus, when the descendants of these groups were finally able to move down into North America proper after the Ice Age, it makes sense that they would have lost most of their instrumental traditions.

This explanation is both a bit complicated and necessarily speculative. But what we know about the musical aspect does seem to fit. Oppenheimer's book may therefore provide an important clue as to how variants of P/B style singing and playing could have made it all the way to Central and South America but not survived in the North.²⁵

10. The Australian Dilemma

If the original Out-of-Africa group moved uniformly all the way from Africa down the coast of south Asia to the Malay Peninsula and from there down through Indonesia to New Guinea and Australia, as is sometimes claimed, then we musicologists have a problem. While many indigenous groups along the "beachcomber" route sing and play in a manner strongly reminiscent of P/B style, there has to my knowledge never been any instance of such a style found anywhere in Australia. I have never heard of panpipes there either. In fact the musical style of the Australian aborigines is dramatically different from the types of music under discussion thus far.

Native Australian music is remarkably homogeneous stylistically. We usually hear solo or harshly blended unison singing, with no polyphony, rather wordy texts, long phrase lengths, diatonic to narrow intervals, one-beat accompaniment, constricted, nasal voices, with a high degree of rasp and forcefulness. This would seem the general rule throughout all of native Australia, which is remarkable. The most distinctive element in Australian music is, of course, the *didjeridu*, which might be related to the Melanesian bark horn or possibly even the almost mythic Pygmy *molimo*, and is played continuously, using a breath recycling technique not unlike certain European and North African practices. While such resemblances might not be entirely fortuitous, the *didjeridu* and its music seem one of a kind, unique, and essentially limited to Australia.

Oppenheimer's analysis provides an important clue to the riddle of Australian difference: "The genetic picture tells us that there are no shared clans between Australians and New Guineans, and that New Guineans are as genetically distant from Australians as any other non-African peoples...[the evidence implies that] New Guinea may have been colonized before Australia and also that Australian clans were not descended from New Guinea may have been settled roughly 75,000, Australia 65,000 years ago. What could have happened in those 10,000 years to make the Australians so different from so many of the New Guineans, and by extension the other "beachcomber" groups, both musically and genetically?²⁶

Oppenheimer too is puzzled by the odd genetic and morphological gaps. But he finds a very interesting and possibly very important clue in "the greatest natural calamity to befall any humans, ever," the eruption, *c*. 70,000-74,000 years ago, of Mount Toba, in Sumatra. The explosion was so vast it left a plume of ash over the entirety of India for approximately five years, what Oppenheimer has called a "nuclear winter," in which almost every living thing in that area would have been wiped out (Oppenheimer 2004b:82). This is one of the very few events in prehistory that can be precisely dated and measured, since "a metres-thick ash layer is found throughout the region."

Oppenheimer goes on to write of "the paradox of the Indian genetic picture, in which the genetic trail of the beachcombers can be detected, but the bulk of Indian subgroups...are unique to the subcontinent, especially among the tribes of the southeast. This is what we would expect for a recovery from a great disaster" (*ibid*.:193). In other words, when we have a situation where the bulk of the human population is either killed outright or dies of starvation, with only a very small group of survivors, this looks very much like a formula for genetic—and cultural—change. Old genetic lines might be all but wiped out and new ones formed. Old cultural traditions might be all but lost—and new ones created out of vague memories and myths of the past.²⁷

Is it possible that Australia, populated, at least 10,000 years after the Toba blast, could have been occupied by one of the altered survivor lines out of South Asia?

Could that also explain the musical discrepancies between Australia and the rest of the out-of-Africa P/B style singer-players? Could that population have simply lost its polyphony, its hocketing, its panpipes, etc. as a result of an ages-old natural catastrophe, and been forced to invent itself anew?²⁸

11. Passage through India

Today, several groups of so-called "Paleosiberian" hunters survive in isolated pockets of subarctic and arctic Europe and Asia, stretching from northern Scandinavia through northern Russia to Sakhalin and beyond, to Hokkaido, the northernmost island of Japan. Like their Paleolithic ancestors, the lives of most Paleosiberians are (or were) oriented around herds of reindeer, which they follow over long distances as the animals migrate. It is currently assumed that their ancestors once populated large areas of Europe and Asia, but were at some point driven north, into marginal areas, by technologically more advanced Neolithic groups. The ancestors of the Paleosiberians are thus thought to have been the "aboriginals" of Europe and Asia, just as the Bushmen and Pygmies are thought to be the original inhabitants of Africa.

Most of the music recorded from these groups, the Sámi (Laplanders), Yukahgirs, Samoyede, Even, Nenyet, Ainu, etc. would seem to be about as different from P/B style as possible. While Pygmies and Bushmen sing together with great social cohesion in a complex style of interwoven, interlocking, hocketed polyphony, often accompanied by rhythmically intricate clapping, Paleosiberians tend, for the most part, to sing solo and unaccompanied, or else accompanied by relatively simple onebeat drum strokes. Despite the many differences, Paleosiberian music has some very interesting features in common with aspects of P/B style, including a tendency to use repetitive (or nonsense) texts, wide intervals, and relaxed, relatively open voices. Communal "throat singing" rituals have also been recorded, employing a very distinctive vocal technique, akin to hocket, that may well be related to P/B style.²⁹ But the most common and pervasive similarities involve two particularly distinctive characteristics: continuous vocalizing and yodel.

Among the Pygmies and Bushmen, a continuous flow of sound is produced via the interlocking of parts, so there need be no audible pauses for breath. Instead of phrases in the usual sense, there are often short, repeated, or varied motives within a non-hierarchical structure. The singer is free to take a breath whenever needed without interrupting the flow of sound. Certain Paleosiberian songs are characterized by an ongoing melodic structure that sounds like it would—or should—be continuous except for the necessity that the singer take a breath from time to time. Avoiding the type of phrasing we find normal, coordinating breaths with phrase endings, Paleosiberian singers will often breathe arbitrarily. I have labeled this method "breathless" because breathing seems to play no role in the shaping of the melody. The songs are conceived, apparently, as a continuous flow of sound in which a few short motives interplay at a single architectonic level, falling back upon themselves without pause. When it comes, breathing is often heard as an interruption of this flow, rather than a "punctuation mark" indicating the end of a phrase. Another similarity with P/B style is a tendency to activate the glottal area of the voice, either through yodeling, a typical feature of Sámi *joik* singing, or extreme glottal "shake," especially common among Siberian groups.

While it is interesting to speculate regarding these points of similarity between two otherwise highly divergent styles, the singing styles of virtually all the aboriginal groups of northern Eurasia, from the Sámis of Europe through the Paleosiberians of Asia to the Ainu of northern Japan, appear to be as remarkably consistent among themselves as are the Pygmy/Bushmen groups. Needless to say, the Cantometric profiles of just about all the Paleosiberian songs in our sample are remarkably similar on a great many parameters.³⁰ This is something that should not be taken for granted. Like the Pygmies and Bushmen in Africa, the Paleosiberians are widely scattered over a truly vast area of extraordinarily difficult terrain. Opportunities for contact and mutual influence can hardly have existed for many thousands of years; indeed, probably not until all the way back to the Paleolithic itself. As with the Pygmies and Bushmen, therefore, the close stylistic affinities among these widely scattered peoples speaks strongly for the great age of their vocal traditions.

What many consider to be the first religion, Shamanism, is thought to have developed among these Paleolithic hunters and continues among many of their descendents today. Again this is not something that should easily be taken for granted, especially since traces of Shamanism can arguably be found in almost all religions. The first drum may have been the Shaman's drum, a frame membranophone still in use among many of these arctic hunters today. If P/B style appears prototypical for group vocalizing in Africa generally, then we might want to consider the possibility Paleosiberian style could be prototypical for certain other areas where solo singing is common, especially, northern and central Europe, North Africa, and many parts of Asia.

There are sound archaeological reasons to believe the ancestors of the Paleosiberian hunters once occupied large areas of both Europe and Asia. It stands to reason, therefore, that their musical style would have left traces in both areas. In my opinion, there is some excellent evidence for just such a hypothesis. There are strong similarities, for example, between the heavily glottalized vocalizing common in Siberia and the elaborate glottal ornamentation so characteristic of Korean and Japanese solo song.

Europe and Asia (and culturally related regions of North Africa) would seem to be the only parts of the world where solo unaccompanied singing was a common and widespread traditional practice. A taste for this very individualized mode of expression may have been inherited from the solo singing of their Paleolithic ancestors (though the style has certainly evolved over the years and there are now some significant differences, such as wordier, less repetitive song texts, "normal" phrasing, coordinated with the breath, and a preference for strophic and, especially in Asia and North Africa, more complex melodic forms, also based on phrasing).

There is another intriguing possibility worth exploring, though speculative: we find throughout Europe, Western Asia, and North Africa compelling evidence of the survival of "breathlessness" in the form of a group of wind instruments especially designed to produce a continuous, uninterrupted stream of sound, initially through recycling of the breath, ultimately via the use of a wind reservoir. While best known today as a Scottish instrument, the bagpipe has been found in many parts of Northern and Southern Europe, Western Asia, and North Africa, with a history reaching far back before the earliest thresholds of recorded antiquity. Made from the skin of an animal such as a sheep, goat, or pig, it has consistently been associated with shepherds and other herders—and may well have had totemic significance for some of these groups. There is some evidence linking it with religious practices of a shamanistic nature. The magico-religious associations no doubt contributed to its eventual use in military institutions and religious ceremonies, a practice that might have led to the development of another "breathless" wind instrument: the organ. The herding and shamanistic associations of the pipes, along with its continuous flow of sound, not to mention the distinctively "glottal" quality of its ornamentations, all tend to suggest a link with Paleosiberian vocalism. It has been claimed that the bagpipe originated in the Middle East and diffused throughout Europe via the Roman Empire. But it is difficult to reconcile such a theory with the instrument's almost exclusive provenance among herding peoples for most of its history.

A practice common in Scotland is the imitation of the bagpipe by the voice. Such singing is said to have originated in the nineteenth century, when the bagpipes were supposedly banned. However, if we compare pipe imitations by the Scots traditional singer Mary Morisson (see *Heather and Glen* side B, track 10, or *Scotland* track 33), with typical examples of Paleosiberian vocalizing,³¹ we find some striking similarities: solo unaccompanied, text repetition (use of nonsense syllables), continuous melody, elusive (or nonexistent) phrasing, arbitrary breathing, relaxed, open voice, glottal embellishment, and traces of yodel.

The bagpipe may have a counterpart in a certain type of Asiatic instrument with a similarly widespread distribution and apparently ancient lineage: the *khene*, also known as the *sheng*, or *shō*. This instrument is also designed for continuous flow since it produces a sound while the player breathes both in and out. The genesis of both instruments might well be traceable to the panpipe, however further speculation regarding such relationships would take us too far afield.

I have examined the music of the Paleosiberians and speculated regarding its possible impact on the development of certain Eurasiatic vocal styles and instruments. But I have not yet accounted for the sharp stylistic break between the group-oriented, highly integrated, complex, musical interweaving of the Out-of-Africa migrants and the relatively stark, simple, solo vocalizing of their Siberian descendents. To better deal with this very basic issue, we must return from the freezing tundra of northern Asia to the warmth of the Indian Ocean.

As we have already heard, Oppenheimer presents considerable archaeological and genetic evidence that, as a result of the disastrous Toba eruption and the genetic
and cultural "bottleneck"³² that could have ensued, populations may have arisen in South Asia that were radically different in many ways from those who first ventured out of Africa. We have already discussed a possible connection between southern India and Australia. Other evidence points to migrations from India into northern Asia as early as 45,000 years ago (into Europe roughly 40,000 years ago; see Oppenheimer 2004b:233 for a map of the Asiatic pattern; Europe is discussed on p. 137). According to Oppenheimer, one of these post-Toba survivor groups was destined to eventually make its way north and east into other parts of Asia, and also west to Europe, as the culture of the herd following Paleolithic nomads who eventually became the Paleosiberian hunters and "herders" of today. The new development would seem to have begun somewhere in South Asia, after its repopulation from surviving bands living on the periphery at the time of the disaster, and spread in various directions from there.

What I have been calling "Paleosiberian breathless" style could conceivably be understood in terms of just this historical context, as a development from P/B style. Elements of yodel (in the form of true yodel, falsetto, and/or glottal embellishment) may have been retained, along with a conception of music as a continuous stream of unphrased sound, along with some other P/B traits that also tend to persist, such as wide intervals, predominance of nonsense syllables and/or word repetition, open, relaxed voices, slurred enunciation, relaxed accent, and also, in some cases, even a form of hocket (see note 29). Walter Wiora in his *Four Ages of Music* had already noted strong affinities between these two groups, along somewhat similar lines (Wiora 1965:26). What is different, primarily, is the predominance of solo, as opposed to group, singing. Culturally there would seem to have been a related development, in the form of the specialization of certain spiritual, healing and ecstatic functions, formerly shared by all, in the specialized role of the *shaman*.

12. Passage to Europe

The picture for present day Europe is quite complex, historically, culturally, genetically, etc., due to an extraordinarily complicated history in which all sorts of peoples from a great many places have fought time and again over the same turf for thousands of years and almost all traces of tribal affiliation have vanished. The pre-historic picture is complicated, moreover, by an Ice Age, from *c*. 20,000-16,000 years ago, that covered vast areas of northern Europe with huge glaciers, forcing many populations to refuge areas farther south, where they remained for thousands of years before repopulating the northern latitudes. With the beginnings of the Neolithic there may well have been additional major population movements, as farmers from the Near East are thought to have migrated into Europe in large numbers.

According to Oppenheimer (2004b:129-30), the "beachcomber" migrants would not have been able to make their way toward Europe "until after 50,000 years ago, when a moist, warm phase greened the Arabian Desert sufficiently to open the Fertile Crescent". Following both archaeological and genetic evidence he sees the homeland of these early Europeans in South Asia over 50,000 years ago, with a first wave of immigration associated with both the so-called "Aurignacian" culture and a particular mitochondrial [female line] DNA marker, "U5," now common throughout Europe. He associates a second wave, from northwest India and Kashmir, dating from *c*. 33,500 years ago, with the somewhat later, "Gravettian," culture and a different mitochondrial marker, "HV," along with two Y [male line] chromosome markers, which he calls "Ruslan" and "Inos." Oppenheimer cites a recent study indicating that "the earliest roots of HV are found in South Asia...but that the Trans-Caucasus was the site of her first West Eurasian blooming" (*ibid*.:145).³³

If the Trans-Caucasus were indeed a major staging ground for early humans into Europe, there is reason to believe their musical practices might be alive and well in the region to this day. What is now the Republic of Georgia is justly famous for a tradition of elaborate (and enormously impressive) polyphonic vocalizing stretching back historically as long as records exist. While interlocked vocalizing is usually intermittent, not pervasive, it is nevertheless an important and striking feature of many up-tempo performances, as is some truly spectacular yodeling. In terms of vocal style (open, relaxed voices) and choral blend (highly integrated), Georgian singing also matches P/B style quite closely, the only important differences being accent (forceful in Georgia, usually relaxed among the Pygmies and Bushmen) and the use of phrased, as opposed to continuous, melodic structure (for examples, see Supra: Georgian Banquet and Georgian Voices: The Rustavi Choir). Is this a style that must necessarily have evolved from monophony to polyphony, simplicity to complexity, according to traditional notions of evolutionary "development"? Or was the complexity there from the beginning, a legacy from our African ancestors and their HV, Inos, and Ruslan descendents?

According to Oppenheimer, European Russia seems to have first been colonized "high up the river Don, at Kostenki, due north of the Caucasus" (*ibid.*:147). This important Paleolithic site on the Don River, near Voronezh, dating between 30,000 and 40,000 years ago, is the subject of a web site (Hitchcock 2005) containing many very interesting illustrations and discussions. Among photos of "mammoth bone dwellings" and "Venus" figurines resembling the well known Venus of Willendorf, we find drawings of two "pipes made from long, hollow bird bones" which "may have been musical instruments or animal lures" (reproduced from Sklenar 1985). According to Alexander Buchner's *Encyclopédie des instruments de musique*, "The oldest Pan pipes found in Europe come from the eastern part of the continent: a neolithic necropolis (2000 BC) in southern Ukraine and a site in the region of Saratov. Each was made of seven or eight hollow bird bones" (Buchner 1980:20). (Buchner's research predates discovery of the Kostenki site. Birdbone panpipes have also been found in a tomb dating from the eleventh century BC, in Luyi, Henan Province, China (Bishop 2005).

Folkorist Rūta Žarskienė has studied "multi-pipe whistles" from northeastern Lithuania, the Komi Republic, Briansk in southwestern Russia, and the Kaluga and Kursk regions near Moscow:

It seems that the most striking principle, uniting Lithuanian, Komi and Russian instruments, is that the untied whistles are used only in groups and are played only collectively.... The number of...whistles [used is similar] (Lithuanian—five to eight, Komi—four to six, Russian—four to eleven). The distribution of the Lithuanian multipipe whistles especially while performing sung polyphonic songs, could be relevant with [the distribution] of Russian instruments into so-called "pairs". (Žarskienė 2003)

In a related article, Žarskienė examines the association of many of these instruments with bird names and the onomatopoetic imitation of birdcalls. Noting the wide area of dissemination of this practice, she suggests that such bird associations could possibly date back "to very ancient times", and, presumably, the "earliest emotional attitude of mankind" (Žarskienė 2000). According to Žarskienė, Lithuanian multipipe ensembles are frequently associated with one of the oldest vocal traditions in that country, the *sutartine* (pronounced su-tar-ti-nay). *Sutartines* are sung and/or played canonically in two or three interlocking parts, emphasizing intervals of a second—a practice resembling the canonic/echoic variant of P/B style. Sets of trumpets or horns called *ragai* were "common in northeast Lithuania for performing *sutartines*.... Each...had its own name, individual rhythms based on one or two notes and onomatopoetic words to remember these" (Sadie 1984, iii:188-89). A photo of five Lithuanian *ragai* players (*ibid*.:189) bears a striking resemblance to photos of certain hocket-based trumpet ensembles in Africa.

To summarize, long-term traditions of very similar types of communal panpipe playing, with unbound pipes, and associations with birds, can be found scattered throughout Lithuania, the Ukraine, and Russia, in the same general area (for the last two at least) where remains of important Paleolithic settlements have been discovered (for example, Avdeevo near Kursk and Mezin, Gagarino, and Mezhirich in the Ukraine). In one Russian settlement, moreover, Kostenki, hollowed pipes made of bird bone were found, which appear to have had either a musical, signaling, or hunting function, very possibly all three. There is, additionally, in Lithuania, a vocal tradition, the *sutartine*, organized in a manner somewhat like P/B canonic/echoic style, in association with a tradition of hocketed trumpet and horn ensembles reminiscent of very similar practices in both Africa and Melanesia. While the Ice Age caused most of northern Europe to be abandoned and then resettled only thousands of years later, certain regions in this area were never abandoned. "It is in the Ukraine and further north up the rivers Dnepr and Don into the Russian plain...where we find the best record of continuous human occupation-even expansion-in Eastern Europe during the Big Freeze" (Oppenheimer 2004b:250).

Armed with all this information regarding the history and traditions of the area, we are now in a better position to return to an especially puzzling and vexing question left hanging since Section 6: why does the panpiping of the Russian women studied by Velitchkina sound, in her words, "closer to African forms (for example, to

the Ba-Benzele Pygmy music) than to any European folk instrument traditions" (Velitchina 1996)? This is admittedly an extraordinarily problematic and potentially highly contentious issue. We are not used to thinking of European traditions as any-thing other than European, given a certain amount of Asiatic influence due to a well-documented history of migrations and invasions. The notion that certain traditions rooted in the distant past could have their source in an even more remote, archaic, past, a distant, "exotic" continent, and a culture, not to mention "race," from which many Europeans have spent centuries trying to distance themselves, could be extremely difficult for many to swallow. Were it not for the widely publicized genetic findings regarding the African roots of all non-Africans everywhere, the musical connections I have been exploring might well seem completely fantastic and unacceptable on their face.

This is, of course, not simply a matter of prejudice, but also goes to the heart of much very sensible current thinking regarding the nature of culture and evolution itself, especially in the light of so much naïve theorizing from the recent past regarding far-flung and dubious connections of every sort. It is indeed difficult to accept the notion that certain cultural practices might remain essentially unchanged for tens of thousands of years, across vast stretches of terrain, among peoples who now seem so different from one another in so many ways. If, nevertheless, as we have seen, Velitchkina's panpipers are part of a venerable tradition, not only of their own village, but the entire region, a region which may have a continuous history going all the way back to before the last Ice Age; and if, as now seems likely, our earliest Paleolithic ancestors have their origins in Africa, spreading from there to populate the rest of the world with their descendents; then is it really so difficult to entertain the notion that certain traditions found in certain isolated villages, known to be located in the vicinity of important Paleolithic sites, might retain certain characteristics associated with the Paleolithic in Africa, the continent of their ancestors?³⁴ While independent invention theories cannot be dismissed, scenarios based on them will inevitably encounter more or less the same difficulties as those already discussed in Section 8, above.

As I see it, the real problem is not so much my admittedly controversial interpretation of the musical evidence, but the truly mind-boggling implications of the genetic research, the cultural consequences of which have not yet been widely considered. Out-of-Africa takes all our lineages back to that continent at a period which, in evolutionary terms, is not really so long ago. One can argue forever about the pros and cons of diffusion, survival, independent invention, acculturation, etc. but assuming *homo sapiens* did in fact originate in Africa and that the history of all peoples everywhere else involves the history of migrations from that continent, then the possibility that certain cultural practices in various places outside Africa might have had similar origins cannot be easily dismissed.

13. Patterns of Diversity

There would appear to be no such thing as a typically hunter/gatherer culture and certainly no one musical style that could be associated with all such groups today. Certain differences in lifestyle among African Pygmies, Bushmen, other African hunter populations, the various hunter/gatherer tribes of Australia, India, Southeast Asia, Indonesia, Melanesia, Siberia, Arctic America, North America, South America, and elsewhere seem reflected in significant musical differences. It might seem logical, therefore, to attribute these various musical styles to "functional" causes, independently invented, and uniquely evolved as each group coped with its own environmental and/or social challenges. This and similar arguments have been used to dispute the notion that any cultural practices whatever among any of these groups could be survivals of any kind, much less Paleolithic survivals. For many years now speculation along such lines has been strongly discouraged, as though the notion that certain traditions might have survived among certain peoples for thousands of years were equivalent to dismissing them as mere "living fossils."

But the "enlightened" view fails to reflect important patterns found today among all the various groups. While the music of North American Indian hunters differs considerably from that of African hunters (or just about any Africans), there is a remarkable stylistic homogeneity among native North Americans (and many South Americans) across the continent, hunters, farmers, and herders alike. Paleosiberian hunters also have a highly distinctive song style, consistent from arctic Europe all the way across northern Eurasia to Hokkaido, though differing considerably from other hunters, in other parts of the world.

The dilemma can be summarized as follows: if the music of all such groups is the product of independent invention and/or independent paths of evolution, as assumed by functionalist models, then we would expect far more stylistic differentiation than actually exists; if, on the other hand, all groups once shared the same tradition, handing it down intact from generation to generation, then why do we find as much differentiation as currently exists—why, in fact, don't all people today make music like Pygmies and Bushmen?

Significantly, proponents of the traditional "multiregional" school have challenged Out-of-Africa theorists on a more or less similar basis. For the multiregionalists, who believe all modern humans originated as separate types of hominins in various regions of Africa and Eurasia, present-day differentiation is explained by ancestral differentiation, with each group following its own distinctive evolutionary paths, both genetic and cultural, eventually converging on *homo sapien* status via natural selection and environmental adaptation. While this would explain differentiation, it hardly accounts for all the many similarities, both genetic and cultural, such as the development of language, kinship systems, tool making, and, of course, music. On the other hand, Out-of-Africa proponents, having little problem with the similarities, find it much harder to explain all the differences, both genetic and cultural. As anthropologists Henry Harpending and Alan Rogers put it: If multiregional evolution is the right portrayal of human history,...there is no difficulty understanding how genetic differences among populations arose. They are ancient and they reflect isolation by distance in a structured population with, of course, episodic population expansions such as the Bantu expansion into sub-Saharan Africa or the European expansion into the New World overlaid. But if the GOE [Garden of Eden, i.e., Out-of-Africa] hypothesis is correct, then it is hard to understand how human differentiation occurred. ...

Five years ago, we would have said that genetic evidence provided unambiguous support for the GOE [Out-of-Africa] model of human origins. Today, the case is far less clear. Several [DNA] loci indicate that the human population passed through a bottleneck—a period of small population size. These loci seem to support the GOE hypothesis. Yet other loci indicate just as strongly that no bottleneck has occurred within the past several hundred thousand years. (Harpending and Rogers 2000:379, 382)

The authors opt, nevertheless, for the bottleneck, partly for certain technical reasons, but mainly because "the loci that support a bottleneck all agree about when it occurred" (*ibid*.:382). According to Harpending and Rogers, the genetic research of two independent investigators, using three different methods, places a bottleneck at either 30,000 through 130,000 years ago, 130,000 years ago, or between 50,000 and 100,000 years ago, remarkably similar dates considering the technical difficulties entailed (*ibid*.:373). What goes unmentioned in such research, but is clearly implied, is the possibility of a *cultural* bottleneck stemming from the same cause.

To better understand this situation, let us explore the Toba question more fully. One of the ongoing mysteries of anthropology has been the presence, in various parts of South and Southeast Asia, Indonesia, Melanesia, and the Philippines, of smallstatured people with more or less "African" features, variously described as "pygmoid," "negroid," "negrillo," or "negrito," all generally regarded as "aboriginals" of their region. We might expect to find such "relict groups," as Oppenheimer indelicately refers to them, strewn more or less evenly along the coastal pathway he posited as their most likely route. This is, however, not the case. There is an unexpected gap involving the Arabian Peninsula and much of South Asia, where few if any such groups are to be found.

Musically there is a similar problem: all the instances of P/B style, hocket, interlock, panpipes, etc. seem to occur east of Myanmar. The best known of the "negritos," the natives of the Andaman Islands, east of India, off the coast of Myanmar, do not, apparently, sing in P/B style, nor do they employ any form of hocket or interlock either vocally or instrumentally—nor, apparently, do they have panpipes. This remains a question mark, as there would appear to be only a very few recordings, and no musical field studies, from this area. As a result I have not had the opportunity to research this question as thoroughly as I would like. Nevertheless, from what I *have* been able to learn, there does seem to be an awkward musical gap between Africa and Southeast Asia.

The gap has a parallel in the DNA evidence. Oppenheimer makes a special point of this, referring to a "sharp genetic break between India and the Far East." The only explanation he can find is "the ash cloud that covered India around 74,000 years ago"

due to the aforementioned Mt. Toba explosion. Based on this event, "we could predict a broad human extinction zone between East and West Asia. Such a deep eastwest division, or 'furrow,' is still seen clearly in the genetic record" (Oppenheimer 2004b:82).³⁵ Harpending and Rogers (2000:370) also refer to an "environmental catastrophe such as an Ice Age or the Toba supervolcano" as possible sources of the bottleneck they see in the genetic data.³⁶ Those east of the eruption would not have been affected, and could have gone on to populate much of Southeast Asia, the east coast of Asia, Indonesia, and Melanesia, maintaining their original African traditions, possibly forming some of the most ancient populations of Central and South America. We have seen, in the previous section, how some groups in western India might have survived with their African traditions, and panpipes, intact to form an early wave of migration into Europe. On the other hand, as we have also learned, small remnants of disaster survivors, based in or around the Indian subcontinent could have eventually remained in India, their descendents forming many of the various tribal groups we see there today, with some others making their way down to Australia and others still moving up through Central Asia to ultimately populate not only the rest of Asia, but Siberia, North America, and parts of Central and South America. In accordance with this theory, one would expect all these survivor bands to have developed new cultures, social structures, and musical styles as responses to the trauma of the catastrophe, reflecting the breakdown of social organization, long periods of isolation, etc., quite different from the playful, easygoing, groupy integration of P/B style. If the Toba explosion or some similarly devastating catastrophe did in fact precipitate a bottleneck of this sort, it could go a long way toward explaining much of our present differentiation, morphological, cultural – and musical. It would, moreover, explain the patterns we actually find, rather than what either of the alternatives explored above would predict: independent invention/evolution versus continuous uninterrupted survival of all cultures from a single archaic source.³⁷

Let us briefly explore one large megapattern that could have been precipitated by such a bottleneck. The musics of the native Australians and North Americans reveal certain very interesting similarities, via a stylistic tendency I will call "unison/iterative/one-beat."³⁸ In almost all cases group vocalizing is in unison, with a basically one-beat membranophone (American) or idiophone (American or Australian) accompaniment. Melodies tend to emphasize the individual beat, producing a halting rhythmic quality typical for both Australian and Amerindian music. Also characteristic of both areas is a tendency to iterate the same note over different syllables in a manner also designed to emphasize the basic pulse.³⁹

Despite some significant differences, possibly due to later bottleneck events (most likely precipitated by the last Ice Age) the many similarities between Australians and Amerindians could be evidence of a post-Toba survivor nexus centered somewhere in South Asia, one branch eventually heading southeast to populate Australia by 50,000 or 60,000 years ago; the other gradually making its way northeast, to eventually settle in Beringia until the waning of the Ice Age, thence making its way into North, and also parts of South, America. While beyond question music can gradually evolve and abruptly change over all sorts of time spans, short and long, and for all sorts of reasons, it would seem that some of the broadest differences discernable among non-African tribal groups today may indeed have resulted from a genetic/cultural bottleneck stemming from a single catastrophic event during the Paleolithic era. Fantastic as such a hypothesis may seem, it remains the simplest and most reasonable explanation I have ever encountered for the very striking patterns of stylistic distribution we find among so many tribal peoples in the world today.

When one combines all the hypotheticals—the continuities implied by the original Out-of-Africa paradigm, the diversity that could have been produced by a Toba bottleneck, and the more complex, but nevertheless comprehensible, effects of the much later bottleneck in the Americas, apparently produced by the last Ice Age—has one thereby found a satisfactory solution to the dilemma posed toward the end of Section 8? In other words, in the light of all the evidence presented above, is it reasonable to assume that a conclusion in favor of Paleolithic survivals does indeed satisfy Occam's Razor?

I doubt it will ever be possible to answer such a question with absolute certainty. My own thinking on all these matters is still in the process of formation. As I see it, I am, in the wake of Lomax, Rouget, Wiora, Hornbostel, *et al.*, opening doors to certain possibilities that could not be adequately investigated until the advent of the new genetic technologies. The validity of any such theories has yet to be fully tested, a process that should, ideally, involve collaboration across many disciplines, including genetics, anthropology, archaeology, linguistics, folklore, and, of course, ethnomusicology. I believe I *have* demonstrated, however, that the hypotheses presented here are both meaningful and deserving of further investigation.

14. Questions of Origin

The narrative I have presented above is intended as more than simply history, as it raises questions of some consequence for our understanding of some of the most fundamental aspects of human existence. The notion that we might all be descended from a single band of "modern" humans who once lived in Africa has certainly had an enormous impact, especially on the media and the public, but does not seem, as yet, to have had much influence on students of culture. It should. Among other exciting possibilities, the new paradigm suggests that music—not as I have already argued, one particular style, but music itself—may also stem from a single source – associated with the invention/discovery of certain basic principles of communication/ expression, dating from a particular time, stemming from a particular place, somewhere in Africa, between 100,000 and 200,000 years ago.⁴⁰

If the first "modern" humans originated in Africa, with one small band ultimately moving out to populate the rest of the world, then it makes sense to conclude that the "language" we call "music" might well have made the journey with them and that just about everything now called by that name (in the most traditional sense) in every part of the world outside Africa (south of the Sahara), represents our inheritance from the music of that original "Out-of-Africa" group—with most African music having its roots in the same *ancestry* as that group.

The alternative would be the notion that the many basics, i.e., the presence of notes, rational rhythms, consistent scales, consistent tunings, etc., everything we so readily associate with the notion of "music" just about everywhere it is found, could have been independently invented more than once, in different parts of the world. Could at least some of these practices have been independently invented? This is not likely, in my view. While the perception of harmonic relationships (as exemplified in the overtone series or the overblowing of flutes, horns, etc.) can be regarded as "natural" or "innate," the semiotic process entailed in putting such relationships to work in the production of coherent musical utterances is not.

As linguist Roman Jakobson once noted, "[t]here is...exactly the same relationship between a musical value and its realizations as there is in language between a phoneme and the articulated sounds which represent this phoneme in speech" (1987: 456). In other words, a pitch class (or a time point class) and a vocable class (phoneme) operate in more or less the same way. In semiotic terms, music, like speech, possesses second articulation. But unlike speech it lacks first articulation (morphology, the basis for the signifier/signified relation).

A basic principle behind what we usually understand as music is in fact this field of tonal and/or rhythmic values which can produce pitch and/or time-point *classes*, i.e., "second articulation" (see Grauer 1993, 2000). This is not something to be taken for granted. Music is (traditionally) not made from raw sounds (with apologies to John Cage) but from sounds that are (with a nod to Claude Levi-Strauss) "cooked." To put it yet another way (with a further nod to Jacques Derrida), that famous "supplement," music notation, was in some sense always already there, in the form of the tonal/metric "force fields" which give rise to the values, or notes, "inscribed" in music from the start. The existence of tuned pipes, either free or bundled into panpipes, is early evidence of this, as such pipes can already be regarded as a form of pitch notation, each pipe standing for a given note, the whole set for a particular scale.

What all this suggests is that early music may well have set the stage for language by providing a kind of laboratory for phonological and semantic experimentation. It is perhaps only a short step from the play of sung "nonsense" vocables and the construction of tuned pipes to the birth of signs. While one might need to rely on "native speakers" to puzzle out the phonology of a given verbal language, the "phonology" of music is, apparently, already given to us—i.e., we ourselves may already be "native speakers" of any and all (traditional) musical "dialects." This could explain why we are able to enjoy, and also notate, so many different kinds of music.

I have already noted that P/B style is often organized as a flow of continuous sound, lacking any coordination with breathing, and as a result lacking any sense of phrase. This suggests that language might have had its start simply as a more or less free interplay of sung vocables that developed into a more or less free interplay of

words. The production of a verbal phrase or statement, requiring some sort of syntax, might have been a later development. The musical phrase does in fact seem to come later, since even in what I have called "breathless" style, there appears to be no sense of phrasing and no coordination of musical structure with breath. Possibly the development of the musical phrase coincided with the development of the verbal phrase, both of which might be linked to the coming of agriculture, with its demand for more organized modes of communicaton. But of course a good deal of research would be required to clarify such a hypothesis.

15. Music in Society

The highly integrated, interlocked, freely polyphonic, improvised, and playfully hocketed yodeling of the various Pygmy and Bushman groups of Africa would seem to constitute a perfect reflection of their social order: intensely group oriented, but also individualized—acephelous, egalitarian, more-or-less gender equal. This would appear, at least on the surface, to be a musical culture of great artistry and sophistication, an expression of well being and joy in a peace-loving, harmonious society which values creativity, fellowship, and individual expression. If humankind is, indeed, "innately" aggressive, violent, and competitive, that information seems never to have reached the gentle aborigines of Africa.

Can the Pygmy/Bushman model be applied to the earliest musical and social state of *homo sapiens sapiens*, prior to its "Out-of-Africa" adventure? If true, such a finding would be of immense importance, not only to ethnomusicology and anthropology, but all of us, simply as human beings—which is to say: as the inheritors of a certain *legacy*—of cooperation as opposed to competition; gentleness and mutual support as opposed to aggression and violence—a legacy of interactive play, pleasure—and joy.⁴¹

Is this picture too idyllic, too utopian to be taken seriously? Indeed the story presented by DNA researchers such as Oppenheimer and Olson is almost Biblical in nature, from the earliest beginnings in the "Eden" of primeval Africa, to an "Exodus" out of Africa (via the Red Sea!), across the entirety of the Asiatic coast all the way to Indonesia, followed by the disaster represented by the catastrophic eruption of Mt. Toba, which can only be compared to the Flood—and the aftermath, in which tiny surviving remnants of humanity manage to gather themselves together as best they can, inspired by vague memories of a half-forgotten "Golden Age," to regroup, multiply, and ultimately populate the greater part of Europe, Asia, Australia, North Africa, the Americas and Oceania. Am I outlining a plausible history or weaving a myth? Maybe both, I cannot be sure. All I can say is that the musical evidence fits so well with the genetic evidence, in turn bolstered by so much of the archaeological and paleontological evidence, that that which might seem too fantastic to be true makes too much sense to be dismissed.

A musical style, or at least certain characteristic elements of it, may have miraculously survived, over tens of thousands of years. But, after all this time, is the style, wherever it may now be found, still a perfect reflection of the inner workings of the societies that have inherited it? Indeed, can it really be said, as we so often hear, that the music of any people necessarily stems from, and is intimately related to, its social structure? This is a question I once thought I understood, but am now finding increasingly difficult to answer. For example, the many tribal groups of Melanesia have been described as having relatively simple subsistence economies and egalitarian political structures. Yet, as with their languages, there is an array of very different musical styles. Among the 'Are'Are, the Buka, the Kaluli, also in various regions of New Caledonia and no doubt elsewhere, we find, as I have already demonstrated, "survivals" of hocket/interlock performance, instrumental, vocal, or both, sometimes in truly "classic" P/B style, complete with hocketing and yodeling, sometimes in a variant form, seemingly derived from Pygmy/Bushman practice, which I called "canonic/echoic." Yet, many other apparently egalitarian and acephalous Melanesian tribes, such as the Enga, Gizra, Bine, Goroka, etc. sing in simple unison or octaves with no polyphony at all. There is, moreover, a long history of violence, warfare, and even cannibalism throughout Melanesia, practices which hardly conform to the nonviolent Pygmy/Bushman model. P/B style is remarkable for combining a high degree of social integration with an equivalent amount of individual freedom. Hocket/interlock on this level of sophistication requires a very high degree of teamwork, involving the development of an almost uncanny sense of what everyone else is doing and even thinking from moment to moment. Yet each individual performer seems free to improvise, vary his/her motives, enter, and drop out at will. While I could certainly be wrong, I hear no such informality in 'Are'Are instrumental music, where every detail seems worked out in advance. This seems to be the case also for Southeast Asian hocketing traditions generally. From the Kulintangan ensembles of the Philippines to the hocketed gong sets and gamelans of Flores, Bali and Java, improvisation appears to have been either eliminated or tightly controlled.

Does the perpetuation of a particular musical style over many thousands of years go hand in hand with the perpetuation of a particular social structure? And change with changes in the social structure? Or can the style persist largely unchanged even after the social structure has changed?⁴² Venturing an answer to such a question with respect to a group such as, for example, the 'Are'Are would require a knowledge of their social structure which I do not at the moment possess. Does their intense involvement with highly integrated group performance reflect a parallel group orientation in their society generally? Does the (apparent) lack of improvisation and individualized variation reflect a tendency toward regimentation? Or have these musical characteristics developed independently from social ones, reflecting values *other* than social ones? When it comes to the social structure of regions such as Bali and Java, a lot more is known, but these societies are indeed complex, and in fact layered, so the difficulty lies in sorting out the layers and trying to make sense of what goes with what. While a great deal remains to be learned about the relation between music and social structure in all societies, both simple and complex, I would nevertheless venture to suggest, however provisionally, that musical style may not reflect social *structure* so much as cultural *value*. Where the society is organized in accord with its dominant value system, then we might expect them to reflect one another harmoniously. If the society changes, however, in a manner *not* consistent with cultural values, or in a manner that represses a particular group, then music and social structure might come to be at odds. Certain traditions may even be forced underground or obscured. It looks more and more to me as though the most important factor in determining the character of any musical practice, at least in societies which have not yet become highly specialized, is neither social structure, nor the environment, nor chance, nor the influence of other groups, nor even individual creativity, but the sheer force of tradition, charged with that strong sense of deeply ingrained, culturally determined, value that gives tradition its unique authority.

Notes

- 1 Examples of Pygmy music can be found on several currently available CDs (see, for example, *Echoes of the Forest, Musical Anthology of the Aka Pygmies*, and the compact discs included in Kisliuk 1998, which also contains some excellent descriptions, transcriptions, and analyses). For examples of Ju'hoansi Bushmen music, see *Namibia: Songs of the Ju'hoansi Bushmen* and *Bushmen Music and Pygmy Music.* (For details regarding all CDs referenced in the text, consult the Discography, below. Brief clips from most of the recordings referred to in the text can be accessed on the Internet via websites hosted by organizations such as Amazon.com, Smithsonian Folkways, Emusic, etc.)
- 2 While much controversy still swirls around all aspects of the new "genetic anthropology," it is clear from the great number of recent publications featuring them that the various Pygmy and Bushmen groups are of special interest, as there are so many signs of deep antiquity in their genetic makeup. Chen et al. report, "Besides revealing the significant substructure of macrohaplogroup L* in African populations, these data showed that the Biaka Pygmies have one of the most ancient RFLP sublineages observed in African mtDNA and, thus, that they could represent one of the oldest human populations. In addition, the Kung exhibited a set of related haplotypes that were positioned closest to the root of the human mtDNA phylogeny, suggesting that they, too, represent one of the most ancient African populations" (2000:1362). It should be noted, however, that the genetic data for another important Pygmy group, the Mbuti, did not fall into the same category as the Biaka, and have a considerably more recent divergence date (possibly due to a sampling problem), one of many reasons why such results remain controversial. Nevertheless, in an important recently published overview, Curtis Marean and Zelalem Assefa report that "both the fossil and genetic records target Africa as central to the origins of modern humans. A consistent result of these studies is that African people of Khoi [Bushman] and Pygmy ancestry represent some of the most ancient populations on this planet" (2005:97).
- 3 Yvette Grimaud (Rouget and Grimaud 1956) and, later, Susanne Fürniss and Emmanuelle Olivier (Olivier and Fürniss 1999, Fürniss 2006), who undertook detailed analyses of the music of both Pygmies and Bushmen, have noted significant differences in the way their

musics are organized in purely tonal terms—and the unity of Pygmy/Bushmen style has been questioned on that basis. While such differences are of real interest and should certainly not be ignored, both groups nevertheless vocalize in such a similar manner *stylistically* that even experts familiar with their music cannot easily tell the two apart simply by listening. Cantometrics was developed precisely to focus on overall stylistic considerations of just this sort, along a number of different parameters, an approach arguably more diagnostic cross-culturally than notation-based analyses (see Lomax 1962, Grauer 1965, Lomax *et al.* 1968:75-110, Lomax 1980:34-42, etc.). Can differences based solely on tonal relationships really constitute evidence that the music of two groups cannot be part of the same tradition, as has presumably been claimed? If that were the case then how could we explain the presence of significant tonal distinctions *within* the repertoire of any one group? One would, of course, expect *some* differences to have evolved over the thousands of years since these groups diverged, so the findings of Grimaud and Olivier are hardly surprising.

- 4 The Mbuti of the Ituri Forest represented the Eastern Pygmies in this research, while the Western groups studied were the Biaka and BaBenzele.
- 5 It is due to Occam's Razor that the modern view of planets revolving around the sun in elliptical orbits came to replace the archaic notion of planetary epicycles, which could be tweaked to fit the observed facts more or less equally well. "Though [Occam's Razor] may seem rather trivial, it is essential for model building because of what is known as the 'underdetermination of theories by data.' For a given set of observations or data, there is always an infinite number of possible models explaining those same data. This is because a model normally represents an infinite number of possible cases, of which the observed cases are only a finite subset. The non-observed cases are inferred by postulating general rules covering both actual and potential observations" (Heylighen 2005).
- 6 Some representative examples of "Bantu" music, from Kenya, Nigeria, Zimbabwe, Mozambique, Ghana, Botswana, Tanzania, Zambia, Uganda, Malawi, Togo, and Ivory Coast can be heard on the CD *Traditional Songs and Dances from Africa*. The interlocking overlap of leader and chorus is especially striking on tracks 2, 3, and 6.
- 7 Evidence of the Cantometric system's ability to sort styles meaningfully on a global basis is provided by the World Song Style Taxonomy presented in Lomax 1980:35-36. In this taxonomy, "derived entirely by the computer with the aid of multifactor analysis," 148 Cantometric summaries of as many tribal, village, or national groups are organized into ten large-scale regional factors, roughly corresponding with widely accepted ethno-geographic boundaries. For example, the first twenty three out of thirty groups in factor five are either African or African-American; the Yukahir, Samoyede, Ona, Gilyak, Ainu, Yaghan, Lapp, Tungus, and Chuckchee constitute factor one; factor two begins with 20 North Amerindian tribes (strongest loadings) followed by a mix (at weaker loadings) consisting mostly of South Amerindian tribes plus some other groups from Australia and Oceania; factor three consists solely of twelve Central and South American tribes.
- 8 The claim that Pygmy/Bushmen style is prototypical for sub-Saharan Africa generally is reinforced by the set of Cantometrically derived "Summodal Profiles" presented by Lomax and Erikson in Appendix 3 of Lomax (1968:328-36). Points 10-12 on line 1 represent various forms of overlapping vocal antiphony involving closely knit leader-chorus or chorus-chorus interaction. The combined percentage for the appearance of all three traits on the African profile is quite high: 37%. The same traits appear at only 12% in our Insular Pacific sample, 15% for Tribal India, 6% for South America, 4% for North America, 10% for "Old High Culture" (mostly West and East Asia and North Africa), 3% for Europe, 0% for Australia and 1% for

Arctic Asia. Point 13, representing "interlock", is found at extremely high percentages among all Pygmy and most Bushmen groups, but at no more than 10% anywhere else. Other traits associated with P/B style, such as high degree of tonal and rhythmic blend, polyphony, wide open voices, etc. tend to score significantly higher on the African profile than any of the others.

- 9 Simha Arom (1991) has very thoroughly analyzed both the tonal and social organization behind many forms of polyphony in Africa, with special attention to the makeup of wind ensembles of just this type. In a thorough historical treatment of African hocketed wind ensembles generally, Roger Blench (2002) presents a map revealing a distribution roughly coincident with both Pygmy and Bushmen population centers.
- 10 In 1997, Cavalli-Sforza became interested in Lomax's work after witnessing a presentation of his Global Jukebox project, and attempted to contact him. Sadly, Lomax's two debilitating strokes eliminated any possibility of collaboration.
- 11 Such findings have by no means been universally accepted. The difficulties encountered in attempts to combine genetics with anthropology and archaeology are highlighted in MacEachern 2000. In this highly critical review of Cavalli-Sforza et al. 1996, the author takes exception to certain aspects of the methodologies employed, suggesting that different methods could have produced different results. While later research by Cavalli-Sforza and others has resolved some of these issues, the field of genetic anthropology remains both controversial and contentious in certain quarters. For example, while evidence consistent with the Out-of-Africa paradigm continues to grow, many researchers still prefer one or another version of the so-called "Multiregional Model." Multiregionalism posits a much earlier expansion out of Africa, millions of years ago, which led to the parallel evolution of modern humans in different regions of the world during roughly the same period. While the Out-of-Africa model would seem to be gradually replacing multiregionalism among geneticists, neither position has thus far been able to account for all the genetic, paleontological, and archaeological evidence. It is very hard to say whether the raw musical evidence favors one view over the other, but the version of Outof-Africa provided by the authors whose work I follow here has considerable depth, makes a great deal of sense, and has, as far as I can see, much greater explanatory power.
- 12 The estimated dates for the Out-of-Africa expansion vary widely. Some researchers prefer the more conservative date of 50,000 ya (years ago); others believe it to be considerably older. Oppenheimer's own estimates vary, but he generally settles on a period somewhere close to 85,000 ya. A number of sources for the "Out-of-Africa" theory are presented in Oppenheimer 2004b:381-85.
- 13 While the term "hocket" has been widely used in association with Pygmy and Bushmen music, not everyone agrees that such usage is appropriate. No less an authority than Simha Arom accepts the term only in its narrowest definition, thus distinguishing between the floridly interlocking vocal polyphony of the Pygmies and the "true" hocket of the instrumental ensembles he has analyzed so thoroughly, in which each performer contributes only one or two notes (Arom 1991:43). In my experience it is not always easy to distinguish polyphony, antiphony, interlock, hocket, and even certain types of heterophony, practices that can easily dissolve into one another, especially in music as intricate as that of the Pygmies and Bushmen. Even though the individual parts of P/B are typically based on short motives rather than the iteration of single or paired notes, those motives would seem to complement and complete one another according to more or less the same general principle. It is this basic principle, the complementary, coordinated interplay of fragments to produce a musical whole, that I understand as "hocket."

- 14 For an example of P/B style vocalizing by a non-P/B group in Africa, listen to disc 3, track 28, from the Dorze of Ethiopia. Compare with the singing of the Aka Pygmies on track 26 of the same disc.
- 15 Additional examples of canonic/echoic singing can be heard in Southeast Asia, where it is fairly common among certain indigenous tribal groups. The Temiar are one of several such *orang asli*, or "aboriginal" peoples in the Malay Peninsula. Their "Dream Songs" can be heard on the Folkways disc, *Primitive Music of the World*, track 206. Another Folkways disk (*Hanunoo Music from the Philippines*) is devoted to the Hanunoo, an aboriginal "negrito" group in the Philippines. Tracks 105 and 116 are clearly variants of the same style. Good examples of Hanunoo hocketed percussion playing can be heard on several other tracks from this same LP.
- 16 For example, see Jacqueline Pugh-Kitingan's description of Huli yodeling, with notated examples clearly indicating hocketed interlock (Kaeppler and Love 1998:298-99). (The Huli are a tribal people from the Highland Region of Papua New Guinea.) Another remarkable example of yodeled hocketing, by the Dani, also of New Guinea, can be found on track 35 of the CD accompanying the same volume.
- 17 I have already referred to some examples from the Jivaro. Similar recordings from Peru are also available (*Traditional Music of Peru* tracks 7 and 8).
- 18 See the section "Movements of the Head," Figure 6, in Velitchkina 1996, for a notated example of this type of voice/panpipe interaction. Recordings of this practice can be downloaded from the same web page.
- 19 For thorough, though incomplete, discussions of the panpipe, its world distribution, and history, see McKinnon et al. 1984.
- 20 The tektekan is a traditional Balinese bamboo instrument associated with rituals of exorcism.
- 21 For more information plus a photo, see the *anklung* entry at Long *et al.* 1997. An *anklung*based gamelan is on the CD set *Gamelan Virtuosos* disc 2, track 4.
- 22 It is important to distinguish between "diffusion" in the traditional sense, which implies a process of cultural influence propagating through acculturation, and "demic diffusion," also known as "demic expansion," the spread of certain artifacts and practices through migration. The former was continually and often ineffectually invoked in the efforts of earlier generations to explain certain puzzling cultural distributions. It is only with the advent of the new genetic technologies that it has been possible to trace the latter, "demic," type of diffusion with any degree of certainty.
- 23 To see how the Siberians and Central Asians could themselves have branched off from the original out-of-Africa lineage, one would need to access earlier regions of the "Genetic Map." For Oppenheimer, the explosion of Mt. Toba roughly 74,000 years ago may have produced genetic "bottlenecks" differentiating these populations both from each other and the main-stream "beachcomber" group, whose easternmost wing would not have been affected by the explosion. I have more to say on Mt. Toba in sections 9, 10, and 13.
- 24 Since the panpipes of these early migrants were probably constructed from perishable materials, no archaeological record of them exists. Panpipes from a much later era, made from metal or ceramic materials, have survived in the Eastern United States, generally associated with so-called "Mound Builder" sites, dating roughly from 3,000 to 1,000 years ago. There is strong evidence that these instruments, along with many other artifacts and customs, such as head flattening, ear plugs, the use of mica, etc., even the practice of mound building itself, could have originated in Mexico, particularly the La Venta culture of Veracruz (Silverberg

1968:222-27). I know of no panpipes associated with any post-colonial era tribal groups anywhere north of Mexico.

- 25 A related theory that makes some sense is an older one passed on, and endorsed, by Oppenheimer, that some groups might have created a kind of "fast track" to South America by sailing along the western coast, a notion roughly consistent with the findings of a recent, comprehensive study of the genetic literature, which concludes as follows: "Based on the existing molecular anthropological data, the following picture of the peopling of the Americas is offered. There was a pre-Clovis entry of ancestral Asian groups into the Americas during the Last Glacial Maximum. These immigrants used a coastal route to reach the areas below the glaciated areas of northern North America somewhere between 18,000-15,000 ybp. They apparently brought mtDNA haplogroups A-D and Y chromosome haplogroups P-M45a and Q-242/Q-M3 haplotypes with them to the Americas, with these being dispersed throughout all continental areas of the Americas. A subsequent expansion probably brought mtDNA haplogroup X and Y chromosome haplogroups P-M45b, C-M130, and R1a1-M17, with these being disseminated in only North and Central America. This expansion may have coincided with the opening of the ice-free corridor around 12,550 ybp. A somewhat later expansion likely involved the emergence of circumarctic populations, such as Eskimos, Aleuts, and Na-Dene Indians" (Jones 2004:30).
- 26 A recent report on the Y chromosome (male lineage) data indicates "independent histories for Australians and Melanesians, a finding that is in agreement with mtDNA but that contradicts some analyses of autosomal loci, which show a close relationship between Australians and Melanesian (specifically, highland Papua New Guinean) populations"((Kayser *et al.* 2001: 173). These mixed results are difficult to interpret. However, it is possible, as the authors suggest, that the autosomal similarities could reflect a common heritage predating the arrival of the original migrant population in the area, whereas "the Y-Chromosome and mtDNA results [might] reflect the past 8,000 years of independent history" after the landmasses of Australia and New Guinea separated (*ibid*.:173). This suggests the possibility that the Australians could have originally inhabited the entire Sahul area (New Guinea and Australia combined into one land mass) at a time when the peoples who were to ultimately inhabit highland New Guinea were still living in SE Asia. Conceivably this population might not have arrived in New Guinea until a time later than 8,000 years ago, when the two land masses were separate and intermingling would have been difficult. Whatever the reason, the Y chromosome and mtDNA differences are consistent with the musical differences, which are considerable.
- 27 The notion of a prolonged "volcanic winter" precipitated by the explosion of Mt. Toba was first proposed by Professor Stanley Ambrose of the University of Illinois (Ambrose 1998). While Ambrose and Oppenheimer are in agreement about the importance of this event to the diversity of the human species, Ambrose does not accept the early date proposed by Oppenheimer for the populating of Asia from Africa. According to Ambrose, all "modern" humans were still living in Africa when the Toba event occurred and hence the diversity effect was limited to that continent. I find it difficult to reconcile that interpretation with the lack of evidence in Africa for the necessary degree of phylogenetic, cultural, and musical diversity. In order for Toba to work as an explanation for the high degree of diversity we now see in the world, it would seem as though Out-of-Africa colonies would have to have been spread all across Asia when it erupted. This is, indeed, one of the reasons why it makes sense for Oppenheimer to date the African exodus back to a period prior to the Toba event.
- 28 This interpretation is consistent with the presence of so-called "Australoid" tribal groups in India, a link which might be traceable genetically. According to one research paper, "PC [Principal Component]-analyses...revealed closer affinities between highland PNG [Papua New

Guinea] and Africa and between Australia and southern India" (Kayser *et al.* 2001:184). See also Harpending 1996 and Stoneking 1997.

- 29 Examples of a type of shouted hocket, not unlike the Ju'hoansi Bushmen *Choma* ceremony discussed in Section 5, have been recorded from some Siberian groups (e.g., the Chukchi, Even, Evenk, Koriak, the Etelmen of Kamchatka, and the Ainu of Japan) during shamanic rituals, suggesting that elements of P/B style could have survived far into northern Asia. This practice can be related to Inuit "throat singing" as well. For a thoroughgoing comparative study of these traditions, see Nattiez 1999.
- 30 A thorough discussion, by Jarkko Niemi, of the music of one Paleosiberian group, the Nenets, can be found on the Internet, complete with recorded examples that can be accessed online (Niemi 1997). In Section 3, entitled "The Musical Style of the Nenets as Part of the Musical Style of the Arctic," the author states that, "[r]egarding its fundamental structural features, the musical culture of the Nenets belongs to the cultural area of the Arctic and Subarctic hunters, fishers and the historically later period of reindeer pastoralists. This cultural area geographically encompasses the whole circumpolar zone from the Sami of Northern Scandinavia through native Siberia to the native people of Arctic/Subarctic Northern America and Greenland." A bit later, he adds: "It must be said however that the monumental global statistical style analysis of vocal music, the so called 'Cantometrics'-workgroup of Alan Lomax found these kinds of style fundamentals. Lomax defined Siberia as a style area of its own, with a direct counterpart only at the native Tierra del Fuego, Southern America." While Niemi expresses some justifiable reservations regarding Lomax's approach, pointing out, as well, certain limitations of the Cantometrics Paleosiberian sample, drawn largely from poor quality recordings, evidence gleaned from my own examination of many newer recordings (for example, Kolyma: Chants de Nature et d'Animaux) would seem to bear out Lomax's original hypothesis, that the music of arctic and subarctic Eurasia can be regarded as a highly unified style area.
- 31 Compare for example with Niemi 1997 section 2.2.3, "The Individual Song," example 5.
- 32 A genetic "bottleneck" is created when a relatively small subgroup of some population either breaks off from the main group or survives a catastrophe that has killed off or dispersed the others. The subgroup and its descendents will necessarily have only a fraction of the genetic diversity of the original group. It seems logical to assume that genetic bottlenecks can produce cultural bottlenecks since the same conditions that produce the former can substantially reduce or eliminate elements in the society or its environment that were sustaining the original culture and its traditions. Such bottlenecks could prove to be important engines of cultural change.
- 33 There is some very intriguing evidence that the earliest Europeans might have looked very much like Africans. According to one recent publication, "[t]he earliest modern humans in Europe had skeletons with tropical morphologies that eventually evolved into a colder environment form" (Marean and Assefa 2005:96). Another clue are the signs of steatopygea (extreme development of the buttocks) in so many of the so-called "Venus" figurines of the Aurignacean period in Europe. This condition can be found in both present day Bushmen and Andaman Island "negritos."
- 34 Alan Lomax often compared the "African Hunter" model with a cohesive, polyphonic, vocal style characteristic of what he called "Old Europe" (e.g., Lomax *et al.* 1968:19). He found clues to possible African survivals in various parts of Europe, notably Switzerland, among polyphonically yodeling cattle herders (*Voices of the World*: disc 1, track 35) and also the polyphonic "Tralalero" tradition he himself recorded in Genoa (see *Trallaleri of Genoa*). Similar traces suggest themselves in the medieval hocket tradition, which, according to William

Dalglish (1978:3, 4), appears to have stemmed not from experiments by composers, but "improvisation" by singers, suggesting folk origins. Also of relevance is the medieval canon, "Sumer Is Icumen In," generally thought to be a notated "folk song." Music historian Manfred Bukofzer, discussing polyphonic practices in the popular music of the Middle Ages, cites a fourth-century chronicle "which describes how a missionary was killed and how the ringing of many cowbells and the sound of the Alpine horn and yodels accompanied the ceremony of execution" (Bukofzer 1940:48). Of all such possible "African connections," none is as striking, however, as the alternating piping and hooting of Velitchkina's Russian villagers, almost indistinguishable from strikingly similar practices recorded in various parts of Africa, New Guinea, and Island Melanesia.

- 35 Acccording to Oppenheimer (2004b), the genetic data points to Pakistan-India as the place of origin for the subsequent diffusion of several key mitochondrial and Y chromosome lineages, not only the Manju and Rohani lines but also the very important Seth line, ultimately branching into Central and East Asia, as well as Europa, whose "daughter," named only U5, represents the founding female line for much of Europe. What is implied here is that all or most of these lines branched off in South Asia as the direct result of the Toba disaster and from there spread to various parts of Europe, Asia, and the Americas.
- 36 The timing of the African exodus in relation to the dating of the Toba explosion is crucial to the meaning of the latter event for human evolution. However, even if the importance of Toba were to be discounted in the face of future research, some other major disaster of comparable scope would almost have to have occurred at a crucial moment in our pre-history to produce the dramatic effects reflected in the archaeological, ethnographic, paleontological, and genetic records.
- 37 While a primeval population bottleneck and a Toba-like disaster that could have caused it have great potential explanatory power, considerable controversy and confusion regarding both theories remains. According to certain interpretations of the genetic data, division along "racial" lines may have actually preceded the bottleneck. Some see the Toba explosion as preceding the Out-of-Africa migration, while others, like Oppenheimer, feel it must have come later, after colonies had been founded all along the Asiatic coast. For Harpending and Rogers, "[o]ne way out of the problem is to posit that race differences are older than the expansion of our species; another is to posit that drift during successive colonization bottlenecks led to [the] worldwide differences [we now see]" (Harpending and Rogers 2000:383). While it is far too soon to take sides on a matter of such great complexity, the musical evidence does seem to support the latter alternative, i.e, multiple bottlenecks, both genetic and cultural.
- 38 Compare, for example, *Traditional Aboriginal Music: Sounds from the Bush*: track 19, "Malalabanda," with just about any track on *Ceremonial and War Dances*, representing various North American Tribes.
- 39 The many similarities between Australian and American song styles are reflected in Lomax 1980:35-36, where both are included in "Factor 2–Circum-Pacific."
- 40 These dates are based on genetic research regarding both the origins of the earliest modern humans and the estimated dates of the earliest dispersals from the founding population. I am assuming that the origins of music would have preceded these dispersals by a significant, but undeterminable, period.
- 41 While there is a long history of highly romantic, almost Utopian, writing on the seemingly ideal lifestyle of certain Pygmy and Bushmen groups, newer research has, perhaps inevitably, given rise to a more jaded, revisionist view, placing more emphasis on the dependence of many hunter-gatherer groups on their Bantu neighbors. Revisionists have argued, for example,

that Pygmies could never at any time have survived in the tropical forests without produce supplied by Bantu farmers, and that their vaunted egalitarianism is more likely a response to relatively recent outside pressures than a true Paleolithic survival. Since we find similarly egalitarian value systems among indigenous groups in parts of the world with very different histories, I don't find the revisionist interpretation particularly convincing. Deliberately setting out to correct what she perceived as Colin Turnbull's "romantic" view of Pygmy life, Michelle Kisliuk produced a study that ultimately presents a very similar picture, at least in her day-today descriptions of Pygmy life, as opposed to her ideologically charged ruminations on ethnographic theory. While Kisliuk points to relatively minor disputes, hints of witchcraft, gender tensions, and occasional lapses into selfish and even violent behavior, Turnbull's picture of a gentle, caring, sharing, creative, and peaceful society, at one with itself and the forest around it, is clearly apparent in page after page of her book. What has changed, as she makes quite clear, has been the world surrounding the Pygmies, the effects of which force Kisliuk into a conflict between her ideologically "correct" view of all society as necessarily based on change, and a more "sentimental," but probably accurate, realization that something infinitely precious is being systematically destroyed (Kisliuk 1998).

42 The whole question of musical change, how it occurs and why, is a huge topic in itself, to which I cannot do justice here. I would imagine, however, that opportunities for change are much more frequent in societies where specialization has become important. Professional or semi-professional musicians of neighboring regions can form bonds of their own, capable, in many cases, of cutting across traditional cultural and social boundaries to influence one another in a variety of ways. Such acculturative opportunities would seem far less likely in societies that lack specialization, where everyone is encouraged to become immersed in the musical life of the group and deeply attached to its traditions. In such cases it is not difficult to see how there could be profound resistance to cultural change of any sort.

References

Ambrose, Stanley

1998 "Late Pleistocene Human Population Bottlenecks, Volcanic Winter, and the Differentiation of Modern Humans." *Journal of Human Evolution* 34:623-51.

Arom, Simha

1991 African Polyphony and Polyrhythm. Cambridge: Cambridge University Press.

Bishop, Douglas

2005 "A Worldwide History of the Pan Flute." www.panflutejedi.com/pan-flute-historypage.html, accessed April 13, 2006.

Blench, Roger

2002 "Reconstructing African Music History: Methods and Results." Unpublished draft: www.rogerblench.info/RBOP.htm, accessed March 18, 2006.

Buchner, Alexander

1980 Encyclopédie des instruments de musique. Paris: Gründ.

Buenconsejo, José

2001 Review of the CD "The Solomon Islands: Sound of Bamboo." *Ethnomusicology Online* 7. http://research.umbc.edu/eol/7/buencons/, accessed September 14, 2005.

Bukofzer, Manfred

1940 "Popular Polyphony in the Middle Ages." The Musical Quarterly 26:31-49.

Cavalli-Sforza, Luca, et al.

1996 The History and Geography of Human Genes. (Abridged paperback edition.) Princeton: Princeton University Press.

Chen Yu-Sheng et al.

2000 "Mitochondrial DNA Variation in the South African Kung and Khwe—and Their Genetic Relationships to Other African Populations." *American Journal of Human Genetics* 66:1362–83.

Dalglish, William

1978 "The Origin of the Hocket." Journal of the American Musicological Society 31:3-20.

Destro-Bisol, Giovanni

1994 "The Analysis of Variation of mtDNA Hypervariable Region 1 Suggests that Eastern and Western Pygmies Diverged before the Bantu Expansion." *The American Naturalist* 163:212-26.

Feld, Steven

- 1982 Sound and Sentiment: Birds, Weeping, Poetics and Song in Kaluli Expression. Philadelphia: University of Pennsylvania Press.
- 1996 "Waterfalls of Song: An Acoustemology of Place Resounding in Bosavi, Papua New Guinea," in Steven Feld and Keith Basso, eds., Senses of Place, 91-135. Santa Fé: School of American Research Press.

Fürniss, Susanne

2006 "Aka Polyphony: Music, Theory, Back, and Forth," in Michael Tenzer, ed., Analytical Studies in World Music, 163-204. New York: Oxford University Press.

Grauer, Victor A.

- 1965 "Some Song Style Clusters." *Ethnomusicology* 9:265-71.
- 1993 "Toward a Unified Theory of the Arts," Semiotica 94, nos. 3-4. Reissued with additional material in Music Theory Online 2, no. 6, Sept. 1996, www.societymusictheory.org/ mto/issues/mto.96.2.6/mto.96.2.6.grauer.html, accessed May 10, 2006.
- 2000 "A Field Theory of Music Semiosis—Part One." *Eunomios*: www.eunomios.org/ contrib/grauer1/grauer1.html, accessed May 10, 2006.

Harpending, Henry, and Alan Rogers

2000 "Genetic Perspectives on Human Origins and Differentiation." Annual Review of Genomics and Human Genetics 1:361-85.

Harpending, Henry, Anthony J. Boyce, and C. G. Nicholas Mascie-Taylor

1996 "Methods and Models for Understanding Human Diversity," in A. J. Boyce and CGN Mascie-Taylor, eds., *Molecular Biology and Human Diversity*, 283-99. Cambridge: Cambridge University Press.

Harris, Marvin

1979 Cultural Materialism. New York: Random House.

Heylighen, Francis

2005 "Occam's Razor." pespmc1.vub.ac.be/OCCAMRAZ.html, accessed April 7, 2006.

Hitchcock, Don, webmaster

2005 *Lion Camp: Kostienki/Kostenki on the Don River*. http://donsmaps.com/lioncamp. html, accessed April 7, 2006.

Izikowitz, Karl Gustav

1970 Musical and Other Sound Instruments of the South American Indians: A Comparative Ethnographical Study. East Ardsley, England: S. R. Publishers.

Jakobson, Roman

1987 "Musicology and Linguistics," in Roman Jakobson, *Language in Literature*. Cambridge, Mass.: Harvard University Press.

Jones, Peter A.

2004 "American Indian mdDNA and Y Chromosome Genetic Data: A Comprehensive Report of their Use in Migration and Other Anthropological Studies." International Institute for Indigenous Resource Management. http://www.iiirm.org/publications/ Articles%20Reports%20Papers/Articles%20Dream%20Weaver%20Files/articles. htm, accessed 27 November 2006.

Kaeppler, Adrienne L., and J. Wainwrigt Love, eds.

1998 Australia and the Pacific Islands: The Garland Encyclopedia of World Music, vol. 9. London: Routledge.

Kayser, Manfred, et al.

2001 "Independent Histories of Human Y Chromosomes from Melanesia and Australia." American Journal of Human Genetics 68:173-90.

Kisliuk, Michelle

1998 Seize the Dance:BaAka Musical Life and the Ethnography of Performance. New York: Oxford University Press.

Lomax, Alan

- 1959 "Folksong Style." American Anthropologist 61:927-54.
- 1962 "Song Structure and Social Structure." *Ethnology* 1:425-51.
- 1980 "Factors of Musical Style," in Stanley Diamond, ed., *Theory and Practice: Essays Pre*sented to Gene Weltfish, 29-58. The Hague: Mouton.

Lomax, Alan, et al.

1968 *Folk Song Style and Culture*. Washington: National Association for the Advancement of Science.

Long, Darren, et al., eds.

1997 *The Coleman Collection*. Website on the instrument collection of Barbara Coleman. www.uoguelph.ca/music/coleman/, accessed March 25, 2006.

MacEachern, Scott

2000 "Genes, Tribes and African History." Current Anthropology 41:357-84.

Marean, Curtis W., and Zelalem Assefa

2005 "The Middle and Upper Pleistocene African Record for the Biological and Behavioral Origins of Modern Humans," in Ann Brower Stahl, ed. *African Archaeology: A Critical Introduction*, 93-129. Oxford: Blackwell.

Marlowe, Frank

2002 "Why the Hadza are Still Hunter-Gatherers." www.fas.harvard.edu/~hbe-lab/acrobat files/why%20the%20hadza%20are%20still%20hunter-gatherers.pdf, accessed September 8, 2005.

McEvedy, Colin, ed.

1995 The Penguin Atlas of African History. Penguin Books.

McKinnon, James, Robert Anderson, John Schechter, and Mervyn McLean

1984 "Panpipes," in *The New Grove Dictionary of Musical Instruments*, ed. Stanley Sadie, vol. iii, 12-14. London: Macmillan.

Nattiez, Jean Jacques

1999 "Inuit Throat Games and Siberian Throat Singing: A Comparative, Historical and Semiological Approach." *Ethnomusicology* 43:399-418.

Niemi, Jarkko

1997 "The Types of the Nenets Songs." www.uta.fi/~kpjani/nengcont.htm, accessed September 8, 2005.

Olivier, Emmanuelle, and Susanne Fürniss

1999 "Pygmy and Bushman Music: A New Comparative Study," in Karen Biesbrouck, Stefan Elders and Gerda Rossel, eds., Central African Hunter-Gatherers in a Multidisciplinary Perspective: Challenging Elusiveness: Proceedings of the Colloquium on Hunter-Gatherers of Equatorial Africa, held at Leiden, The Netherlands, October 7-9, 1996, 117-32. Leiden: CNWS.

Olson, Steve

2002 Mapping Human History. New York: Houghton Mifflin.

Oppenheimer, Stephen

- 2004a "Journey of Mankind: The Peopling of the World." Interactive web site: www.bradshawfoundation.com/stephenoppenheimer/, accessed September 8, 2005.
- 2004b The Real Eve. New York: Carroll & Graf.

Rouget, Gilbert, and Yvette Grimaud

- 1956 Bushmen Music and Pygmy Music. Pamphlet accompanying LP of same title [See also Discography].
- 2004 "L'efficacite musicale—musiquer pour survivre: Le cas des Pygmies." *L'Homme* 27-52.

Sadie, Stanley, ed.

1984 The New Grove Dictionary of Musical Instruments, vol. 3. London: Macmillan.

Silverberg, Robert

1968 The Mound Builders. Athens: Ohio University Press.

Sklenar, Karel

1985 Hunters of the Stone Age. Middlesex: Hamlyn.

Stoneking, M., et al.

1997 "Alu Insertion Polymorphisms and Human Evolution: Evidence for a Larger Population Size in Africa." Genome Research 7:1061-71.

Tenzer, Michael S.

2000 "Theory and Analysis of Melody in Balinese Gamelan." Music Theory Online 6(2): mto.societymusictheory.org/issues/mto.00.6.2/ mto.6.2.tenzer.html, accessed September 12, 2005.

Velitchkina, Olga

1996 "The Role of Movement in Russian Panpipe Playing." *Ethnomusicology Online* 2: research.umbc.edu/eol/2/velitch/index.html, accessed December 18, 2004.

Weber, George

1997-2006 "Lonely Islands: The Andamanese." www.andaman.org/, accessed February 12, 2005.

Wiora, Walter

1965 The Four Ages of Music. New York: Norton.

Zago, Marco A. et al.

1995 "Alpha-globin Gene Haplotypes in South American Indians." *Human Biology* 67:535-46.

Žarskienė, Ruta

- 2000 ""Tūtavimas' as the Basis of Multi-Pipe Whistles Playing." Summary at: www.llti.lt/ en/serija_td.htm#XI, accessed March 10, 2006.
- 2003 "Playing Multi-Pipe Whistles of Northeastern Europe: Phenomenon of Collective Musical Performance." *Studia Musicologica* 44:163-74.

Zemp, Hugo

1979 'Are'Are Music and Shaping Bamboo. NTSC format Videotape. SEM Publications Audio-Visual Series 1.

Discography

(Brief clips from the CDs referenced below can be accessed from various websites featuring recorded music, such as www.amazon.com, www.folkways.si.edu, etc.)

Anthology of the Music of the Aka Pygmies. Set of 2 CDs. Ocora, 1996.

Anthology Of World Music: Africa-Ba-Benzele Pygmies. CD. Rounder Select 5107, 1998.

- Bolivia: Music of the Calcha. CD. Le Chant du Monde 2741120, 2000.
- *Bosavi: Rainforest Music from Papua New Guinea*. Set of 3 CDs. Recorded and edited by Steven Feld. Smithsonian Folkways 40487, 2001.
- *Bushmen Music and Pygmy Music.* LP. Rec.s by the Marshall Expedition, Gilbert Rouget, and Andre Didier. Ed. with essay by Gilbert Rouget, and additional commentary and analysis by Yvette Grimaud. Peabody Museum and Musée de L'homme, 1956.

Ceremonial and War Dances. CD. Delta 12552, 1995.

Chants of the Solomon Islands. 2 CDs. Le Chant du Monde 274961, 1994.

Echoes of the Forest: Music of the Central African Pygmies. CD. Ellipsis Arts 4020, 1995.

Gamelan Virtuosos: Music From Bali 2. 2 CDs. Mudum, 1996.

Gagaku: Imperial Court Music of Japan. CD. Lyrichord 7126, 1993.

Georgian Voices: The Rustavi Choir. CD. Nonesuch 79224, 1991.

Hanunoo Music from the Philippines. LP. Smithsonian Folkways FW04466, 1953.

Heather and Glen. LP. Ed. Alan Lomax. Tradtion Records TLP1047.

- Indonesia–Wayang Golek: The Sound & Celebration of Sundanese Puppet Theater. 6 CDs. Music Earth/Multic, 1994.
- Java: Javanese Court Gamelan. CD. Rec. and ed. by Robert Brown. Nonesuch 72044, 1991.
- Kingdom of the Sun/Fiestas of Peru. CD. Rec. and ed. by David Lewiston. Nonesuch 79197, 1990.
- *Kolima: Chants de Nature et d'Animaux.* CD. Music of the Chukchee, Even and Jukaghir. Musique du Monde series, Buda 92566-2.
- Kulintang: Ancient Gong/Drum Music of the Southern Philippines. CD. World Kulintang 72551, 1995.
- Music of Bali 3 (Kecak & Tektekan). CD. Celestial Harmonies 13138, 1997.

- Music of Indonesia 8: Vocal and Instrumental Music of Flores. CD. Ed. Philip Yampolsky. Smithsonian Folkways 40424, 1995.
- Music of the Jivaro of Ecuador. LP. Smithsonian Folkways FW04386, 1973.
- Music of the Morning of the World. CD. Nonesuch 79196, 1990.
- Musical Anthology of the Aka Pygmies. 2 CDs. Rec. with notes by Simha Arom. Ocora C 560171/ 72, 1987.
- Namibia: Songs of the Ju'hoansi Bushmen. CD. Rec. with notes by Emannuelle Olivier. Ocora 560117, 1997.
- Primitive Music of the World. LP. Smithsonian Folkways FW04581, 1962.
- Sampler: Indonesia, South Pacific Music from the Nonesuch Explorer Series. CD. Nonesuch, 2002.
- Scotland. CD. World Library of Folk and Primitive Music, ed. Alan Lomax. Rounder Records 1743, 1998.
- Solomon Islands: 'Are'Are Intimate and Ritual Music. CD. Collected with notes by Hugo Zemp. Le Chant du Monde CNR 274963, 1995.
- Solomon Islands: The Sounds of Bamboo. CD. Music Earth / Multic 3007, 1997.
- Supra: Georgian Banquet. CD. Arb 179082, 1998.
- Traditional Aboriginal Music: Sounds from the Bush. CD. Arc Music 1475, 1998.
- Traditional Music of Peru 3: Cajamarca & the Colca Valley. CD. Smithsonian Folkways 40468, 1996.
- Traditional Songs and Dances from Africa. CD. Arc 1415, 1997.
- *Tralaleri of Genoa*. CD. Italian Treasury, rec. and ed. Alan Lomax. The Alan Lomax Collection, Rounder Records 11661-1802-2.
- Voices of the World: An Anthology of Vocal Expression. 3 CDs. Rec. and ed., Gilles Léothaud, Bernard Lortat-Jacob, and Hugo Zemp. Collection du Centre Nacional de la Recherche Sciéntifique et du Musée de l'Homme. Le Chant du Monde CMX 3741010-12, 1996. Brief clips from all tracks are at: shopping.yahoo.com/p:Voices%20of%20the%20World: 1921225149:page=tracks, accessed January 12, 2005.

Response to Victor Grauer: On the Concept of Evolution in the History of Ethnomusicology

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Abstract

This short essay responds to Grauer in the first instance by voicing agreement with his interest in reviving cantometrics and moving further along the lines sketched by Lomax. It reflects surprise at the relative neglect, by ethnomusicologists, of the issues raised by cantometrics after c. 1970, and goes on to associate cantometrics with its historical antecedents, the well-known work of Curt Sachs and of adherents of the American "culture area" approach to the interpretation of geographic distributions. Most of the essay is devoted to comments on a movement that has become known as "evolutionary musicology" which are directly or indirectly raised by Grauer. These involve the origins of music, the (sometimes incorrectly labeled) evolutionary approach to universal music history, and the interpretation of music as a biological adaptation. It is in evolutionary musicology that the influence of Lomax and cantometrics is most evident.

1. Appreciation and a Few Questions

This is a magisterial work which takes on fundamental questions and issues of ethnomusicology. I congratulate Victor Grauer on his imaginative and comprehensive but also speculative—presentation of the relationship between cantometrics and theories of a world history of music. In fact, this article does two important things—it narrates a history of music in its early stages and periods, and it picks up the thread of the cantometrics literature from his mentor Alan Lomax, moving its ideas further in the direction Lomax had charted. To be sure, what I see as Grauer's main thrust, the early history, is based on cantometrics, but not really dependent on its detailed analytical technicalities.

To me, Grauer's "history" is in many respects pretty convincing, but in the end, he asks the questions that came to me throughout the reading: "Am I writing a plausible history or weaving a myth?" Can a musical style retain consistency over long periods? Does perpetuation of a musical style go hand-in-hand with perpetuation of social structure? And I also would ask the question implied in Lomax's work: is there for every (or any) culture a "favored song style" from which its musical history can be extrapolated? Still, as Grauer, coming out of Africa, moves through the periods, and from continent to continent, I find myself thinking "well, in its overall outline, that sounds pretty plausible."

Let me say that I have always found cantometrics attractive (and have said or implied so in print—see Nettl 2005:66, 79, 100-01, 128-29, etc.). I thought Lomax was on to something really important. I worried about what seemed to me simplifications and unequal treatments of parts of the world, for example, a variegated Europe and an essentially homogeneous Asia or the homogeneity of any one culture's music but "in the old days" we all thought of the musics of most cultures in this way. I noticed my inability to get classes of students to agree on the ratings on the training tapes—I liked the analytical system, which tackled the problems of describing singing style (while, to be sure, oversimplifying some other parameters) in a new and promising way, and I liked the idea of relating music and social organization, even though I wished one didn't have to reach so frequently for a shoehorn. So I was surprised that the body of literature which followed, tested, and debated developed only to a narrow trickle. As such, I am glad to see Grauer's essay substantially broadening the stream on the basis of findings relating to questions even more fundamental than Lomax's. Here he asks about the origin of musics and fundamental musical styles, about music history in its broadest sense, and what it is that links a society and its particular brand of culture to a particular kind of music.

The remainder of these pages attempt to do two quite separate things: first, to ask briefly a few of the questions that come to mind in the reading, without suggesting answers; and then, at greater length, to sketch and comment on one strand of the history of scholarship which is the context for Lomax, Grauer, and this speculative history, occasionally re-touching on some of these questions.

Thoughts about Grauer's section 2: Grauer touches on the basic question, is there such a thing as music? Or rather, is there such *a* thing as music? It is a way of combining two more practical questions: does the idea of a single human origin require a theory of a single origin of music? If so, how do we explain the diversity of musical styles in even very small societies? I am sympathetic to the out-of-Africa idea, but is there too much faith in the notion that musical styles have, as it were, lives of their own?

In section 3, I found myself wondering whether Grauer has (and I used to have, having learned from Sachs, the Kulturkreis school, even George Herzog) too much faith in the possibility of reliably extrapolating the distant past from the present. Sections 4 and 5 raised lots of questions, but let me mention just one reaction. Relating biological evolution and ancestry to cultural and musical evolution seems too much of a reach to me. Anyway that small band of "Africans" who are everybody else's ancestors might have had more than one class of communicatory sounds. I'm still with Boas, and think that societies change their culture very rapidly to adapt to social and natural changes (the Native Americans of the Plains since the eighteenth century are a good example). I confess to vacillating between the attractive idea of a unified bio-

logical, cultural, and musical history, which Grauer suggests, and the notion that each of these histories represent lots of individual human choices and decisions.

In section 7, the account offered of the prehistory and history of the gamelan makes sense to me, but does one really need the cantometrics apparatus to demonstrate these relationships? In section 8, Grauer gives a very measured account of theories that can be used to interpret similarities and diversities of musics of huntinggathering peoples. But—and here is one of my problems with the cantometrics literature-are the similarities and identities of musical styles of these widely distributed cultures real? Or does cantometrics analysis give superficialities? George Herzog (1935) suggested that gambling or hiding-game songs of widely divergent Native American peoples have a single style, and the same is true of love songs and songs in animal stories. But if one looks at these song groups without the context of the main repertories, the similarities are superficial-the songs are generally simple and brief. I used to think that this was enough to suggest a common historical stratum (I used to think it was, mea culpa, but so did Wiora [1956] and others, though Herzog did not insist on that). Let me finish this random series of comments with a remark on section 9, which speaks to Native American cultures. The more I work in the musics of this group of societies, the more I am convinced that the events of the last 500 years have had far greater effects on everything in life, including music, than we had thought. I used to think, as Grauer evidently does (and maybe Lomax did) that Native American cultures and culture areas provided a wonderful laboratory for developing theories of geographic distribution and history, but if the period preceding direct white settlement was indeed one of unprecedented holocaust of disease, with bare survival of many groups, it is hard to make a case for an detailed knowledge of how things might have been earlier on.

2. On "Evolutionary Musicology"

Significantly, Grauer's essay is related to a recent body of literature that, broadly speaking, involves the relationship of music to human evolution. This area of study has been largely the purview of scientists and scholars in the field of biology, psychology, animal communication, and to a degree, linguistics, and much of its efforts have concerned the origins of music. Landmarks among these studies include the collection edited by Wallin, Merker, and Brown (2000) and Steven Mithen's *The Singing Neanderthals* (2005), which relates the origins of music to a variety of human social and biological functions. These works are among the leading publications in what is beginning to be a coherent subfield of musicology, "evolutionary musicology." It is an area of study of interest at least as much to members of disciplines outside that of musicology (and ethnomusicology). The main purpose of the paragraphs below is to provide a context for this emergent field, by attempting a cursory survey of the way in which the concept of evolution has functioned in the history of ethnomusicology.

If "evolutionary musicology" is a new term, the concept of evolution has actually played a considerable role in the history of ethnomusicology. When I say "concept," however, I do not mean necessarily evolution as it is understood by biologists, nor, however, do I mean a concept that is taken from the dictionary definition of the word—"a series of related changes in a certain direction"—referring to nature or culture, to a universe of phenomena or a single phenomenon. But whether they are talking about the development of music as part of human evolution as understood by biologists, or whether they are simply talking about what they perceive as some kind of directional change, ethnomusicologists have tended to use the Darwinian concept—or what they think it is, correctly or not—as a point of reference.

There are several areas of ethnomusicology that have been particularly affected by the concept of evolution. I will comment on three, giving immediately the caveat that my understanding of biological evolution is primitive at best, but in the hope that some findings of ethnomusicology may be helpful in contributing to this context today: 1) the concept of the origin of music, and the related issue of musical universals; 2) the reconstruction of history, or better said, conjectural history, of music as a whole, and of individual musics, and the formulation of laws according to which music changes; and 3) the ways in which musical systems change in certain details in order to survive in essence. The relationship of these issues to evolution seems to me to depend on these questions: evolutionary biologists may wish to know whether music itself is an adaptation; humanists may ask whether the concept of biological adaptations is helpful in interpreting the history of music or musics-that is, whether music is analogous to a species, or whether the development of different musics is analogous to speciation, and if so, what this may mean; and all of us would ask whether the development of different musics by different societies is a kind of biological adaptation.

3. Origins

The notions of biological and cultural evolution are there, clearly present or in the background, throughout Grauer's essay. He does not talk very much about the origins of music, but that concept too is there, in the background, of many of his points about his "early music." (It is odd to be applying this term equally to the out-of-Africa band, and to a band of musicians in fifteenth-century Paris.) The origins of music has been an idea in which biologists and ethnomusicologists have been most immediately joined, as in the 1997 conference in Fiesole and the ensuing mentioned collection edited by Nils Wallin, Bjorn Merker, and Steven Brown (2000). Clearly, biologists and other scientists have in recent times shed important light on why and, to some extent, on how music may have originated. The origins of music played an important role in the early decades of ethnomusicology. Two of the earliest synthetic works—the German edition of Richard Wallaschek's *Die Anfänge der Tonkunst* (1903, originally titled *Primitive Music* in 1893) and Carl Stumpf's *Anfänge der*

Musik of 1911 use the concept in the titles, not, however, because these books are really about the way music came into being, but rather because they were about the musics of tribal societies and thus thought to represent the earliest extant human music. Or maybe because, in order to justify writing about tribal music at all, one had to associate it with the contemporary musical culture by suggesting that this would help the reader to understand its origins. Although later classic scholars such as Curt Sachs (1943, 1961) and Siegfried Nadel (1930) continued maintaining an interest in theorizing on the origins of music, they typically did not refer to Darwin's ideas in any detail, and after about 1950, except for half-hearted attempts by a handful of people, ethnomusicologists considered it for a good while a dead issue.

Interestingly in the last two decades, a few scholars, including Alan Lomax (1959, Lomax *et al.* 1968) and John Blacking (for example, 1973, 1977), moved back into this sphere of interest: Blacking through his interest in the biology of music-making and, as it were, the origins of music in the individual; and Lomax, in the development of music in the individual culture-unit, looking at each music (or a "society's favored song style") as if it were something like a kind of biological adaptation. To the extent that ethnomusicology, defined most easily as the study of the world's music from a comparative perspective, and of the study of music as a component of culture, could shed light on the origins of music, it did so from the perspective of the identification of musical universals, the validity of comparative study, and the question of what it is that music accomplishes for humans—or for what purpose they developed music. I am not sure to what extent one can speak here of an opposition between intentions consciously carried out, and genetic mutations that give rise to behavior.

I have tried to distinguish, in looking at the history of ethnomusicology, among four phases that might be theoretically discussed: the need for music, pre-musical kinds of behavior, a kind of moment of invention, and the earliest music. Generally, the need for music on the part of humans was approached through the study of the uses and functions of music that all cultures held in common, with emphasis on small isolated societies. Pre-musical kinds of behavior were theorized as a form of communication that preceded the development of language, and that also possessed certain characteristics of music — for example, length, stress, and pitch distinctions. The earliest music was considered to be something like the music of certain tribal peoples which was seen as exceedingly simple — or in which those components of music that play a major role in Western urban music were numerically limited. The moment of invention has always been a mystery, but then, the moment of invention by musical creators from Native Americans to Beethoven has always been a mystery.

This all may make some sense, although it is admittedly very speculative, but looking at what we know and do not know about the world's extant music somewhat critically may motivate us to be skeptical. First, why did humans or pre-humans create music? Ever since Hornbostel's article on the problems of comparative musicology (1905), four primary causes, if I can use that concept, have been repeatedly listed: sex and mating, associated with Darwin; elevated speech, associated with Spencer and then Wagner; rhythmic labor, associated with Carl Buecher; and the need to communicate at a distance, associated with Carl Stumpf (summarized by Sachs 1943:19-20 and Nettl 2005:259-70). The ethnomusicological canon then also included later work by Siegfried Nadel (1930), who suggested that music was invented as a way of communicating with the supernatural—but mechanically that might be in the "elevated speech" category. More recently, Jeffrey Miller (2000) suggested a refinement of the Darwin tradition, to the effect that the development of music is an adaptive mechanism to exhibit fitness to mate, presumably exhibiting energy, creativity, flexibility, qualities that would be important to an individual's survival. A recent conference on the evolution of music and language in Reading suggested various other motivations for the development of music, including its role in maternal behavior, its ability to stimulate behavior that is both individual and social, and its role in expressing group superiority. They also heard the conclusion that music was not a part of natural selection, noting that "some of the things that make life most worth living are not biological adaptations."

Some ethnomusicologists, I among them, may find the "fitness to mate" theory attractive, but we do not have much information to provide from our arsenal of world music information that is supportive to that claim. But let me say a word about universals, the music concept, and other species.

What was the earliest human music like? The typical approach of ethnomusicologists and also of others has been the identification of so-called universals. I say socalled because the term means various things-it may refer to something that is present in every musical utterance, or something found in all cultures (though identifying just what is a culture has its own problems) or found in the great majority of cultures-anthropologists called that statistical universals. Our disciplinary ancestors, Wallaschek, Stumpf, and Hornbostel, were interested in the finding that what they considered to be the world's simplest musics, which includes music of small isolated societies as well as certain children's songs in many societies, had important features in common. These include a small number of musical building-blocks: a small number of tones and note values; pitches separated by intervals approximately in the range of major seconds or minor thirds; forms consisting of repetition and perhaps variation of short bits of music; primacy of vocal music. These kinds of singing were considered to be cultural universals, and thus perhaps representative of the world's earliest music. They tried to establish that a "primitive" layer of music could still be identified in a kind of archeological approach to the study of music repertories. But also, musical characteristics or traits such as the two-tone and three-tone scale were abstracted and associated with the earliest human music in more complex contexts (see also an imaginatively defined predecessor of all these, the "Hmmmm" suggested by Mithen 2005).

A problem with the identification of musical universals is that the criteria used to identify them in musical sound have typically been taken from the musical discourse of Western academic music culture. There are ways in which these musics, which seem so similar to us, are actually not so alike. Singing styles may differ greatly, as measured for example by Alan Lomax's parameters of vocal width, nasality, tremolo, embellishment, rasp. Intonational and rhythmic variation may seem to us academics like random differences, but they may in fact bear musical significance (see Lomax *et al.* 1968). If one were, for instance, as a practitioner of cantometrics, to try to isolate all musics featuring a high level of nasality, one would find oneself with a collection of data including some simple and some complex musics.

At this point, I want to add a word of caution to the widespread belief—I confess to having once been a believer—that the cultures with this very simple style represent musical behavior of early humans because obviously they haven't been able to develop music beyond a level of simplicity. There is now some evidence that the musical repertory with only simple songs may often be the result of colonialism of the last several centuries, under which certain tribal societies became so impoverished and isolated that they abandoned much of the complexity of their culture and left themselves with only its simplest components. This area of study has not been widely developed and remains to be pursued.

But just as our evaluation of musical simplicity is rooted in the Western academic canon of music in which complexity is given an inordinate aesthetic value, the way in which we look at the world's musics is normally approached from the perspective of a holistic notion of music as a concept that encompasses a vast number of sounds and ideas about sound. We, American and European academics, belong to a culture in which everything from George Antheil's airplane motor to the silence of John Cage's 4'33" is accepted as music. We say that all cultures have music, but really, we mean that all cultures have something that sounds like what we conceive of as music. We also, colloquially, transfer this to other species; birds sing, as do whales, but dogs and cats usually don't. Now, it is widely known that most of the world's languages actually do not have a traditional word for "music," but the various things they do that sound to us like music may be widely different categories in the cognitive map. Persian musicians think of instrumental, metric, composed music as quite a different thing from vocal, non-metric, improvised chant or song. Steven Feld (1982) found that Kaluli culture and language distinguished a variety of sounds-speech, poetry, singing, weeping, all associated with various kinds of birdsong. The point is that if we were to look at the origins of music starting with the perspective of another society or culture, we might find ourselves drawing different conclusions. For example, we might speculate that music did not have one single origin, but several; that different motivations or even adaptations might have led to different kinds of sound that only Europeans-maybe erroneously-subsume under one concept. As imaginary examples, certain kinds of singing solo performance might have come about as a result of the fitness-to-mate adaptation; group singing from the need to support the advantage of group action and cooperation; instrumental music from the advantage of long-distance communication; variation on a theme from the usefulness of identifying distant individuals; dance music and lullabies in other ways yet. It's a tempting thing to imagine, but I don't have a theory, and am only trying to point out that our idea of music as simply one "thing," a thing that came into existence once, in one

way, may be too narrow for reasonable contemplation. In thinking of cultural universals as a guide to the earliest music, we should bear in mind that the cultural diversity of the music concept may lead us to theories of a diversity of origins of the kinds of things we now have come to unite under the concept of music. It is interesting, by the way, to see that Curt Sachs, in his last work, *The Wellsprings of Music*, of 1961, came close to this conclusion.

Finally, turning to the relationship of ethnomusicology and the origins of music, note that ethnomusicologists are omnivorous. They write papers about anything that anyone says is music, and so among the various kinds of musicologists, it's ethnomusicologists who might welcome contributions on communications by birds, whales, and gibbons. I have found what I have learned—with my limited understanding— about these forms of communication in other species, and the tendency of some to distinguish different kinds of communication which we might see as analogous to speech and singing, enormously interesting. But from an ethnomusicological perspective, I am not sure how they are relevant, except by analogy, to the human picture in which we don't even have a cross-culturally valid concept of music, nor any really reliable accounting of universals. Indeed, universals of various sorts have been around for a hundred years of ethnomusicology, but we have gradually come to have less faith in them, and our faith in our ability to discover what led to the development of music has not increased.

I think we are probably safest to consider the origins of music as a series of separate events, derived from a variety of social needs and processes, united only by their use of sound distinguished from ordinary speech. Perhaps they came together, many millennia later, as "music," only in some select societies such as modern European. Had another of the world's societies become culturally dominant, we might conceivably not be talking about "music" at all, but about a variety of sound types each of which had an independent origin.

4. History

Most of Grauer's essay, in its various sections, tries to draw a history, a comprehensive history of "early" music, and histories of continents and major world areas, and this, I feel, is its most important contribution. Notions taken from (or thought to be taken from) biological evolution come to the fore most in studies that try to reconstruct history. The concept of music history is probably a tiny blip in the study of biological evolution. Once music was developed, the question of whether there is "a" history of human music or "a" typical culture-specific music history is probably trivial from a biological perspective. But the concept of musical development has played an important role in musicology, and its practitioners have seen themselves influenced—though perhaps erroneously—by biological evolution. Most important here is the belief in the inevitability of an order of events. The major synthetic works about world music by scholars already mentioned—Stumpf (1911) and Sachs (1961), Marius Schneider (1934, 1957), Hornbostel in his 1905 article introducing "comparative musicology," Walter Wiora (1956, 1965) in his proposition of four stages in world music, and, indeed, many historians of Western music before the 1960s-suggest that all musics pass through certain stages, moving from two- and three-tone melodies to pentatonicism and then diatonicism, and from monophony to heterophony to polyphony and homophony. They attach this sequence to what is known of Western art music from the Middle Ages, suggesting that the differences among the world's musics is that we have found them at different stages of evolution, much as it was popularly believed that different animal species were, at one time, at different rungs on the same ladder. It is a notion that musicologists have long abandoned, but traces of it are often still in evidence, as for example in the concept of certain numerically simple musics being representative of the "stone age" and the assumptions that go with recent speculations about origins. That this notion of an inevitable order is based on a misunderstanding of evolutionary theory does not mitigate the fact that it drew much of its presumed credibility from its association with science.

The discovery of a generally applicable order of events depended on speculation about relative simplicity and complexity of musical phenomena as well as their geographic distribution, widespread but isolated pockets indicating age. I won't rehearse the various critiques of this notion, but do want to mention two contrastive approaches. One, associated with the so-called Kulturkreis school of ethnology (its history is narrated in A. Schneider 1978, and summarized in Nettl 2005:320-38), saw the world as a group of gradually superimposed areas of diffusion each representing an era whose remnants can be discovered in leftovers of contemporary distribution. A major musicological work emanating from this strand of thought is Marius Schneider's Geschichte der Mehrstimmigkeit (1934), which posits four universally applicable stages on the basis of both relative complexity and geography, plus four areas/stages in European cultivated polyphony. The other approach, associated with the concept of culture area as developed by Franz Boas and Alfred Kroeber (summarized in Nettl 2005:330-34), suggests that each culture area has its own unique history, resulting from adaptation to its environment, but that within each, there are features of a certain typical history—for example, the existence of a culture center in which the area's traits are developed to greatest intensity, and diminution of its character on the borders. All of this has some relationship to the concept of a relationship of ontogeny and phylogeny, which has played a role in ethnomusicology although the terms have not been widely used. Human musical development, particularly of course the musical utterances of young children, provided a template for a world history of music. Beginning with the work of Heinz Werner some ninety years ago, the idea that the stages suggested for a world history of music can be discovered in the order in which humans learn significant distinctions in music has fascinated some of us; but we are frustrated by the absence of intercultural and thus perhaps universally valid studies.

And finally, ethnomusicological literature over a hundred years has tried to grapple with a fundamental question: is it more fruitful to look at the world of music as having a single, more or less monolithic, history, or a group of separate histories? And if the latter, does this lend strength to the argument for multiple origins of music?

These remarks suggest that ethnomusicologists have very much been influenced not so much by theories of biological evolution, but more perhaps by what they conceived biological evolution to be. One of the striking characteristics of this literature is its treatment of music as a kind of biological organism; we know that musical creation, performance, and reception are decisions—conscious or not—made by humans, as individuals and as social groups. Nevertheless, musicological literature often speaks of music as if it had a life of its own, obeying certain internally valid laws. Here too, we think we are following biology, in which the course of events is underpinned fundamentally by random mutations, whose cultural analogue is a kind of trial-and-error process.

5. Adaptation

Ethnomusicological thinking has shown a strong interest in the origins of music and can provide critiques of theories developed in other disciplines, and ethnomusicologists have contemplated the history of the world's musics, approaching their studies in part with influence from their conception of biological theories. A third relationship is found in studies of the ways in which musics compete for survival in situations of intensive culture contact and change. There is a unique flavor to this thread. The ethnomusicologists who study origins and "history" see music(s) as changing slowly, in a consistent direction, or maybe-in their principal parameters-not changing at all. Those who look at societies in the throes of culture change see music as changing constantly, trying to find ways of surviving against competing musics by taking on traits of the competitor, or finding better competitive techniques (for example, greater virtuosity), or developing new ecological niches (for instance, a minority music changing from religious ritual to nationalist expression). They would see the history of music as dominated by constant change, in directions approximating circles, diversions, zigzags. And they might think that "early" music, too, while the events in its history could follow in less rapid succession, would be dominated by unpredictable change. I have a feeling that this latter area of interest is more closely related to biological evolution.

One of the principal interests of ethnomusicologists in the period since 1965 (and influenced by a vast body of anthropological literature and by examinations of the history of languages such as Nettle 2000), has been in studying the ways in which the world's musics have changed under the influence of Western and Western-derived musical culture, and the musical culture of modernized technology from wax cylinders to the Internet. While the object of research has most frequently involved the often deceptive Western-non Western dyad, the general question is this: what have people done with their music to permit it to survive in an environment in which other musics—more powerful technologically and symbolically—have competed for its cultural resources, such as audience and performers? Ethnomusicologists have been interested in identifying mechanisms that humans have developed to keep their music, but again it has sometimes been useful to look at musics as if their had lives of their own.

I cannot summarize this by now vast literature. It is important, however, to realize that ethnomusicologists have considered music to be a broader concept than it is in our everyday discourse, including what many might call its cultural context. Alan Merriam provided, in the 1960s (1964, 1967), a model that is still helpful, that is, music as consisting of ideas, behavior, and sound, each of these affecting and affected by the other; when one component changes, the others do so as well.

Let me mention some of the things included in this framework of thought. The basic assumption has to be that for humans as groups or societies, cultural survival is secondary to physical survival but nevertheless essential; societies may be forced or motivated to change their culture in order to survive, but for a variety of reasons, the domains of culture may be changed, maintained, or abandoned, differentially. Many Native American peoples have given up traditional religions and become Christian, but they moved older religious traditions into a category of practices maintained for tribal identity. They may have kept up much of their traditional music, but in doing so, they may also have acquired what they call "white" music and given it a place in their lives. But when it comes to matters of subsistence, for instance, older traditions have been completely abandoned. The maintenance of traditional music in such a case can be seen as an adaptive mechanism for the survival of the culture.

Ethnomusicologists have been interested in the specific ways in which societies have changed their music in order to survive. Examples include, in some societies, the musical system being adapted to Western musical practices, and musical style elements brought in, such as Western-derived harmony and increased emphasis on composition as against improvisation; this mechanism one might call Westernization because traditional music survived by acquiring musical traits central to Western music. Elsewhere, in what we may call modernization, traditional musical sounds were maintained at the expense of placing them in Western-derived social contexts.

Here are some illustrations: musicians in the classical traditions of South India seem to have placed their music into a modernized cultural context, changing the ideas about music, putting it into a modern concert-like context, and abandoning the seasonal and hourly requirements governing raga selection in order to make possible a festival-like concentration of performances in late December, performances which present the music tradition essentially uninfluenced by Western musical sounds. On the other hand, in Iran, the classical music tradition over improvisation, and introducing Western notation and larger ensembles imitating Western chamber and orchestral groupings. In Australia, Aboriginal peoples adapted the didjeridu, once restricted to a limited area of northern Australia and used only as a drone instrument with singing, to various uses compatible with Western ideas about music. It

was taken up by tribes elsewhere and eventually used in virtuosic solo performances in ways somewhat analogous to the Western notion of music as quintessentially instrumental with emphasis on virtuosity. Eventually it became emblematic of Australian Aboriginal culture, prominent enough to become one of a small number of symbols assuring the existence of Aboriginal culture in the presence of fundamental changes in daily life. Eventually, indeed, it became a symbol not only of Aboriginal culture but of Australian-ness as a whole (see further, Nettl 1985.)

I think that this reading of the world history of music—dynamic and unpredictable—may turn out to be the most realistic, and it is probably the most distant from Lomax's approach, and in which consistency plays a major role. Grauer's theoretical perspective might have benefited from increased attention to this issue.

6. Last Word

In a number of ways, then, the concept of evolution has played an important role in the history of ethnomusicology. Ethnomusicologists have interpreted the concept, ultimately derived from the thinking of Charles Darwin, in various ways, some no doubt unfaithful to proper evolutionary theory. I would think that the study of the world's musical systems and of music as part of human culture might provide relevant critique to theories of the origins of music, despite the fact that most ethnomusicologists have given up on this idea. On the other hand, in their attempts to construct ideas about the long-term history of the world's musics, and in their interpretation of the ways in which intercultural contact has affected—and failed to affect—the state of music, their efforts have depended substantially on ideas that came from biology, and from what they thought evolution must be about.

Victor Grauer's work does much to take this process further, as he tries to show the intertwining of biological and cultural history and how the analysis of music still extant today can shed light on this process. I have tried to provide one contextual structure in which we can place his approaches.

If Grauer's essay takes its place among the works that try to give a holistic picture of human music history, it is also part of an old tradition in ethnomusicology, the construction of conjectural history, in which Grauer joins the likes of Carl Stumpf, Curt Sachs, Marius Schneider, and Walter Wiora, though he is immensely more sophisticated, thanks in part to advances in archaeology and biological anthropology. It's a grand tradition. The problem has been to find ways of connecting it to the study of history in the conventional sense.

References

Blacking, John

1973 How Musical Is Man? Seattle: University of Washington Press.
Blacking, John, ed.

1977 The Anthropology of the Body. London: Academic Press.

Feld, Steven

1982 Sound and Sentiment: Birds, Weeping, Poetics, and Song in Kaluli Expression. Philadelphia: University of Pennsylvania Press.

Herzog, George

1935 "Special Song Types in North American Indian Music." Zeitschrift für vergleichende Musikwissenschaft 3, nos. 1-2:1-11.

Hornbostel, Erich M. von

1905 "Die Probleme der vergleichenden Musikwissenschaft." Zeitschrift der internationalen Musikgesellschaft 7:85-97.

Lomax, Alan

1959 "Folksong Style." American Anthropologist 61:927-54.

Lomax, Alan et. al.

1968 Folk Song Style and Culture. Washington: American Association for the Advancement of Science.

Merriam, Alan P.

- 1964 The Anthropology of Music. Evanston: Northwestern University Press.
- 1967 Ethnomusicology of the Flathead Indians. Chicago: Aldine Press.

Miller, Jeffrey

2000 "Evolution of Human Music through Sexual Selection," in Nils Wallin, Björn Merker, and Steven Brown, eds., *The Origins of Music*, 329-60. Cambridge, MA: MIT Press.

Mithen, Steven

2005 The Singing Neanderthals: The Origins of Music, Language, Mind and Body. London: Weidenfels and Nicolson.

Nadel, Siegfried

1930 "The Origins of Music." Musical Quarterly 16:531-46.

Nettl, Bruno

- 1985 The Western Impact on World Music. New York: Schirmer Books.
- 2005 The Study of Ethnomusicology: Thirty-one Issues and Concepts, new ed.. Urbana: University of Illinois Press.

Nettle, Daniel, and Suzanne Romaine

2000 Vanishing Voices: The Extinction of the World's Languages. Oxford: Oxford University Press.

Sachs, Curt

- 1943 The Rise of Music in the Ancient World, East and West. New York: Norton.
- 1961 The Wellsprings of Music. The Hague: Nijhoff.

Schneider, Albrecht

1978 Musikwissenschaft und Kulturkreislehre. Bonn: Verlag für systematische Musikwissenschaft.

Schneider, Marius

- 1934 Geschichte der Mehrstimmigkeit, i. Berlin: Bard.
- 1957 "Primitive Music," in Egon Wellesz, ed., Ancient and Oriental Music: The New Oxford History of Music, i:1-82. London: Oxford University Press.

Stumpf, Carl

1911 Die Anfänge der Musik. Leipzig: Barth.

Wallaschek, Richard

1903 Die Anfänge der Tonkunst. Leipzig: Barth. [Primitive Music: An Inquiry into the Origin and Development of Music, Songs, Instruments, Dances and Pantomimes of Savage Races. London: Longmans, Green, 1893.]

Wallin, Nils L., Björn Merker, and Steven Brown, eds.

2000 The Origins of Music. Cambridge, MA.: MIT Press.

Wiora, Walter

- 1956 "Älter als die Pentatonik," in Zoltan Kodaly and Laszlo Lajtha, eds., Studia Memoriae Belae Bartók Sacra, 185-208. Budapest: Academia Scientiarum Hungaricae.
- 1965 The Four Ages of Music. New York: Norton.

Clues from Our Present Peers?: A Response to Victor Grauer

Jonathan P. J. Stock

Abstract

This response to Victor A. Grauer's "Echoes of Our Forgotten Ancestors" draws on present-day musical data, including the singing of Pygmies from Gabon, women from the Solomon Islands, carollers from Sheffield and Pennsylvania, and the music-related interactions of mother-baby couples. Initially, I note that generalisation and comparison is prevalent as a context in contemporary ethnomusicology, and distinguish the kind of demands a general account places on its individual pieces of evidence as compared to a more ethnographically focused analysis. Four further conditions are then identified, all of which need to be met for Grauer's account to be persuasive.

First, Grauer needs to make a fully convincing case for what he calls the "Pygmy-Bushman style": I argue that he misses essential differences in musical practice between these peoples and misidentifies a single cluster of traits concomitant with hocketing as an unusual series of selections. Second, I suggest that Grauer has selected some examples to fit his theory, rather than vice versa, a problem that leads him to see signs of migration in what may rather be routine outcomes of the normative structure and performance practice of the panpipes. The third condition is concerned with the matter of musical change, which Grauer's account essentially omits: examples are given of styles that changed radically in a short period, all of which show that the acoustic surface of the music appears to be its most changeable element, and that present-day recordings may not be a reliable guide to the musical style of prehistory. The fourth condition Grauer's hypothesis demands is that hocketing was invented just once in human history; this requirement too is problematic, the same technique occurring in many mother-infant musical interactions. In sum, while the account of early human migrations presented by the "out-of-Africa" scientists may be plausible, evidence of musical transmission 70,000 years ago has yet to be located. The search for that evidence will need to look at performance practice, not just acoustics.

1. On Generalisation and Comparison

Victor Grauer claims that a series of musics widely distributed across the contemporary world reveal the surviving traces of ancient human migrations.¹ There is much that appeals in this account, not least the many recording extracts cited. As Grauer notes (in section 14 of his paper), his intent was to build hypotheses, to pose questions for which definitive answers cannot be produced. My primary aim in this response is to look critically at some of these hypotheses and at the data from which they were constructed, asking whether there are simpler interpretations that account for the similarities in aspects of music making around the world that he puts forward. As a respondent, of course, even one entering the intellectual territory Grauer has staked out, I have an easier task: essentially, I need only to raise reasonable doubt here and there, I need not construct a fully functioning counter-claim.

Prior to attempting to put forward questions, I first want to comment on Grauer's observation that ethnomusicologists tend to be "extremely wary of broad generalizations" (section 3). It is important to note that he presents his new history of music not simply as one general account contending with others for attention but as one competing for attention at a moment when we are not habitually putting forward such broad interpretations. Grauer is not the only one to make such a point. Timothy Rice (2003) represents another such attempt to provide a framework for directly comparative work, even if Rice's proposal of "subject-centered musical ethnography" leads in another direction altogether from the kind of writing Grauer has produced.

In my own view, though, the idea of comparative generalisation has remained present within ethnomusicology, notwithstanding the trend toward more atomized ethnographies in the higher-profile publication series. Alongside these there has equally occurred a widespread growth of institutions, programmes, journals and conferences in our subject area, all of them predicated exactly on the assumption that we have something to say to one another. From this perspective, and although there are striking instances of directly comparative enquiry like Judith Becker's *Deep Listeners* (2004), comparison has become an assumed context in the last several decades. Generalisation occurs most explicitly in our conference panels, in our questions to one another at meetings or online, in our teaching and in our textbooks. In terms of the latter, Kay Shelemay's *Soundscapes* (2005) is perhaps the most obvious example, but even my own contribution of that kind, the textbook and CD set *World Sound Matters* (1996a-d), assumed comparison-based generalisation was basic to what we do, and included a volume of listening-based questions (*ibid.* b) for each sound example which demanded such an approach.

Perhaps, though, and as Martin Clayton (2003:67) notes, it is "not that we need more comparison, but that we could be more conscious of what we compare and on what basis." In this sense, in identifying his bases so clearly, Grauer's writing offers us a model with broad utility, whatever specific challenges might be raised to any of its interpretations. Furthermore, Grauer's proposal remains quite distinctive—and welcome—in present-day terms in going beyond the comparison of individual instances to the building of a systematic larger-scale interpretation. I believe Grauer is right to point out that this aim requires a distinctive way of marshalling evidence and writing about it. Although I criticise some aspects of each below, I do accept that close attention to some smaller-scale details will almost necessarily have to be sacrificed in the interest of focusing on larger-scale issues.

2. On Analytical Approach and the Interpretation of Evidence

Grauer cites his personal involvement in Lomax's cantometrics project as the foundation for the present research. A new expression of its era, cantometrics also sustained certain emphases from comparative musicology, most clearly the idea that there was a single, pan-human science of music to be uncovered through comparative research. Yet, and unlike many of the comparative musicologists, Lomax (1959: 927) feared that staff notation distorted other musics, filtering them through a Western mindset prior to analysis: "Western European musical notation and thinking are not adequate for the description of folk and primitive music." Such objections, if neither fully proven nor completely discredited, were not Lomax's alone; they also led peers like Charles Seeger to the refinement of mechanical transcription devices. Yet rather than turning to technology to provide empirical measurements, Lomax and his colleagues developed instead a list of some thirty-seven technical traits (phrase length, melisma, tempo, nasality, and so on) which collectively provided a detailed depiction of a song. Prepared by a trained listener, the scores for each trait were entered on a table which could then be compared with other songs, whether from the same region or from further afield, in order to permit detailed comparison of musical characteristics without the filtering effect of staff notation. In doing so, the cantometric researcher assumed that the "nasality" encountered in Beijing, for instance, was analytically comparable to that heard in Benin, Buenos Aires or Birmingham. Next, information about the song was cross-referenced to that from the society from which it was sampled, allowing the alignment of musical and social traits. Finally, when consistent correspondences emerged between musical and social organisation in many locations, these were assumed to be active correlations – that is, the one caused or reinforced the other. Lomax (ibid.:928) saw these latter social analysis as integral to the project; indeed, he subtitled his handbook on the method (Lomax 1976) "An Approach to the Anthropology of Music".

Like cantometrics, Grauer's approach is more a sonically founded study of humanity than a cross-cultural study of music-making processes. That there might be meaningful features inherent within musical sound itself which deserve measurement and exploration is, in fact, a view that has gained impetus in several of music's subfields in recent years (see further, for example, Cook and Clarke 2004). Unlike cantometrics, Grauer's set of correlations propose a history of migrations instead of a map of political formations, and this is a significant difference which, if it raises points that I take issue with below, also avoids some of the assumptions of the earlier approach.

In terms of working method, Grauer draws on the cantometric approach in several respects as well. Notably, he handles a musical style by delineating it as comprising a list of audible traits. Pygmy and Bushmen group singing, for example, is described as: "interlocked, with maximal vocal blend, polyphony, precisely coordinated rhythms, yodelled, with open throats, no embellishment, short phrases, meaningless vocables...[and] the production of a continuous flow of sound, based on the dovetailing of repeated or slightly varied motives" (section 2–I will refer to passages of his paper like this). Of course, in doing so, Grauer himself, acting as an expert listener, locates these traits in a sample of the music of the society in question and makes the requisite decisions on how to interpret any apparent similarity. I do not entirely want to argue against his assumption of such a role—rejecting expert music analysis simply because it originates outside the society creating the song in question has always been intellectually uncritical. But I do want to sound a note of caution here: if we are to avoid imprinting the assumptions of an external system onto the analysed example in an unconsciously self-fulfilling process, or even selecting examples that match a strongly held theory, then we need to be certain that the analyst has selected examples with due regard to some wider understanding of their local role(s) and interpretation(s). As an analyst, one might still choose to give an external interpretation weight over an "emic" evaluation, but readers of the analysis will want to know that what's at stake in making such a decision was apparent to the analyst before the decision was made.

Music analysis set within the frame of an ethnographic study sets itself an easier task in this respect, in that each example selected is interpreted in light of its immediate social emplacement. For instance, I can try to show what the musical style of a specific Chinese opera aria says about the time and place of its creation and about the various people involved in its composition (Stock 2006). These analytical claims are not threatened by the aria's particularity, although readers might reasonably hope that the example I chose is widely representative of trends in China at that time. The kind of approach that Grauer takes, on the other hand, argues that musical characteristics reflect long-standing historical connections between peoples. If the positive aspect of this is that Grauer can frame an argument which extends far beyond one particular time and place, it places a far heavier burden on each example selected. Essentially, Grauer's approach requires the following series of conditions to be met:

- Grauer shows us that he has identified a coherent style;
- he proves he has appropriately selected examples;
- he convinces us that present-day sound clips reveal aspects of former practices; and that
- he persuades us that this style was invented just once, in Africa.

Each of these is a significant condition. If the features of the style identified turned out to be either overly generic to any definition of music more broadly, or conversely too shifting an assemblage of traits from one example to the next, then clearly the argument will fail to convince. Likewise, if the examples seem to be atypical in their places of origin, or if they appear to be newly or recently created, then we may not accept them as convincing steps in a migratory pathway. If the evidence elsewhere is that musical styles normally change over time, then Grauer needs to persuade us that contemporaneous recordings bear the echoes of ancient practices. Finally, if the style might have emerged from multiple points of origin or been invented and reinvented at different times, then its coupling to a single account of ancient migrations is weakened fatally. In the discussion below, I devote one section to discussing each of these requirements. Yet each also overlaps, and it is impossible to deal with them entirely separately.

3. Coherent Style

P/B style...[involves]...not only a high degree of social integration, coordination, and sheer musicality among all participants but also, in many, though not all, cases, a very distinctive style of vocalization: yodel. (Section 8)

Is the style as complex and distinctive as Grauer claims? Assuming a group decide to make music together, then their choices are actually quite few: to do the same thing all at once, to take turns, to do different things at once, or to assemble some combination of these. Further textural variety appears with mixed instrument ensembles and with music notation, but Grauer's choices are predominantly from unnotated musics, and largely from those performed by groups of singers or with the same instrument-type to hand, where this limited list of options describes many cases.

Each option brings with it certain requirements in terms of performance practice-arguably Grauer's approach focuses more heavily on the sonic results of musical performance than on the patterns of action that lead to these sounds, and so performance practice receives insufficient attention in his account. In coordinating their performance, the music makers might establish some sort of leadership system involving authoritative cues, they might negotiate an agreed overall structure, they might perhaps work out a protocol to govern the combining of different roles during fluid performance, or, again, they might combine more than one of these options in some kind of hierarchic model. Presumably, and given that musical performance is so often part of something else (ritual, courtship, play, etc.) such that there is pressure not to keep stopping to discuss how to work together, members of many societies would find practices that allowed performance continuity. Use of short, reiterated interlocking parts is, in fact, a rather obvious solution to the challenge of how to engage many people in an affective performance without enormous amounts of either precomposition or rehearsal—or, more accurately, with a large amount of learning and practice within the style more generally but much less memorisation of fixed pieces.

From this performance-based perspective, it is actually rather hard to imagine an effective performance involving interlocking parts that is not motivic, coordinated, and musical, and demanded social integration. Longer motives (particularly those that pass beyond the duration of human breath) would be far harder to coordinate. (The motives also need to be short for us as analysts to recognise and deal with them as motives and to describe the resulting sound as interlocking.) Motives that clashed in unmusical ways, however that was locally felt, would disrupt the wider perfor-

mance, as would vocalists who mishandled their entries. The desire to build a continuous performance would encourage all participants to learn well and to listen hard in performance. This can be heard in recordings of the learning process, which appears not to include much formal instruction but instead relies on trial and error (see, for example, Fürniss 2006:168). Figure 1 below transcribes a small segment of just such a rehearsal, showing how complex a texture can result from the overlapping of a small set of differently placed and sized musical motives.

That singers learn in this way supports an interpretation of this performance manner as a single means of singing, not a complex combination of stylistic traits. Even crossing the voice break (yodelling, as in Figure 1) so as to extend the vocal range beyond the relatively narrow possibilities available in the chest voice seems a rather obvious option, and so its occurrence in certain locations adds little further theoretical complexity to the means in which singers acquire their practice, even though it forms an audibly distinctive addition to the resulting soundscape. For one thing, it allows multiple singers to work together without having to pre-agree or overhear song lyrics. For another, and in the example above, yodelling allows individual singers to produce motives based closely on the shapes of vowel sounds, with the "tighter" vowels being used for higher pitches and "looser" vowels for the lower. Yodelling, then, is an efficient way of combining voices, not an addition of further stylistic complexity.

Susanne Fürniss (2006:163) notes that in the polyphonic singing of the Aka, an example Grauer uses widely in his discussion of P/B style, "a high degree of complexity in vocal performance may result from the simultaneous or successive variation of a substratum of puzzling simplicity." My view is that the explanation I have provided is consistent with that, and that, although the sonic result can indeed be complex, we do not have multiple traits here so much as one performance practice which would lead to the production of somewhat similar audible traces wherever it was put into practice. Performance practice provides a simpler explanation than monogenesis, migration and stasis, and without further evidence the co-appearance around the globe of these acoustic traits is not in itself evidence of human migration or of musical transmission.

Even within Africa and with the notion of a P/B style, the expert literature suggests that Grauer has over-interpreted the distribution of these acoustic features. Referring to an earlier comparative study (Olivier and Fürniss 1999), Fürniss (2006: 201) states quite clearly that Pygmy and Bushman musics operate on different principles: "although many musical and extramusical features converge and though the acoustic results are very close, the conception that the Jul'hoansi have of their music is radically opposite to the Aka's. In fact, Jul'hoansi music does not proceed from a basic multipart pattern, but it is generated from a single melody that is simultaneously materialized in different tessituras." Grauer's note 3 does not explain away this problem, which is essentially that the Aka and the Jul-hoansi (or Bushmen) are doing different things. The end result may be similar, but, to be credible, the out-of-Africa account needed the stylistic coherence of a sufficiently distinctive yet also a suffi-



F and B flat are sung flatter than equal temperament; D sharper

Fig. 1. Yodelling exercise in which one woman trains two girls from Elone, Gabon (Stock 1996d: 54-56 and 1996a: CD2, track 4).

ciently shared musical practice at its base. Grauer argues that cantometrics prevents the details "from obscuring the big picture" (section 4), but what we have here is the misidentification of details: to compare an apple and an orange in a wider category of fruit is useful; to claim they're both oranges is unlikely to lead anywhere productive, except perhaps in the domain of poetry.

In sum, my assessment is that "P/B style" is not well identified in Grauer's account. It is in one sense too wide, grouping the musical results of what experts see as distinct performance processes. It is simultaneously too narrow, overlooking the relationship between performance practice and musical texture. As such, the claim that shared origin alone can explain shared characteristics in the sounds of certain musics seems an unsafe one.

4. Appropriate Examples

If questions can be raised about P/B style as a coherent entity upon which to found a hypothesis about human migration, the success of Grauer's account is also dependent on the plausibility of the examples put forward. Before assessing some of these examples, however, I offer a cautionary tale by comparing extracts from two books, each of which, like Grauer's account, sets out to provide a new picture of world history. The first is from Jared Diamond's *Guns, Germs, and Steel*, which maps out a world history for the last 13,000 years.

Another type of intensified food-gathering activity that developed was the freshwater eel fisheries of the Murray-Darling river system, where water levels in marshes fluctuate with seasonal rains. Native Australians constructed elaborate systems of canals up to a mile and a half long, in order to enable eels to extend their range from one marsh to another.... Nineteenth-century European observers found villages of a dozen Aboriginal houses at the eel farms, and there are archaeological remains of villages of up to 146 stone houses, implying at least seasonally resident populations of hundreds of people. (Diamond 2003:310; see also p. 155)

Diamond interprets evidence of eel farms to argue that Aboriginal Australians could devise large-scale farming projects when the geographical "suite" permitted. Criticism of Aboriginal Australians as less capable than people elsewhere in the world, or even as less technologically inclined, is thus incorrect, for what differed was the potential of the place they inhabited. Here's another account of these very same eel farms.

Zhou Man lost one junk in Storm Bay, Tasmania, and a second on King Island in the Bass Strait; the third made it to Warrnambool, where it was wrecked. The survivors clambered ashore with their horses and set up a farm, connected to the sea near Warrnambool, where they smoked eels and elvers exported by horseback up the Glenlenty, Murray, Darling and Murrambidgee Rivers... (Menzies 2003:486-87)

This view occurs in Gavin Menzies's 1421, which describes Ming Chinese maritime expeditions which charted much of the globe, including the Australian coastline, long before Europeans did so. Menzies claims that stonework in various settlements, cave paintings (which show horses), archaeological findings, local mythology and descriptions of a shipwreck all support his claim that the eel farms and their associated buildings were erected by shipwrecked Chinese mariners. Clearly, both Diamond and Menzies cannot be fully correct on this detail, and if the detail is hardly substantive enough to upset either account more generally, it is perhaps apparent that the Australian eel ponds are being used in each case to provide exactly the evidence each author's theory demands.

Several of Grauer's examples concern the global association of the panpipe and hocketing, discussed primarily in section 6:

The independent invention of that particular, very distinctive, instrument in so many different places, unlikely as it seems, might be regarded as a remote possibility. But the strong association with hocketing just about everywhere we find panpipes makes such an explanation far more difficult to grasp. And it works both ways. If we might want to regard the presence of hocketing as an independent invention, we have to ask why it is so often associated with particular instruments, such as the panpipe—and very distinctive forms of vocalizing, such as yodeling and so many of the other features associated with P/B style.

In fact, the independent invention of the panpipe is hardly so remote a possibility. By definition the instrument is a binding together of pipes of different length. This is a rather self-apparent solution for humans anywhere in the world who want to form a wind instrument that plays more than one note, particularly where bamboo is employed. Bamboo is an easier material to work with than wood or clay. It can be conveniently cut to length and bored out internally with relatively simple tools, although it is also liable to cracking when multiple finger-holes are drilled, as in the making of a flute, and so a panpipe is actually easier to construct than a flute with finger-holes. And if the panpipe is relatively convenient to construct, its manufacture and its interface with the human hands and mouth mean that panpipes are very often played in hocket. That is physically how they most readily work; the musician has to blow each tube individually to sound it, meaning that time must be given to form a new embouchure on each pipe. As such, the association between panpipes and hocketing is actually hardwired into the structure of the panpipe, and not necessarily evidence of any historical migration followed by thousands of years of musical stability. As Occam says, "One should not increase, beyond what is necessary, the number of entities required to explain anything."

Consideration of a second example extends this idea, and shows further the challenges it raises for the musical version of the out-of-Africa theory. Making several references to the panpipes found among the 'Are'Are of the Solomon Islands, Grauer comments also on their vocal music, including the following song (Figure 2):

A truly wonderful CD set, *Voices of the World*, a veritable treasure trove filled with beautiful singing/chanting from some very out of the way places, contains a variety of remarkable recordings from many of these areas. Every single track is well worth listening to—and studying. Disc 1, track 34, from Guadalcanal, is a remarkable example

of yodeled polyphonic vocalizing in the Solomon Islands. Over a sustained vocal drone, two female voices, one high, one low, interweave brief tetratonic, hocketed motives in counterpoint, featuring a consistently yodeled leap of a perfect fourth to the highest pitch. (Section 5)



voices enter gradually, periodically pausing to breathe



The performance has a slight pitch-drop overall

Fig. 2. "Ratsi Rope" women's chorus, Guadalcanal (Stock 1996d:30; the track is also on Stock 1996a: CD1, track 17).

I certainly agree that this is an impressive vocal extract (and *Voices of the World*, which I use widely in my own teaching, is a superb CD set). The apparent minor differences between my staff transcription and Grauer's textual description are not necessarily important either to this discussion. But in interpreting this song as a piece of evidence in a chain of musics taken to demonstrate an ancient migration, though, Grauer faces a problem. Its recordist, Hugo Zemp (1990:25) likens the music to that for panpipes in the same vicinity and describes it as an example of vocal music that gives "the impression of a wholly instrumental use of the human voice". (In fact, 'Are'Are panpipe music is itself often modelled on sounds in the natural environ-

ment, so the vocal music may have a double model.) Photographs of the performers in Zemp's original recording liner notes show their passive faces (*ibid*.:18). Other songs in this region, however, are not performed so impassively, and so Grauer may both have selected an atypical instance and detected no more than the fact that the women are indeed setting out to imitate the sound of the panpipe ensemble. Grauer might reply that his argument is that the vocal form is so ancient that they will have had plenty of time to forget that the panpipes are actually imitating the voice, and that the other Solomon vocal forms are more recent. That might be so, but, as an argument, it adds yet further "entities" to the minimal explanation required: the single invention of the P/B style and the panpipes, an ancient migration bringing both to the Solomon Islands, and then remarkable musical stability thereafter (but only in some parts of the world) accompanied by the forgetting by the local musicians of the source of (this extract of) their vocal music. Arguing against this, on the other hand, we simply have to accept the idea that this song shares characteristics of the sound of the panpipes, an instrument found across much of the world and one that, due to its physical construction, is most easily played in interlocking patterns.

Similar objections could be made for Grauer's decision that all Bantu polyphonies are to be regarded as younger, simpler and lesser than those of the P/B style. In fact, we have no evidence on this either way. Once again, it is the theory which dictates the relative ordering of the material, which is close to a self-fulfilling prophecy at times.

In sum, Grauer's examples are aurally striking on first listening, but his interpretation of them sometimes appears to fit the evidence to the theory. In the instances I chose, he prefers complex accounting for sonic resemblances that may be no more than incidental outcomes of the widespread but limited technological possibilities of the panpipes. The examples I chose may be atypical, and the simple explanations of human-instrument ergonomics or of local music makers may not always bear greater truth than an overarching hypothesis, but it does appear that Grauer's account fails to fully consider such readily available possibilities, giving preference to more remote notions instead.

5. The Question of Musical Change, and the Use of Present-Day Recordings to Represent Past Practices

The principle at work here, anticipated many years ago by Lomax, could be called "sociocultural inertia," and defined as follows: *a tendency on the part of any human group to retain the most deeply ingrained and highly valued elements of its lifestyle until acted upon by some outside force....*

[And then, much later]...if there were no good reason for...a tradition to change, at least among certain groups, then why couldn't it have remained the same among those groups, even for tens of thousands of years, according to the principle of sociocultural inertia posited above? (Section 2)

Leibnitz's Principle of Sufficient Reason...insists that all "truths of fact" (as opposed to "truths of logic") must have a sufficient reason for their existence.... According to [this principle], nothing can change without a sufficient reason for such change, meaning that any tradition can be expected to continue indefinitely from generation to generation unless something happens at some point to alter or destroy it. (Section 3)

I suspect the treatment of musical change may be the greatest void in Grauer's account. What we know of the last thousand years of music history points toward (acoustic) change as a constant in music. Even the $t\bar{o}gaku$ pieces of the Japanese gagaku tradition, supported by detailed scores, by hereditary specialist musicianship and by an explicitly preservationist ideology, must sound radically different today from their Chinese and Central Asian ancestors of a thousand years earlier; there are, for instance, dominant melody instruments in the ensemble that are not found in the earliest notations and some pieces appear to run (or rather to edge forward) at a tempo several times slower than was once prevalent. (Detailed accounts occur in numerous publications by Laurence Picken and his students, for example, Picken *et al.* 1981, Marett 1985.)

Or to put that more accurately, change in surface-level musical style seems to be a constant, even if deeper-seated musical propensities and values often remain consistent over the centuries. A case in point is provided by the adoption of saxophones by village musicians in the mountains of central Peru (Romero 1999). Questioned on their motives in making this substitution, the musicians argued that they had taken up saxophones since these instruments were louder than the instruments that had previously been available, namely clarinets. As such, they better suited the musicians' aims, which were to produce a strong and vigorous sound. Clarinets had themselves previously supplanted an indigenous wind instrument named *quena*, which older musicians recalled as attractive but not sufficiently energetic. In this case assimilation of new instruments can be seen as the intensification of an existing aesthetic, not the importation of a new one.

Grauer's hypothesis not only demands incredible musical stability over a period of perhaps 70,000 years but it also demands it in what seems to be the most changeable part of music, namely its acoustic surface. Now, he might reply that it is only recent centuries that have seen a vast burgeoning of instrumental alternatives; perhaps borrowing from my argument in the preceding section, we have to consider the sonic paths of least resistance offered by the instrument in question, which, in so much of his account, is the voice. According to this train of thought, wouldn't the vocal chords found in every normal human over the past thousands of years have ensured considerable musical continuity over this vast period?

Again, an example is instructive, and I will choose one from a ritual tradition sung annually by ordinary members of a community. This choice avoids any charge of instrumental influence, temptation to follow commercial or popular fashion, or the idiosyncratic impact of creative specialists. My example is useful also in one further sense in that it employs a tradition sustained in two branches separated for 150 years by the intercontinental migration of part of the original community—a tiny moment in terms of DNA, of course. The branches then lost contact with one another, each coming to assume that they themselves were the sole surviving representatives of the style and repertory in question. Moreover, and in a gesture that will hopefully appeal to Grauer as much as it does to me, the example concerns English emigrants from the Sheffield region who moved to Pennsylvania.

Every year since 1848, from midnight until dawn on Christmas Day, men in Glen Rock, Pennsylvania, make the rounds of the community singing carols, some of them originally imported from northern England. Initially, the English migrants in Glen Rock sang to their German neighbours there but later men of German extraction joined the chorus also. Some years ago, an enthusiast in the active Sheffield carols movement located a website describing the singing in Glen Rock and e-mail contact ensued. In 2002, the Glen Rock Carolers flew to Sheffield to participate in the biannual Festival of Village Carols, a large-scale event given to the performance of folk carols.²

The Festival (which I participated in as a host and as an instrumentalist in the "folk orchestra" accompanying the singing) was fascinating in many respects. Although there were striking similarities, there were also significant distinctions between the performing tradition as now seen in Pennsylvania and in Yorkshire. Most immediately notable (to a UK-based observer) was the male-only membership of the American chorus, which contrasted with the mixed participation in British groups. Discussion revealed that the Glen Rock group had a committee structure and had even evolved levels of membership within the choir—the highest in status were the "caped carolers", capped at 50 in number, followed next by the "associate carolers". Further members are classed as "inactive carolers" and "honorary carolers", and beyond these men there are others on a waiting list. Numbers of participants are strictly controlled, in part due to the logistic challenges of organising the procession through the town late at night. Uniforms were added in the 1930s, developing by the 1970s to the present outfit of a Victorian-style tall hat, great coat and banded scarf.

Meanwhile, the UK groups today typically have an informal organisation, with perhaps a few core members, male and female, who participate each year and others who come and go as they wish. Rehearsals (in some cases, these are more like singing sessions) are held in pubs, although one or two Yorkshire groups still process around the community as well—the Glen Rock chorus commented on their surprise at seeing alcohol to hand during British practices. Instrumentalists accompany choruses from each place, but the Glen Rock group was unusual from a British perspective in having a conductor who gave detailed direction to the singers. In short, the US group was run as a musical society; the Yorkshire groups, meanwhile, had a much more social orientation.

Listening to these groups divided by 150 years and the Atlantic, it was immediately clear that each held a contrasting sonic aesthetic. The Glen Rock singers have a forceful, nasal and tightly organised sound (to borrow some of the cantometric adjectives; see also Figure 3). The British groups, meanwhile, use female voices for the upper parts, and so have a mellower blend, lacking the forceful male soprano and tenor lines that dominate the Glen Rock sound. In fact, the Glen Rock choir sings in three parts, while the UK groups are more often divided into two (melody and bass) or four, so even in this respect the Pennsylvanians have a distinctive sound. Singing by the Glen Rock Carolers is also very clearly enunciated as compared to that of Sheffield groups—their avoiding of alcohol during performance might explain this, but I suspect it owes more to their rehearsal under the watchful control of a conductor versus the informal participatory mode of the Yorkshire groups, which means that performance personnel vary from occasion to occasion.



Fig. 3. A chord from "While Shepherds" sung by the Glen Rock Carolers (Glen Rock 1998, track 1). [Note: This screen shot using the software Transcribe! captures an open octave: A below middle C in the bass voices and a unison A above middle C in the tenors and sopranos. A high E harmonic is also produced, a feature that visually hints at the ringing sound of the chorus.]

As this instance shows, even vocal traditions bound up with ritualised performance, largely avoiding use of specialist musicians and sustained by people of common ancestry can diverge markedly over the period of 150 years. Lomax's assertion of "sociocultural inertia" might label why the Glen Rock singers and their distant relatives in and around Sheffield still perform carols, but, in pointing to inertia rather than agency this claim (and citation of Leibnitz) draws attention away from the hard cultural work the members of each society are putting into sustaining their particular choice. More fundamentally for a hypothesis of long-term musical transmission revealed through the analysis of details of acoustic style, "sociocultural inertia" fails entirely to explain the particular stylistic divergences that have occurred in and around Sheffield, Glen Rock or both during this short period. If this can result in only 150 years, how much more change might occur in 70,000?

Even if "P/B style" really was a coherent and distinctive entity, the old theory of marginal survival would explain it with less strain than the out-of-Africa argument. That is, let us assume for a moment that this style was very common among Bantu peoples just a few centuries ago. The theory of marginal survival (which does have some standing in music history) would claim that they must since have moved on to other musical fashions, leaving just isolated societies around and within the Bantudominated areas with the older style. This is a simpler explanation than that Grauer proposes; it may be incorrect, but his account gives so little attention to the problem of musical change that we cannot weigh up this option against his more complex hypothesis of a definite series of displacements and migrations stretching back many thousands of years.

In sum, musical change is effectively left out of the equation in Grauer's account. As a consequence, we cannot safely assume that recordings made in the last few decades represent the echoes of our distance ancestors.

6. The Issue of Monogenesis

If the problem of musical change is the greatest void in Grauer's account, his favouring of monogenesis is, for me, its greatest problem. Grauer's hypothesis is reliant upon "P/B style" having been invented just once, since without that the story of migrations is nonsensical. Here is a passage, partially cited above, in which he articulates this view:

P/B style...[involves]...not only a high degree of social integration, coordination, and sheer musicality among all participants but also, in many, though not all, cases, a very distinctive style of vocalization: yodel. It is very difficult to see how a practice of such complexity and distinctiveness could have been invented out of whole cloth in so many different places so remote from one another. (Section 8)

I have already noted that this style is neither as complex or as distinctive as Grauer claims, but it is still necessary to add that even if it was, those same audible features need not have been invented either once only or in one go for them to become widespread globally. The crucial ingredient in the performance practice we are dealing with here is hocketing in which two or more participants interlock their voices to produce a satisfying whole. In fact, there is evidence to suggest that interactive hocketing with the aim of achieving social integration is the basis of every human society.

Among other researchers (for instance, Dissanayake 1999), Colwyn Trevarthen has produced a series of studies into these music-related interactions, in his case as

one component in a wider enquiry into the workings of the infant mind and so the foundations of personhood more generally. Music, notes Trevarthen (1999-2000:199) "stimulates the need every human being has for sympathetic company for partners, and rivals, in moving, noticing and understanding." Sympathetic, musically organised moving, noticing and understanding is really another way of describing music that is interlocked, blended, polyphonic, coordinated, yodelled, with open throats, no embellishment, short phrases, meaningless vocables and the production of a continuous flow of sound, based on the dovetailing of repeated or slightly varied motives. Rhythm is the basis for communication across the self-other divide, and not only in musical activity, but in musical activity the subject generates a special kind of information about his or her movements, feelings and recall, and interactive performance sees that information transformed into shared experience. This ability is found even among infants born prematurely: "that a two month premature infant can engage in precise rhythmic synchrony or alternation of 'coo' sounds with an adult who is making imitative vocal responses, gives important evidence of the precocity of human sensitivity for the beat and phrasing of expression" (*ibid*.:176). The mother and child entrain one another in sympathetic performance which develops over time:

A mother greets her newborn in ecstatic cries with falling pitch, and by gentle fondling. She is unable to keep her eyes from the baby's face. She touches hands, face, body with rhythmic care, and holds the infant close to her so they can join attention and greet one another. Her speech is a kind of singing, with high gliding gestures of pitch and repetition of regular gentle phrases on a graceful beat, leaving places for the infant to join in with coos, smiles and gestures of the hands or whole body. Every move of the baby elicits a reaction from her. These phrases are intricately coordinated with a subdued choreography that brings out matching rhythms and phrasing in mother and infant.

Around six weeks after a baby's birth, a duetting of behaviour appears.... The mother accepts the baby's voicings and gestures as attempts to "tell her something".... Each infant utterance, with its vocalisation, lip-and-tongue movements and hand gestures, lasts about 2 or 3 seconds, about the time an adult takes to say a phrase or short sentence. The individual coos last only about a third to half a second, comparable with a syllable. Intervals between beginnings of utterances of infant and mother indicate that they seek to join rhythms with each other.... In early protoconversations, when the infant is six weeks old, they set up an alternation or "turn taking" on a slow *adagio* (one beat in 900 milliseconds or 70/minute). Within a month or two the beat of their shared vocal play accelerates to *andante* (1/700 milliseconds; 90/minute) or *moderato* (1/500 millisecond; 120/minute), but the more animated engagements are games rather than protoconversations. (*ibid*.:174, 176-77)

I should be very clear that I am not suggesting Pygmy polyphony is in any sense infantile—the "children of the forest" myth needs no reinforcement, and I have already provided as Figure 1 an example of the explicit and challenging learning process that singers must go through if they wish to master vocal performance before adulthood. Instead, it is performance practice that is the point of connection here, not the resulting acoustic surface. Trevarthen notes this distinction too: We have to stop thinking of music forms as physical objects of auditory perception and cognition—as if we would ever be capable of understanding music if all we could do was hear the sounds in it, like a tape recorder feeding into a sound sorting system! We have to look to, and listen for, the original generative forms of the impulse to express the dynamic patterns of our minds in communicable forms. (*ibid*.:159)

Relying as it does on interactive rhythmic entrainment, which is to say hocketing, it is clear that mother-child vocal "protoconversations" provide a far more straightforward origin source for motivic group singing than the single-invention 70,000 or more years ago plus subsequent migrations necessary to underpin the musical version of the out-of-Africa theory. Mother-infant hocketing does not explain why people in some societies choose to emphasise this same quality in their musical style while others focus on contrasting attributes, but, in responding to Grauer's hypothesis, I simply need to show that there is a real possibility that the technique his account is founded upon is not so much invented once only as invented once in each lifetime. If that is so, we cannot bestow it with confidence on any one group of peoples or to any single historical or prehistorical period.

7. Conclusions

It is far easier to tear down than to build, and the initiative behind Grauer's approach has to be welcomed, just as the account itself is distinctive and thought-provoking. The account even allows us to believe that music research might just have something to say to the wider worlds of human history and science. Nevertheless, the account fails to satisfy any of the four conditions identified above, a result which means that there is finally quite little we can genuinely rely on—it is, ultimately, a diverting conjecture. Some of it may even be true, but if it is, the evidence has yet to be produced; much of the account seems to be questionable, not because there is direct evidence to the contrary, but because there are far simpler explanations that fully account for the situations in question.

This whole exercise shows me very clearly that the acoustic features of music alone are simply not sufficient to bear the kind of argument put forward here. Instead, a more general and comparative science of music requires us to look closely at performance process as well as at result, and to focus on the clues offered by our peers in the present alongside those left behind by our ancestors, both recent and in the remote past. Such an approach requires us to look carefully at how the body and mind work, not only at the passing on of DNA, and indeed at the socially positioned human being, not the isolated individual. Some writing is already doing this, of course (contrasting examples include Picken 2001 and Cross 2005). Putting all these perspectives together will allow us to more fully understand each example we encounter and then to build hypotheses that truly emerge from the data.

Notes

- 1 I am grateful to Victor Grauer not only for the invitation to comment in writing on his investigations of early music history but also for the clarity and energy with which he has expressed his interpretations. His "call" is certainly one that deserves a "response", and I endeavour here to adopt as much of his material as I can, remaking it as my own personal contribution to a wider, multivocal whole.
- 2 Information on the Glen Rock chorus is at <http://www.glenrockcarolers.org>. Their music can be heard on Glen Rock 1998; see also Russell 1999 for a compilation of English choruses.

References

Becker, Judith

2004 Deep Listeners: Music, Emotion, and Trancing. Bloomington: Indiana University Press.

Clayton, Martin

2003 "Comparing Music, Comparing Musicology," in Martin Clayton, Trevor Herbert and Richard Middleton, eds., *The Cultural Study of Music: A Critial Introduction*, 57-68. New York: Routledge.

Cook, Nicholas, and Eric Clarke

2004 "Introduction: What is Empirical Musicology," in Eric Clarke and Nicholas Cook, eds., Empirical Musicology: Aims, Methods, Prospects, 3-14. New York: Oxford University Press.

Cross, Ian

2005 "Music and Meaning, Ambiguity and Evolution," in Dorothy Miell, Raymond Mac-Donald and David Hargreaves, eds., *Musical Communication*, 27-43. Oxford: Oxford University Press.

Diamond, Jared

2003 *Guns, Germs, and Steel: The Fates of Human Societies.* New York: W. W. Norton. [Edition with 2003 Afterword]

Dissanayake, Ellen

1999 "Antecedents of the Temporal Arts in Early Mother-Infant Interaction," in Nils L. Wallin, Björn Merker and Steven Brown, eds., *The Origins of Music*, 389-410. Cambridge, MA: MIT Press.

Fürniss, Susanne

2006 "Aka Polyphony: Music, Theory, Back, and Forth," in Michael Tenzer, ed., *Analytical Studies in World Music*, 163-204. New York: Oxford University Press.

Glen Rock

1998 Voices of Christmas: The Glen Rock Carolers. Glen Rock: The Glen Rock Carolers. [CD]

Lomax, Alan

- 1959 "Folk Song Style." American Anthropologist n.s., 61:927-54.
- 1976 *Cantometrics: An Approach to the Anthropology of Music.* Berkeley: University of California Extension Media Center. [Book and 7 audiocassettes]

Marrett, Allan

1985 "Tōgaku: Where Have the Tang Melodies Gone To and Where Have the New Melodies Come From?" Ethnomusicology 29:409-31.

Menzies, Gavin

2003 1421: The Year China Discovered the World. London: Bantam Press.

Olivier, Emmanuelle, and Susanne Fürniss

1999 "Pygmy and Bushman Music: A New Comparative Study," in K. Biesbrouck, S. Elders and G. Rossel, eds., *Central African Hunter-Gatherers in a Multidisciplinary Perspective: Challenging Elusiveness*, 117-32. Leiden: CNWS.

Picken, Laurence E. R.

- 2001 "Foreword," in Peter Fletcher, World Musics in Context: A Comprehensive Survey of the World's Major Musical Cultures, 1-29. Oxford: Oxford University Press.
- Picken, Laurence E. R., with Rembrandt Wolpert, Allan J. Marett, Jonathan Condit, Elizabeth Markham and Yoko Mitani

1981 Music from the Tang Court 1. London: Oxford University Press.

Rice, Timothy

2003 "Time, Place, and Metaphor in Musical Experience and Ethnography." *Ethnomusicology* 47:151-79.

Romero, Raúl R..

1999 "Aesthetics of Sound and Listening in the Andes: The Case of the Mantaro Valley." *the world of music* 41, no. 1:53-58.

Russell, Ian

1999 English Village Carols: Traditional Christmas Carolling from the Southern Pennines. Washington DC: Smithsonian Folkways SFW CD 40476. [CD]

Shelemay, Kay Kaufman

2005 Soundscapes: Exploring Music in a Changing World, 2nd ed. New York: W. W. Norton.

Stock, Jonathan P. J.

- 1996a World Sound Matters: An Anthology of Music from Around the World. CDs. London: Schott.
- 1996b World Sound Matters: An Anthology of Music from Around the World. Pupil's Questions. London: Schott.
- 1996c World Sound Matters: An Anthology of Music from Around the World. Teacher's Manual. London: Schott.
- 1996d World Sound Matters: An Anthology of Music from Around the World. Transcriptions. London: Schott.
- 2006 "'Yang's Eight Pieces': Composing a Musical Set-Piece in a Chinese Local Opera Tradition," in Michael Tenzer, ed., Analytical Studies in World Music, 275-302. New York: Oxford University Press.

Trevarthen, Colwyn

1999-2000 "Musicality and the Intrinsic Motive Pulse: Evidence from Human Psychobiology and Infant Communication." *Musicae Scientiae*, Special Issue (Rhythm, Musical Narrative, and Origins of Human Communication): 155-215.

Zemp, Hugo

1990 Liner notes to Polyphonies des Îles Salomon (Guadalcanal et Savo). Chant du Monde LDX 274663.

Response to "Echoes of Our Forgotten Ancestors"

Peter Cooke

Abstract

From Victor Grauer's introductory essay it is apparent that he is embarking on an interesting and challenging research task in musical history—or perhaps one might call it musical archaeology. Archaeologists are often forced to speculate (with very little hard evidence) and only later do chance discoveries or systematic excavations produce the necessary evidence that confounds or validates their speculations. The new evidence for Grauer exists already, in the form of the massive addition to the documentation of the world's musical traditions that ethnomusicologists have contributed since he was working with Lomax on the Cantometrics project in the 1960s. There may now be few new "sites" to excavate—but there is now so much more social and cultural information on the many varied musical traditions of the world with which to help one validate the initial work of style analysis and comparison.

1. Diffusion and Academic Fashions

The prospect of attempting to link this task with progress in mapping the genetic history of the world's peoples and their movements is a fascinating enterprise. Several decades ago Klaus Wachsmann mentioned to me that he had given much thought to the diffusion of music styles, instruments and languages and that he had prepared overlays that would help clarify his ideas. He had studied with Erich von Hornbostel and Curt Sachs—both giants of comparative musicology—and their teaching clearly influenced much of his work in documenting African music, especially its "history." Klaus added rather sadly at the same time that this type of research was no longer fashionable and he did not now think the time was right to publish his ideas in this field. In 2005 his son gave me the opportunity to look briefly through Klaus's papers for this material but, sadly, little evidence of this interest was found. Academic fashions should never be allowed to inhibit imaginative and speculative research sparked off by initial findings even if such research may be "out of kilter" with prevailing scholarly interests and ideology.

2. What Shall We Compare: Dancing or Working?

Having said this, the work Grauer contemplates will not be without problems and what follows may help to illustrate one issue which is crucially important—the question of what musical samples the researcher might consider significant. Take the case of the Hebridean singer Mary Morrison, recorded by Lomax in 1951 (and by various researchers at the School of Scottish and Celtic Studies (including this writer) during the period 1950-70). She is cited in "Echoes" because of the seeming similarity of her singing style with that of Paleosiberian groups and their so-called "breathless" style of singing. In the example referred to (from the Scotland CD in Grauer's discography) Mary Morrison sings the well-known Highland reel Mrs Macleod of Raasay-a lively instrumental dance tune notable for the fact that, apart from the opening "birls"¹ on the first accented note of many phrases, it consists of a rapid continuous succession of notes one quarter of the value of the basic pulse. However, in Mary's rendering the phrase structure is clearly discernable to anyone familiar with Hebridean dance music. While the tune is eminently playable on fiddle or bagpipes it is, like many reels, notoriously difficult to sing because of its fast tempo. There is nowhere to take a breath and its disjunct contours (which give no problems to fiddlers and pipers whose playing techniques actually encourage the evolution of such disjunct melodies) make a vocal rendering even more difficult. Though a number of such reels (including this one) have Gaelic texts associated with them and would probably be known to Mary Morrison, she chose not to sing any words but to imitate the vocables she so often heard pipers use when "musicking" vocally-a form of performance described as *canntaireachd* ("chanting" in the style of bagpipe music). This, as Victor explains, was not true vocal music but a conscious imitation of bagpipe sounds. Furthermore, it was performed by Mary for fun (one of her "party pieces"), a playful imitation of pipers who frequently use *canntaireachd*, often to avoid having constantly to blow up the bag when exchanging tunes or details of performance style with one another.² This particular performance must be considered unrepresentative of the general singing style of Hebridean women in the mid-twentieth century, for if one excludes such dance tunes from the gamut of Hebridean vocal music – and Scottish Highland dance music usually calls for a continuous flow of musical sound-then one finds instead predominantly solo, "wordy," performance with clearly defined phrases and rhythms matching the rhythmic, phrasal and accentual demands of the text.

If one were wishing to make a case for similarity between Hebridean and P/B or Paleosiberian style it would be better perhaps to examine the choral work-song repertory. While the prevailing structure of the Scottish Gaelic choral songs is a clear alternation between solo wordy phrases and the choral responses (structurally less like P/B style, however, than like many "Bantu" song structures), the choral response consists mostly of non-lexical vocables sometimes even incorporating yodelling. Here again there is need for caution. Why the non-lexical content? Some work-song refrains have a narrow ambit and use low-pitched vocables such as "hú'," "hug," "óro," "eh", and etc. and have been considered by some scholars as the musical manifestation of the grunts of labour—reflecting the physical effort required in heaving on oars or pounding wet tweed on a waulking board. Others (especially those associated with tweed waulking—the activity of women) have a wide range, incorporating considerable leaps that are easier to yodel than to sing with a single voice placement. Does this derive from P/B style? Or could it be this time the musical transformation of the elated and rhapsodic cries of a group of women responding to texts concerned with affairs of the heart, of praise (and criticism) of their menfolk and similar themes?³ In the case of either possibility, the sounds could be considered as wordless musical endorsements of what the soloist is singing about.

3. Does Cultural and Social Context Matter?

My remarks so far illustrate the need for caution. If the fascinating hypothesis is to be tested thoroughly then teamwork is required—teamwork that calls on scholars knowledgeable about particular musical traditions, who can provide a range of musical examples of what they consider to be the earliest musical evidence that is or was once representative of a particular musical culture or sub-culture. Such scholars should also be able to supply the very necessary contextual information informing on function, social organisation and performance environment, all of which—as in the examples discussed above—could have a bearing on the resulting musical style.

Victor chooses to play down the importance of social structure in influencing musical forms, suggesting at the close of the article that it is "culturally determined" value that is more important. This seems to be rather playing with words since social structures would generally arise from the shared values held by any community and music is one form of expression of those values. One would expect egalitarian societies, where (and when) individual creativity is valued, to make music in a way that parallels such shared values.

Conversely it would be important to search for cases where one can describe the music as performed in ways that echo P/B style but where the social structure of the group is much more hierarchically organised or where possibly the genetic evidence gives no support. If one finds no such cases then the hypothesis could gain credence.

4. Why Sing in this Manner?

This writer has long been intrigued by one particular musico-historical problem with regard to singing style. Again this example comes from the Outer Hebrides, from the island of Lewis at the northern end of the island chain. Here most of the crofting population is distinguished by its adherence to the Protestant faith in contrast to the mainly Catholic inhabitants of Mary Morrison's island of Barra in the south. While both solo and responsorial singing is common in both north and south of the island

chain, the musical worship of the Protestant north is extremely different from almost anything else in the region. It takes the form of sustained, slow but highly melismatic singing of the Psalms of David in congregation at local chapels and in family worship. The singing style could fairly well be described as canonic/echoic/breathless in that their singing is only very loosely coordinated, with each singer taking his or her own time to embellish the chosen "tune" and to breathe when he or she runs out of breath. The style might be connected with the fact that the island of Lewis was heavily colonised c. 800-1000 AD by the Vikings-a Germanic-speaking Norse people from Scandinavia. Might this fact link the singing to an ancient Scandinavian style? If so one might well compare it to the continuously flowing "breathless" style associated in "Echoes" with "Paleosiberian" singing. Many naïve student listeners concluded on listening to such examples of psalm-singing that they must have come from the Near East or India. Perhaps they were not too far wide of the mark considering that until recently the language of these islanders, living on the extreme northwest fringe of Europe, was Scottish Gaelic which belongs to the Indo-European Celtic language group with only a small admixture of Norse vocabulary.

Could the style-shaping factors have little to do with the ethnological and linguistic history of the islanders but be more a result of personal and culturally shared values? In other words, could the style have developed as a communal but at the same time personal expression of religious ecstasy among congregations of devout equals? Thorkild Knudsen (1968:10), the Danish composer and ethnomusicologist, who recorded this musical worship in the 1960s, and who was already familiar with somewhat similar Icelandic and Scandinavian singing styles, described it as "not a congregational song in which everyone sings in a body, as with one mouth, following the beat of the organist. But individual people who in the singing fellowship reserve the freedom to bear witness to their relation to God on a personal basis...each bird with its own beak."⁴ I can give no definitive answers to the above questions though further exploration of the history of psalm singing in Scotland as a whole could certainly help because there is also historical evidence that this style of performing psalms was once more widespread in Scotland. This would however take us back only a mere half a millennium to the changes in musical worship that were introduced by the Protestant Reformation. The singing of psalms could well have been grafted into existing styles of cantillation at that time, but of such styles virtually nothing is known.

I chose this example to illustrate the difficulties that inevitably will abound in this kind of research. The broad sweep of Cantometric sampling could well have missed this musical practice altogether, or conversely (or even perversely) used it as an example of Hebridean singing style in general. It is not the latter: rather currently it is the music of a religious "sub-culture" in one small corner of Scottish Gaeldom with its own highly distinctive sub-style among several.

5. Some Thoughts on Instruments

Panpipes

I am not clear why Victor Grauer makes so much of these. As he points out they are found in various parts of Africa (contrary to what *Grove Music* might say) and many other areas of the world. I have recorded and filmed them in Busoga, eastern Uganda. I have heard and transcribed Laura Boulton's recordings of Nama playing stopped pipes, the leader of which played on more than one pipe. Then there are the famous Nyanga ensembles that the Tracey's have written about. But sets of stopped singlenote flutes are even more common and are widespread from Sudan and Ethiopia down to South Africa and also across to the west, and in many cases there seems to be a kind of continuum between men playing single pipes in ensemble and others (often the leader) who may play more than one pipe (whether bundled or rafted up permanently or not). So it might be better to talk about stopped pipes in general with the panpipe gradually evolving out of them.

Panpipes are only one of many types of instrumental hocket in Africa at least take the very widespread xylophone traditions, where more than one performer is involved (either playing on the same instrument or playing on a different one), and also, of course, the trumpet ensembles. What for me is interesting about the development of panpipes is the notion that they could represent a less egalitarian sociocultural development—where fewer people play more than one note (compared with single-note pipe ensembles) for various reasons including professional financial reasons. Like the one-man Midi band these days—taking over role of drummer, rhythm guitar etc.. One could view the one-man semi- and fully professional xylophone players of West Africa as evidence of the same kind of development.

Then there are innumerable hocketing drum ensembles of contrasting timbre and pitches all over Africa (there is plenty of evidence to show that drummers are usually thinking of complete melodo-rhythic patterns to which they contribute their part). Then there are also quite precisely tuned drums such as the *entenga* set of the Baganda which are played in hocket to sound song melodies. Now one might be able to argue that such instruments all derive from vocal hocket and that it is among the Bantu and other *non*-P/B peoples of Africa that such instrumental hocketing has developed because a more settled existence makes instruments less of an encumbrance. For if Pygmies play drums they have usually scrounged them from the settled peoples with whom they relate in various ways, and unlike many sets of stopped flutes the *hindewu* is very much a temporary instrument—quickly made, used and discarded. The same is true for the Baka leaf-harp.

In the case of many panpipe traditions—the Andean one for example, where one finds sets of sometimes very large instruments (which need enormous amounts of breath to get them to sound)—one just cannot move around them quickly enough to play complete melodies, and so one is forced to hocket contrapuntally (contrary to what Victor says near the start of section 9).

Gendering of Instruments

With regard to hocketing instruments, there is evidence of male-female designation of instruments in Africa. That pair of hocketing wedding flutes from Mount Elgon on my website are described as male/female, and the largest drum in an ensemble is often called the mother drum (for example, Bata drumming). In a recent email Lucy Duran has pointed out to me that one of the problems for outsiders is that gender distinction is often not found in the languages of African peoples so we are often not aware of them. To quote from her with reference to Manding peoples, "Kora has no gender, though when Francophone Mandes (Mali, Senegal, Guinea) talk of the kora it is always *la kora*. Most other instruments are male: *le balafon, le ngoni, le jembe, le donso ngoni, le tamani*, etc.. In discussions with musicians they think of these instruments as male (or female), but there is no way of articulating this in Mande."

Breathlessness

I am a little puzzled by the description of P/B style as having "continuous melody, elusive or non-existent phrasing" etc.. If one looks at the excellent transcriptions that have been made of Pygmy music (Fürniss, for example) it is clear that each person is well aware of the structure of the phrases they contribute and of the variations they are making (I wouldn't call them improvisation), and of how their phrases fit into the cycle—and their breathing does not seem to be arbitrary—it is only the fact that the phrases overlap contrapuntally that gives the impression of continuous flow. But then continuous flow is true for dance music almost anywhere (and very little Pygmy music is not danced to) and it is certainly true of most Bantu music making. Continuity of flow is vital.

One of the instruments I play is the tuba in a concert wind band. Unlike in orchestral tuba writing where there are frequently plenty of rests for the tuba player the poor player in a wind band has to keep going *ad infinitum*—it's really hard work. (Often the tuba part in a wind band score is a bad rewrite of a double bass part in the orchestral original.) So with my partner (there are two tuba players) we have to carefully organise where we will take breaths in the middle of phrases. Our breathing may appear arbitrary—but even though we individually break phrases in seemingly strange places we are ensuring that we do not break the flow of the bass line (as long as we don't accidentally breathe elsewhere at the same time). Someone who only heard us and didn't see us taking breaths Victor might conclude our playing is breathless. And this is why I feel also slightly uneasy about his descriptions of P/B singing and also of other "breathless" singing—for example shamanic chants.

Rain Forests

One last point—Victor writes about the difficulty of travelling distances through central African rain forests. Difficult for us, yes, but surely not for the forest peoples themselves. Turnbull was full of admiration of the ease with which the Bambuti moved around their quite extensive patch of forest.

6. Conclusion

To sum up this response, I consider that diagnostic style markers, such as are used in Cantometric comparison and briefly outlined in "Echoes" can help forward this kind of research, but should be regarded as only a prelude to more detailed ethnological, linguistic, historical and genetic enquiry if the immensely challenging but fascinating task of mapping the migration of musical style over the millennia is to stand a chance of producing worthwhile results. I know that Victor Grauer is aware of this and wish him well with his task.

Notes

- 1 A "birl" is pipers' jargon for a rapid reiteration of the lowest but one note of the Highland bagpipe (often regarded as the tonic because it is in octave relationship with the drone pipes). It can be executed also on a fiddle by a rapid change of bowing on a single note, often an open string.
- 2 Bagpipes were not banned from use in Scotland following the unsuccessful Highland rising led by Prince Charles Edwart Stuart in 1745-46, so the argument that pipers' *canntaireachd* could have evolved as some sort of secret activity does not bear scrutiny—in fact, pipers were actively sought for recruitment into the British regiments throughout the second half of the eighteenth century. Furthermore most pipers also own and use a practice chanter, a quiet-sounding double-reed pipe with roughly the same dimensions as the Highland bagpipe chanter (except that the bore is cylindrical). In spite of this many piping teachers insist that to play the repertory well one must internalise a melody and its phrasing by learning to sing it—hence one important need for *canntaireachd*.
- 3 For examples of women's choral singing consult the CD Scottish Tradition 1993 (a companion booklet containing commentary texts, translations and music notations is available from the same source, Greentrax records).
- 4 Well documented examples can be heard on Scottish Tradition 1994 (again the booklet is invaluable).

References

Knudsen, Thorkild

1968 "Ornamental Hymn/Psalm Singing in Denmark, the Faroe Islands and the Hebrides." DFS Information 68, no. 2:5-22 (Copenhagen: Dansk Folkemindesamling).

Scottish Tradition

- 1993 Scottish Tradition Series, iii: Waulking Songs from Barra, CDTRAX 9003.
- 1994 Scottish Tradition Series, vi: Gaelic Psalms from Lewis. CDTRAX 9006.

"Echoes of Our Forgotten Ancestors": Author's Reply

Victor Grauer

Abstract

This paper selects comments from the preceding three invited responses by Bruno Nettl, Peter Cooke, and Jonathan Stock and replies to them one by one. The first part (responding to Nettl) proposes a workable definition of music and discusses the issue of origins. This leads to a further discussion of Cantometrics as a means of general hypothesis and thoughts on evolutionary musicology and universals. Generalization is also an issue in the second part of the paper, where it is followed with comments on "emics" and "etics" and on the role of context. Materials proposed by Stock as counter-examples to my initial essay are then discussed in more detail. Turning next to Cooke's responses, I focus particularly on aspects related to the bagpipes and to what I called the "breathless" style of singing. Finally, the paper concludes by arguing that the "Out-of-Africa" theory provides the simplest explanation by far of the widespread distribution of music among virtually all peoples today.

1. Reply to Bruno Nettl

I am especially pleased and honored that Bruno Nettl, an important figure in ethnomusicology for so many years, has taken sufficient interest in my work to offer such thoughtful, insightful, and sympathetic commentary and critique. I am delighted, also, to learn that Nettl "always found Cantometrics attractive," as so many have made no secret of their hostility to this method. Cantometrics is indeed marked with Nettl's influence, on both the coding system and some of the thinking behind it, notably his classification of melodic types and pioneering elucidation of North Amerindian style areas.

After a brief summary of the pros and cons of Cantometrics,¹ Nettl comes directly to the point, raising three fundamental questions: (1) is there such *a* thing as music?; (2) does the idea of a single origin of humans require a theory of a single origin of music?; and (3) if so, how do we explain the diversity of musical styles in even very small societies?"

1.1 Defining "Music"

The first question, which might seem fatuous, is in fact profound, horrendously difficult, and ultimately impossible to answer. It sounds practical but is in fact almost metaphysical. Can music really be defined, and if not, then is there, in fact, "such a thing"? If we are too exclusive in setting the boundaries of what music is, we risk the reinstatement of earlier prejudices, in terms of which anything too different from Western norms, of tuning, scale formation, melodic structure, harmonic combination, tonal "beauty," etc., is cast aside. If we are too inclusive, on the other hand, then we may ultimately be forced to accept any sound-producing practice at all into the realm of music, making our project unworkable. Rather than attempt an all embracing definition along such lines, I will instead offer a practical, working definition that would seem to function reasonably well as a tool for comparative study.

The Cantometric Coding Book defines "song" as "the use, by the human voice, of discrete pitches or regular rhythmic patterns or both" (Lomax and Grauer 1968:36). Essentially the same definition can be applied equally well to instrumental music. It is not by any means either as simplistic or obvious as it might seem, but rather a deceptively simple way of expressing one of the most remarkable, and least understood, features of music, its affinity with Saussurian linguistics and semiology.² In other words, it is possible to construct (or construe) music in a manner parallel to the manner in which Ferdinand de Saussure constructs (construes) language, as "a system of interdependent terms in which the value of each term results solely from the simultaneous presence of the others" (de Saussure 1922:159). The deep relevance of this statement to the realm of music has often been overlooked. The key term is "value"—as in the rhythmic (and also tonal) "values" of Western notation. The values of which de Saussure writes can thus be applied not only to the structure of phonemes (vocable classes) but to musical notes (pitch and time-point classes) as well, both of which are produced from field-like systems of class "identity" built on culturally agreed upon ("emic") distinctions. Such systems, of "discrete pitches or regular rhythmic patterns" (encompassing, I would think, what Charles Seeger once called tonemes and rhythmemes) can be understood as what I have described elsewhere as tonal/rhythmic fields³ (see Grauer 1993, 2000).

I have elaborated perhaps too fully on what might be considered a purely technical issue, but is actually of genuine relevance to the whole question of "world music" (assuming it exists at all). Because, regardless of what anyone might want to include or exclude in some attempt to define music in some broad sense that would encompass every conceivable meaning for every conceivable society (assuming one could actually do that), it *is*, surprisingly enough, possible to characterize a great deal of what is generally accepted as "singing," "playing," etc. in almost every corner of the world, in precisely such terms. In other words, the "discrete pitches and/or regular rhythmic patterns" found in so many different traditions in so many places are in themselves a remarkable piece of evidence, strongly suggesting the existence of something we might indeed be able to call "*a* music" in Nettl's terms, applicable worldwide if not, strictly speaking, "universal," absolute or complete. Although there is clearly room for debate over such a definition, which could be faulted as perhaps overly "acoustic" (see my response to Stock, below), reductive, or even ethnocentric, some version of it does seem to have served as an effective *de facto* working model for most if not all ethnomusicologists. A major case in point would be the wide application of music notation to such a great variety of different types of music throughout the world.⁴

1.2 Origins and After

Nettl's second question, "[d]oes the idea of a single origin of humans require a theory of a single origin of music," appears to go to the heart of my argument. But on second thought, maybe not. There is a hidden assumption here, the assumption that we are dealing with a purely logical problem. This will be clear if we rephrase his question as follows: can the *evidence* for a single origin of humans help us understand the musical *evidence*? The second, more practical version better describes the approach I have taken. (My response is presented below, under the heading "Universals.")

The third question reflects an important problem lurking at the very heart of my project: "If so [i.e., if a single origin of music is in fact linked to a single origin of humans], how do we explain the diversity of musical styles in even very small societies?" This is really a two-part question, first that of diversity in itself, then its manifestation "in very small societies." The difficulties of addressing the first, and most basic, aspect are raised in "Patterns of Diversity," section 14 of my article above:

The dilemma can be summarized as follows: if the music of all such groups is the product of independent invention and/or independent paths of evolution, as assumed by functionalist models, then we would expect far more stylistic differentiation than actually exists; if, on the other hand, all groups once shared the same tradition, handing it down intact from generation to generation, then why do we find as much differentiation as currently exists—why, in fact, don't all people today make music like Pygmies and Bushmen?

I deal with this question, first, by pointing out the strong parallel with a very similar type of problem in the genetic research, where phenotypic and genotypic differentiation also require explanation; and second, by appropriating from that research certain conceptual tools that might provide, if not hard and fast answers, then at least some very intriguing possibilities. Whereas the principal models for change in the earlier schools of thought rejected by Nettl were cultural diffusion and gradual evolution, the new paradigms introduced by the geneticists are quite different: *demic diffusion* and *population bottlenecks*, leading to *founder effects*. Demic diffusion is diffusion caused by the migration and branching of a particular lineage, in which influence from one society to another plays little or no part. Population bottlenecks are caused by relatively sudden events, such as natural catastrophes, disputes, warfare, etc., which result in a radical reduction in population size. Founder effects are produced by such bottlenecks, where a small number of survivors or emigrants "founds" a new group, which, if it survives, can produce a new "phylogenetic" branch quite different in a great many respects from what preceded it.

Since demic diffusion, bottlenecks, and founder effects influence culture as well as lineage, these paradigms are now being adopted by archaeologists, ethnographers, and ethnologists as important tools in our understanding of cultural continuity and change. ⁵ Whereas much of my focus in the account as a whole is on demic diffusion, in section 14 I concentrate on bottlenecks and founder effects in an attempt to answer exactly the question Nettl raises regarding diversity, offering some reasonable, but admittedly speculative, possibilities. Though not yet fully tested, they do, I believe, open some doors to a re-examination, along fresh lines, of some very old and in my opinion very important, issues that have been neglected for far too long.⁶

Nettl's question also encompasses diversity "even within very small societies," so I would like to briefly address this very different issue as well. The focus of my research is clearly on very large-scale continuities and differences, involving large-scale population movements and interactions. The diversity we find in "very small societies" usually operates on a completely different level, involving more subtle distinctions, of the sort best left to specialists. On this level there can be all sorts of easily explained reasons for such differences are found, those that would make a significant difference cantometrically, they might well reflect some significant event in the distant past, when, say, one group conquered and then proceeded to marginalize the other—hardly a rare occurrence. In such cases the resources of Cantometrics could be useful in identifying the marginalized group and reconstructing its history. In short, we can better understand diversity if we alternately view it from different vantage points, some contextualized locally, some globally.

1.3 Testable Hypotheses

Professor Nettl goes on to express concerns about "the possibility of reliably extrapolating the distant past from the present" and continues in the same vein, raising some important, very basic, questions such as: is it legitimate to "relate biological evolution...to cultural and musical evolution"; aren't societies rapidly changing their culture "to adapt to social and natural changes"; doesn't all history involve "lots of individual choices and decisions"? In my view, all of the above represent testable hypotheses. Cantometrics was created as a methodology that could prove useful as one of many tools for putting such notions to the test. But Nettl, along with so many others in our field, seems deeply suspicious of any such approach: "are the similarities and identities of musical styles of these widely distributed cultures real? Or does cantometric analysis give superficialities?" Here we come, I think, to a fundamental problem in ethnomusicology today. Are the many criticisms of Cantometrics as a method due to its inherent failings, or is there some more basic resistance to comparative methodology of any kind, perceived as a threat to the autonomy of the individual researcher and the uniqueness of the cultures studied? My intention here is not to claim that this method could not be improved, or even superceded by some more rigorously designed set of procedures. But it is unrealistic to expect any methodology to determine exactly what is the same as what in some absolute sense, as though similarity and difference were themselves universals. Epistemologically speaking, similarity and difference are not built-in aspects of the "real" world, but must be defined as clearly as possible according to the intentions and goals of the methodology itself, a construct which should never be mistaken for some transparent model of "reality." Cantometrics does its job of defining, for better or worse, the terms through which each coder will transcribe a given performance. It succeeds, as I see it, to the degree that its results prove useful, not "right" or "wrong" according to some universal standard of what is and is not "real."

To respond to Nettl's specific caveat, cantometric analysis is therefore neither meaningful nor superficial in and of itself. It is essentially a method for producing categories and seeking out patterns on the basis of statistical evaluations of trait associations and distributions worldwide. To test⁷ any hypothesis in such terms, the resulting categories and/or patterns must then be critically evaluated according to a range of criteria, depending on the type of research being done. It is really not all that different from what any field worker might do when observing and then categorizing his or her results for publication. One notes a range of activities relevant to one's research goals, carefully observes as many details as seem relevant, placing them into categories and looking for patterns, finally evaluating and refining according to various criteria drawn from the research results of one's associates, the anthropological and archaeological literature, the theoretical literature, etc.. The principal difference is that broad-based comparative research cannot operate on the typical, essentially subjective, *ad hoc* fieldwork model. It needs to be conducted on the basis of a more objectively conceived, clearly defined, replicable methodology that must of necessity treat its results statistically. Such is Cantometrics.

Regardless of the strengths or weaknesses of the cantometric method *per se*, it is, as Nettl has recognized, only one of several different tools used in the present study. Cantometrics is, for me, an extraordinarily useful and indeed necessary guide through the extensive, complex, and varied terrain of world music, but its results must always be checked, supplemented, and expanded, first by careful listening, relistening, and analysis; then, wherever possible, by study of the musicological, ethnological, linguistic, archaeological, and genetic literature; and, finally, by the application of one's training, study, and experience moderated by a large measure of common sense.

1.4 The Problem of Culture Loss

Nettl concludes the first segment of his response with some disturbing but meaningful remarks about the Native American cultures he knows so well. What he says, briefly, is that the early colonial period involved such devastation of so many native peoples, largely from an "unprecedented holocaust of disease," that it is all but impossible to reconstruct their prior history. There is no easy response to such an observation, which could be extended to include the devastating consequences of colonialism in almost every corner of the world. Unquestionably, an enormous amount has been lost, from both the human and humanistic perspective. But historians, archaeologists, ethnologists, linguists, geneticists, and ethnomusicologists continue to interpret the available data as best they can, despite the serious gaps and unknowns, which must always add a measure of uncertainty to any result. As far as my own work is concerned, it would be very useful if Nettl were to offer an opinion regarding, for example, the possibility of Native North Americans having had more different types of instruments than currently recognized, such as panpipes, trumpets, or clarinets, in the pre-colonial period, or, again, if there were certain groups that may have sung polyphonically at that time but now sing exclusively in unison. It is difficult for me to understand how such practices could have left no trace at all, but Nettl's point is well taken: it is possible to be misled when all trace of certain artifacts or expressive modes has vanished, so we must be on our guard. There are certain mysteries we may never be able to fully address.

1.5 Evolutionary Musicology

Now we turn to an overview of "Evolutionary Musicology," and the related topics of origins generally, and the role of biology and cognitive science in the study of the origin and "development" of music. In this regard, it is important to establish that, while my work could very loosely be understood as a type of evolutionary musicology, it is most definitely not "evolutionary" in the sense of implying a gradual development from the simple to the complex or the crude to the refined. It is "evolutionary" only to the extent that it focuses on the way certain things change and others remain the same over very long periods of time. And unlike almost all evolutionary theories it does not promote a gradualist model, but concentrates more on the sort of conditions that can either maintain things as they are over very long periods, or produce relatively sudden change. My approach is not based on some personal preference, theoretical assumption, or political correctness concern, but simply on what the evidence appears to be telling me. I should add that the genetic aspect of my research should not be interpreted in terms of any sort of biological determinism either. My current interest in genetics has to do exclusively with its potential for clarifying the history of human migrations, not for explaining how certain people might make music in a certain manner, based on the structure of their DNA.
Nettl's treatment of the whole question of musical origins, evolution, biology, cognition, etc. is an essay in itself, very interesting, useful, and thought provoking. It deserves to be read and studied for its own sake and not simply as part of his response to me. Indeed, he raises many points deserving of more consideration than can be provided here. I have some familiarity with the literature he cites, having read much in the book, Origins of Music (Wallin, Merker, and Brown 2000), and excerpts from Mithen's The Singing Neanderthals (2005), along with some reviews. There are many things in Origins of Music that interest me, especially its call for a renewed interest in broadly defined, fundamental issues, too long neglected by too many ethnomusicologists. Some of the material on animal vocalization is especially provocative, for example Björn Merker's essay (2000) on the "synchronous chorusing" of primates, which suggests the possibility that practices such as interlocked singing and hocket could somehow have originated in these interactive vocalizations. Though much in *The Singing Neanderthals* seems far too speculative, I find certain of Mithen's ideas regarding the origins of language, and its connection with music, very much in tune with my own.

I share Nettl's skepticism regarding most of the literature on musical evolution and origins, both old and new, but not for quite the same reasons. He tends to judge all such arguments in the spirit in which they are invariably offered, as essentially abstract, theoretical constructs. Whereas the recent literature is based largely on scientific data (physiological, archaeological, linguistic, psychological, cognitive), the interpretations of that data seem far too often driven by an uncritical and sometimes even naïve reliance on simple logic and common sense *per se*, with little attention paid to the vast array of music actually being made in the world around us.

1.6 Universals

Typical of the idealistic nature of such discourse generally is an overriding concern with what is actually a metaphysical term: "universals." Nettl expresses some reservations regarding certain aspects of this notion in ethnomusicology and I tend to agree. But he seems, at times, to fuse the abstract, metaphysical principle with the concrete behaviors it has idealized, as though these constructs were, or ought to be, equivalent. Consider the term "music" itself:

We say that all cultures have music, but really, we mean that all cultures have something that sounds like what we conceive of as music.... Now, it is widely known that most of the world's languages actually do not have a traditional word for "music," but the various things they do that sound to us like music may be widely different categories in the cognitive map.

The problem with such an assertion becomes apparent when we consider whether all cultures have words for things like: *language*, *ritual*, or *culture* itself. If not, does that mean they have no language, no rituals, no culture? It is difficult to understand how research in ethnomusicology or any other branch of the social sciences or humanities could proceed on the basis of the value systems, thought processes, and vocabularies of cultures fundamentally different from our own.⁸ If that means our work may always be distorted, incomplete, and, yes, ethnocentric, we may be forced to accept such a limitation as built in to what we do as scholars, what we must be prepared to continually deconstruct, a necessary impossibility, akin, perhaps, to Derrida's notion of an "aporia" (see, for example, Derrida 1993:32-37).

Nettl goes on to suggest some perfectly plausible alternatives to theories based on "universals": music might not have one origin, but several, and "different motivations or even adaptations might have led to different kinds of sound." He considers the influence of "fitness-to-mate adaptation"; the "need to support...group action and cooperation"; "the advantage of long-distance communication," and so forth. With respect to the question of origins, he concludes that "we are probably safest to consider the origins of music as a series of separate events, derived from a variety of social needs and processes," basically a restatement of the functionalist position. In my view, however, all such possibilities are eminently open to research-and eminently testable. It is difficult to see how such research could proceed, however, without some sort of methodology capable of dealing with the musical practices of a broad range of cultures. Many hypotheses of this sort have already been put to a variety of tests, admittedly provisional, in what has become a large body of Cantometrics-based, or Cantometrics-related, research, including the article under consideration here. I would not characterize any of these as definitive, nor do I fully agree with all the results. But a very promising beginning has, in my opinion, been made.

To finally answer my revised version of Nettl's second question, above, I do very much believe that "the evidence for a single origin of humans" *can* indeed "help us understand the musical evidence." If we seriously consider the ever increasing evidence that all humans now living can trace their ancestry back to Africa as it existed between 150,000 and 200,000 years ago, why would that not have a profound affect on our consideration of the musical evidence currently available to us, especially that of various indigenous populations very possibly linked, genetically, to the Out-of-Africa migration? This, indeed, is what my account is all about, a probing and testing of exactly this issue, which inexorably leads to the question I pose near the end, the question of origin.

But the origin of what? Nettl is right in cautioning us to think more critically about what we might mean by the term "music," which should not, I agree, be taken for granted as an abstract "universal." So when I associate the beginnings of "music" with our earliest fully human ancestors in Africa, that could certainly be misleading. There are all sorts of "musical" things that came along sooner (bird song, primate duetting and chorusing, possibly certain signaling instruments, etc.) or later (membranophones, metallophones, string instruments, gamelans, serialism, aleatoric music, etc.). What I am really referring to here is not so much "music," in all the ways that term could be understood, but more precisely, "the tonal/rhythmic field," as defined above, which, according to the theoretical scheme I have developed, gives rise to the *notes* (Seeger's *tonemes* and *rhythmemes*) that also happen to constitute our traditional notion of what music most fundamentally entails. I find this notion particularly compelling since "notes" so defined are so close, structurally, to phonemes, suggesting the possibility that music and language could have a common origin.

2. Reply to Jonathan Stock

I want to express my gratitude to Jonathan Stock, not only for his beautifully written, precisely crafted critique, but his very thorough and helpful assistance in editing the issue. His skepticism did not prevent him from offering helpful suggestions at every stage, and on every level, from commas to concepts. Some of his challenges were so adroit that I was forced to considerably sharpen both my thinking and my language.

2.1 Generalizations and Ethnomusicology

Stock begins by rightly calling me to account for suggesting that ethnomusicologists nowadays are not particularly interested in either comparative study or "broad generalizations," offering some apt counterexamples, including a work of his own that I was unaware of and would especially like to study. From what I had been reading in recent years, I had the impression that the field had moved strongly in the direction of specialized research, with a strong emphasis on contextual rather than comparative studies. I am very pleased to learn that this was not completely the case.

Stock states that "unlike Cantometrics, Grauer's set of correlations propose a history of migrations instead of a map of political formations, and this is a significant difference which...avoids some of the assumptions of the earlier approach." He has noted an important difference in emphasis between Lomax and myself, though Lomax always had an interest in both approaches. It should be noted, however, that Cantometrics as a method is just as suited to the study of migrations as political formations, so that the first two words of the above quote are misleading.

2.2 Etic vs. Emic

Professor Stock continues with an especially significant challenge that deserves extended quotation and discussion:

[I]f we are to avoid imprinting the assumptions of an external system onto the analyzed example in an unconsciously self-fulfilling process, or even selecting examples that match a strongly held theory, then we need to be certain that the analyst has selected examples with due regard to some wider understanding of their local role(s) and interpretation(s). As an analyst, one might still choose to give an external interpretation weight over an "emic" evaluation, but readers of the analysis will want to know that what's at stake in making such a decision was apparent to the analyst before the decision was made.

This is remarkably astute, and indeed expresses a standard that should, ideally, be applied to every research project in our field. It expresses also, I would think, precisely the sort of concern that has made so many suspicious of methodologies such as Cantometrics, so often perceived as running roughshod over all the many nuances entailed in an awareness of local cultural context. Unfortunately, an insistence on close attention to all local contexts would render broad-based comparative research impractical. First, it is unreasonable to expect research on such a large scale to meaningfully encompass and evaluate all the various interpretive nuances for all cultures studied; second, there is probably no way to standardize such interpretations in such a way that some general consensus could be established. Lomax did in fact include Murdock's Ethnographic Atlas in his research (for example, Lomax et al. 1968:117-203), but this just seemed to fuel even more discontent among specialists, resentful of any type of cultural categorization. If there is no widely accepted standard for the cross-cultural evaluation of cultural context, any and all efforts to do full justice to the many varieties of the emic in comparative studies will very likely always remain questionable and controversial.

That said, in addressing such perfectly legitimate concerns it is important to know that collectors, anthropologists, ethnomusicologists, performers, and specialists of all kinds were frequently invited to Lomax's office where they actively participated in the selection of the musical samples and otherwise served as consultants. Taped interviews recording their interpretations of the music they studied and/or performed, including extensive descriptions of the various contexts, were common. Lomax, a voracious reader, kept up with a considerable portion of the extensive anthropological and ethnomusicological literature, and much else beside. While I lack the resources Lomax once had, I have worked hard to maintain contacts with specialists, and have made a considerable effort in recent years to keep up with all the relevant literature. Only a small fraction of what I have studied and analyzed appears in my list of references.

I do think it can be asserted, therefore, that, given the considerable constraints of so broadly conceived a program, there was an honest attempt, both in the original Cantometrics project and the more recent effort based on it, leading to the development of my article, to choose examples, wherever possible, "with due regard to some wider understanding of their local role(s) and interpretation(s)." There has been an equivalent effort to conduct the research in such a way that all materials studied are clearly referenced, so they may be independently checked for evidence of either error or bias.

2.3 Contextualizing Context

While Stock's emphasis on the importance of the "emic" view is well taken, the view expressed in the following quotation from his article calls for further discussion:

Music analysis set within the frame of an ethnographic study sets itself an easier task in this respect, in that each example selected is interpreted in light of its immediate social emplacement. For instance, I can try to show what the musical style of a specific Chinese opera aria says about the time and place of its creation and about the various people involved in its composition.... These analytical claims are not threatened by the aria's particularity, although readers might reasonably hope that the example I chose is widely representative of trends in China at that time. The kind of approach that Grauer takes, on the other hand, argues that musical characteristics reflect longstanding historical connections between peoples.

My response is that the task of the specialist would seem to be as challenging in this regard as that of the generalist, because both are exploring different aspects of the same thing. We cannot do justice to the complexity and depth of musical traditions, however defined, from only one of these two complementary positions. While context understood in terms of "the immediate social emplacement," is certainly of great importance, I believe Stock would agree that the broader context cannot thereby be ignored. A good example of what is at stake can be found in a pioneering comparative study, combining musicology with semiology and genetic anthropology, by Jean-Jaques Nattiez: "Inuit Throat Games and Siberian Throat Singing." Noting the significant differences in social context (on the one hand games, on the other shamanic ritual) between the two otherwise very similar practices, yet concluding, after careful study, that both apparently stem from the same shamanic tradition, Nattiez writes as follows:

While the religious context attached to the throat technique has disappeared among the Inuit, the specific vocal technique of the genre has remained; but either the ludic function has survived alone, or it has replaced the religious signified attached to this vocal signifier. This doesn't imply that throat games don't mean anything today. They mean something else and have a ludic and competitive function. The signifiers have remained, the signifieds have changed. (Nattiez 1999:415-16)

Significantly, Nattiez adds, with reference to information from his informants that initially seemed contradictory: "This diachronic dimension explains dissonances of information between the informants." As his account would appear to demonstrate, unless we are prepared to make broad comparisons over large areas of geography and history, as did Nattiez, we may not be able to understand the immediate context well enough to grasp what our informants are telling us. Nattiez draws from this research some remarkably astute conclusions regarding the relation between the *emic* and the *etic*: "in sonorous symbolic forms, the form, the signification of the animal and nature imitations associated with these forms, are evanescent" (*ibid.*:414).⁹ I must add that whereas Nattiez may seem to be favoring the *etic* over

the *emic* in such a statement, it seems clear he could not have arrived at his conclusions without an understanding of both.

2.4 Conditions

Stock continues, offering four "conditions to be met" by the sort of research I am doing, devoting a separate section of his essay to each. To satisfy his conditions, I need (1) to show that I have "identified a coherent style"; (2) prove I have "appropriately selected examples"; (3) convince us "that present-day sound clips reveal aspects of former practices"; and (4) persuade us "that this style was invented just once, in Africa." Considering the provisional nature of my argument, these conditions strike me as somewhat severe. As I hope I made clear, I am attempting to explore promising territory and open doors to future research of this kind, for far too long actively discouraged in the field of ethnomusicology. I argue for the reasonable consideration of certain possibilities I find compelling, possibilities that have not yet been fully tested and therefore, admittedly, remain unproven. I am not so much trying to convince per se, but rather to use whatever powers of persuasion I may have to encourage others in this field to join in what I see to be a promising line of research. Mine is, moreover, a fundamentally holistic approach, informed by a deeply held conviction that one cannot understand any one practice in isolation from all the others. I prefer, therefore, to progress from the "outside in," that is from the big picture to the small, as opposed to the "inside out" approach implied by Stock's conditions, which strike me as unnecessarily limiting. As I see it, the questions implied by all these conditions can only be definitively answered after a considerable amount of research has already been accomplished.

2.5 Is Music Merely Sonic?

Despite my skepticism, I am grateful to Stock for so clearly elucidating his conditions in such detail, giving me an opportunity to demonstrate that I have indeed reasonably addressed, if not completely satisfied, them. Among the most intriguing criticisms with regard to his first condition is the notion that I have focused "more heavily on the sonic results of musical performance than on the patterns of action that lead to these sounds, and so performance practice receives insufficient attention in his account." This puzzles me, as Cantometrics is all about performance practice, a great many aspects of which can indeed be assessed "sonically," i.e., from a recording. For another, Lomax was among the first to recognize the importance of the "patterns of action" involved in music making, as well as dance, making the study of music-related movement the centerpiece of his *choreometrics* project. Stock raises the same issue earlier, in section 2, where he states that my approach, like Cantometrics, "is more a sonically founded study of humanity than a cross-cultural study of musicmaking processes." This strikes me as unfair. Certainly, important aspects of such processes can be inferred through sensitive, skilled listening informed by systematic comparative study. We must be careful, moreover, not to confuse Cantometrics as a tool with the manner in which it is put to use. While the 37 parameters of the Cantometric coding sheet are indeed limited to what can be inferred from a recording, the research based on this methodology most certainly was not.

2.6 Occam's Razor and Common Sense

Stock continues, invoking a series of hypothetical examples, intended to demonstrate how reasonable it is to assume that independent invention, based on functional considerations only an insider could understand, offers the most likely explanation for the origins of any given musical style:

In coordinating their performance, the music makers might establish some sort of leadership system involving authoritative cues, they might negotiate an agreed overall structure, they might perhaps work out a protocol to govern the combining of different roles during fluid performance.... Use of short, reiterated interlocking parts is, in fact, a rather obvious solution to the challenge of how to engage many people in an affective performance without enormous amounts of either pre-composition or rehearsal.... From this performance-based perspective, it is actually rather hard to imagine an effective performance involving interlocking parts that is not motivic, coordinated, and musical, and demanded social integration. Longer motives (particularly those that pass beyond the duration of human breath) would be far harder to coordinate.

He continues in the same vein at some length, as though a deeper understanding of the immediate processes behind each local practice could serve as an alternative explanation for the broad ranging stylistic patterns I have attempted to explain on the basis of tradition. Taken one by one, I have no problem with the more or less reasonable propositions he presents. His transcription of polyphonic yodelling is, additionally, welcome as an illustration of certain tonal/rhythmic aspects of the style under consideration and the manner in which it is learned. However, it is difficult for me to understand how the logic and/or social dynamic behind any given style of performance can explain why that style is found among some groups and not others. Stock goes on to conclude that "[p]erformance practice provides a simpler explanation than monogenesis, migration and stasis, and without further evidence the co-appearance around the globe of these acoustic traits is not in itself evidence of human migration or of musical transmission." First I must emphasize that the "co-appearance...of acoustic traits" is a decidedly simplistic characterization of my argument. More basic, however, is the point Stock is making about simplicity, apparently a response to my emphasis on the principle behind Occam's razor, that, all else being equal, the simplest explanation should be preferred. In the present context, I must rephrase that to conform more precisely to the scientific - and scholarly - version: the simplest explanation of the evidence should be preferred. Stock presents a series of commonsense propositions about how Pygmy/Bushmen style might have arisen in various places, at various times, under ideal circumstances, by reasonable people; logical enough, I suppose, but not really evidence; certainly not sufficient to explain the distribution of such a style in the world of today. It is common sense and, in fact, quite logical, to assume the earth is flat and the sun revolves around it, far simpler indeed than the complex explanations offered by Copernicus, Kepler, Newton, and Einstein. However, it cannot satisfy Occam's razor, because when we take the *evidence* of planetary motion into account, the "simplest," most "logical" Earth-at-the-center-ofthe-universe picture turns out to be extraordinarily complex. Similarly, when we take the musical evidence into account, (i.e., the distribution of traditional styles and instruments throughout the world, as determined not only by Cantometrics, but bookshelves of field studies, overviews, encyclopaedias, textbooks, dissertations, recordings, films, etc.), we find patterns that, like the planetary motions studied by Brahe and Kepler, must be accounted for. Ethnomusicologists, like Astronomers, cannot look directly into the past with much time-depth, to directly observe how certain structures originated and evolved, but, like the astronomers, we can *infer* a great deal from patterns and structures we now find in the universe around us.

Even if Stock might want to dispute such a view, the hypotheticals he offers are very far indeed from meeting the demands of Occam's Razor. According to such an essentially *ad hoc* standard, one would need to account for every instance of P/B style everywhere in the world in terms of a myriad of essentially functional processes of the sort he describes, with a separate rationale for each depending on local customs and conditions. How much simpler to suggest that most if not all such practices might ultimately stem from a single tradition, handed down from one generation to the next, with a distribution roughly corresponding to the results of current research in population genetics. While such an explanation is hardly intuitive, and, indeed far from the point where it could be fully tested, it would certainly appear to satisfy Occam's standard for simplicity.¹⁰

2.7 Bushmen and Pygmies

Stock then refers to an interpretation offered by Susanne Fürniss, who, on the basis of a comparative analysis performed in collaboration with Emmanuelle Olivier,

states quite clearly that Pygmy and Bushman musics operate on different principles: "although many musical and extramusical features converge and though the acoustic results are very close, the conception that the Jul'hoansi [Bushmen] have of their music is radically opposite to the Aka's [Pygmies]. In fact, Jul'hoansi music does not proceed from a basic multipart pattern, but it is generated from a single melody that is simultaneously materialized in different tessituras" (Fürniss 2006:201).

Grauer's note 3 does not explain away this problem, which is essentially that the Aka and the Jul-hoansi (or Bushman) are doing different things. The end result may be similar, but, to be credible, the out-of-Africa account needed the stylistic coherence of a sufficiently distinctive yet also a sufficiently shared musical practice at its base. Grauer argues that cantometrics prevents the details "from obscuring the big picture" (section 4), but what we have here is the misidentification of details: to compare an apple and an orange in a wider category of fruit is useful; to claim they're both oranges is unlikely to lead anywhere productive, except perhaps in the domain of poetry.

Fürniss's summary is amplified by the words of her collaborator, Emmanuelle Olivier:

Unlike the music of the Pygmies...Ju'hoansi music is not what could be called polyphony. Songs are in fact based on one single constituent part, materialized simultaneously, with variants, in three tessituras (low, medium, and high) established hierarchically.... This unique constituent part is conceived mentally in a sort of rough draft where all the elements indispensable to its identity are condensed. The mental representation is materialized in the form of diverse, minimal versions, considered to be equivalent for the same tessitura; singers choose either one of these versions which they then vary according to certain procedures like imitation, transposition to the fourth, fifth or octave and rhythmic time-lag (Olivier 1997:15).¹¹

The central argument behind the claims of Olivier and Fürniss was already addressed in the note of mine to which Stock refers. There is a significant difference between the tonal conceptions examined by these investigators, limited strictly by what is open to notational analysis, and the much more broadly defined stylistic concerns at the heart of Cantometrics. In the same note I also questioned the notion that different musical conceptions cannot be found within the same tradition. While, for example, cumulative songs such as "Partridge in a Pear Tree" are based on a different conception from strophic songs, we find them together in the same European repertoires. among the same populations. The Ju'hoansi initiation ceremony recorded by Olivier herself (Olivier 1997:1), which, after a brief introduction, contains no melodic material at all, is clearly based on a completely different musical conception from the performances that follow on the same disc. What arguably unifies such traditions is not musical conception per se, but overall style. Also, as I stated in the same place, "[o]ne would, of course, expect some differences to have evolved over the thousands of years since these groups diverged." It would indeed be truly astonishing if all aspects of both Pygmy and Bushmen music had remained the same in every respect. It is impressive enough that they nevertheless share so many very distinctive stylistic characteristics, such as interlock, yodelling, use of nonsense vocables, short phrase lengths, very wide melodic intervals, continuous flow, etc..

I hope that I will not be misunderstood. The work of investigators such as Fürniss, Olivier, Kisliuk, and others, notably Rouget, Grimaud, and Arom, is of the greatest interest and importance, deserving of very close study indeed. The detailed analyses of Fürniss and Olivier especially may well have taken our understanding of both Pygmy and Bushmen music to a whole new level and could not possibly be ignored by anyone doing either in-depth or comparative studies involving such traditions. I have no argument with their research *per se*, but must nevertheless insist on the distinction between a convincing analysis and the many different ways in which it could be interpreted. There is more. Compare the statements of Fürniss and Olivier, above, with the following descriptions of an Aka Pygmy song, from Michelle Kisliuk's *Seize the Dance*:

"Makala," like many other Mabo songs, has a central melodic theme and support parts that can be varied and elaborated on, both melodically and rhythmically. Any of these variations can at moments dominate the texture, or together they can form a complex polyphony that envelopes the theme completely (Kisliuk 1998:99).

The transcription shows what might be sung and played during a given two-measure cycle of "Makala," as I learned to hear it over the months. The first line of melody is what I call the "theme"...a melodic phrase on which the song and most of its associated variations are loosely based. This theme, which repeats cyclically, provides an underlying time line and a harmonic frame for the song, whether or not the theme itself is actually voiced (*ibid*.:112).

The notion of an organizing principle in Pygmy music based on a recurring but often unheard melody, in a manner indeed recalling the descriptions of Bushmen music offered by Fürniss and Olivier, is reinforced by almost all the many notated examples in Kisliuk's book. The topmost vocal line is, in fact, usually labeled "Theme," understood as an underlying melodic basis, rarely to be sung *in toto* at any given time. Admittedly Olivier takes things a bit farther when describing Bushmen music in terms of "one single constituent part, materialized simultaneously, with variants, in three tessituras (low, medium, and high)," suggesting a heterophonic, rather than polyphonic basis. However, a great many elements of heterophony can be found, interspersed with polyphony, in Pygmy songs as well, as attested by Fürniss's own extended six-part representation of an Aka song, which abounds in such relationships. For example, of the initial eight notes of the second voice, six are in unison with the first; of the initial nine notes of the third voice, five are in unison with the first, and so on (Fürniss 2006:170-73). Similarly, in the transcription of Pygmy singing offered by Stock (Fig. 1), nine of the first sixteen notes of the second voice are in either unison or octaves with the first. Also of importance conceptually is the prevalence, in both traditions, of cycling as an underlying structural base, not to mention varied repetition, interlocking of parts, etc.. I am reluctant to make too much of such observations as I have not yet had an opportunity to evaluate the full range of Fürniss and Olivier's analysis,¹² but there does seem to be room for skepticism regarding their insistence on "radically opposite" musical conceptions.

2.8 Guns, Germs, Steel, Eels, and Panpipes

Stock proceeds with a "cautionary tale" concerning certain claims by Jared Diamond, in his book *Guns, Germs, and Steel*, regarding the development of eel farms by native Australians, a theory challenged by Gavin Menzies, who claimed the farms were established by Chinese mariners shipwrecked in Australia in the fifteenth century. This is intended as a commentary on my argument regarding the distribution of panpipes in various parts of the world, with the point being that both Diamond and Menzies, may be using their examples inappropriately, "to provide exactly the evidence each author's theory demands," and that I am doing likewise. I thought it was my understanding of the panpipe evidence that had influenced my "theory" (I prefer "interpretation"), but Stock might be right, it could be the other way around. Once again, however, Stock proposes all sorts of reasonable, essentially functionalist, scenarios for independent invention of panpipes that are indeed "simpler" than what I have proposed—until we consider the evidence. When we do consider the evidence, ¹³ it seems clear that an explanation of the highly patterned world distribution of panpipes on the basis of a single origin is far simpler than one in which all instances are the result of *ad hoc* "reasonable" responses to a wide variety of different local situations.

If I am right, the complex I have identified, of hocketed, interlocked panpipe playing by groups of two or more, has a single origin, either in Africa, or somewhere along the Out-of-Africa route, tens of thousands of years ago, from where it spread through various parts of the world by demic diffusion. Its absence, as I argue in section 14, could be explained by specific population bottlenecks, inferred from genetic research. Could panpipe distribution be explained in some other way? Stock's assertion that the panpipe "is a rather self-apparent solution for humans anywhere in the world who want to form a wind instrument that plays more than one note, particularly where bamboo is employed" does not seem particularly helpful in accounting for the highly patterned, if admittedly puzzling, nature of its worldwide distribution; nor can it explain the remarkably distinctive manner in which such instruments are brought together in hocketing ensembles, as found so consistently in so many different societies. Bamboo, moreover, can be found in Australia, where it was traditionally used to make didjeridoos, but not panpipes, which, to my knowledge, have never been part of native Australian culture. Panpipes would also seem to be, essentially, absent from the record, both pre- and post-colonial, in native America north of Mexico.¹⁴ There are in fact many places in the world where panpipes have not been found as part of traditional culture, in places where such an instrument could certainly have been made.

Actually, as I stress in section 8 of the article, there is, in fact, no readily apparent, easily explainable solution to the distribution of the panpipe, which appears in so many very different parts of the world that it would, indeed, *seem* to have been independently invented. But, as I argue in the same section, it is very difficult to understand how independent invention could explain either the highly patterned distribution of this instrument, its strong association with hocket/interlock, or the widespread tendency to divide panpipe ensembles according to male-female symbolism.

No matter how improbable it may seem, therefore, the only way I can manage to account for the very puzzling distribution of the panpipe/hocket complex is via an Occam-friendly origin in Africa prior to the Out-of-Africa migration, initially in the form of free, interlocking pipes, as an offshoot of Pygmy/Bushmen vocal style. Though such a hypothesis most certainly invites further investigation and testing

(through expansion and further analysis of the Cantometric sample, more detailed research into the distribution of pipes, panpipes, and other hocketed instruments; additional archaeological investigation; research into the cultural, linguistic, and genetic relationships among various groups associated with interlocked vocalizing, pipes and panpipes, etc.), it would seem that only an instrument/style-complex that archaic could have made its way into so many different corners of the indigenous world.¹⁵

Stock then presents a transcription of yodelled vocal interlock from a Melanesian recording I had used to illustrate the presence of P/B style in that part of the world, questioning its validity since it is, apparently, a vocalization of panpipe music rather than vocal music "proper." I would suggest that this strengthens rather than weakens my argument, as, in my view, panpipe and vocal interlock have always been closely associated. I have in any case, presented a great many other examples of vocal interlock and yodel from this part of the world.

2.9 Change

The next section is devoted to the problem of musical change, which Stock claims I have overlooked. While that is not completely true, I must admit that my relative neglect of this very important topic may well have lead to some misunderstandings. One thing I should have made clearer from the beginning is that, contrary to what both Nettl and Stock may suppose, I did not start out with any preconceived assumptions regarding either the nature of musical change or, as Nettl puts it, "the possibility of reliably extrapolating the distant past from the present." I see neither of these as abstract, purely theoretical problems, but issues to ultimately be resolved through research and testing. From what research I *have* done to date, "the possibility of reliably extrapolating the distant past from the present" would seem the most viable way of understanding the ethnomusicological equivalent of those planetary orbits pondered by Tycho Brahe and Kepler: the very compelling and mysterious patterns of musical style distribution found in the world of today.

The basic principle I pose, of "sociocultural inertia," was not intended as a theoretical model or logical proposition, but is, on the contrary, based on many years of research, not only as part of the Cantometrics project, but long afterward. Inspired by the insights of Alan Lomax, it is an attempt to account, at least provisionally, for certain aspects of the musical evidence that would seem impossible to understand without it. Perhaps the most accurate way to characterize it would be as a working premise, rather than either proven fact or *a priori* assumption.

With regard to this principle, it is necessary as well to be aware of levels and types of change, as well as appropriate contexts for change, and here I admit I was also lax, as my treatment of this very important issue was relegated to endnote 42:

I would imagine...that opportunities for change are much more frequent in societies where specialization has become important. Professional or semi-professional musicians of neighboring regions can form bonds of their own, capable, in many cases, of cutting across traditional cultural and social boundaries to influence one another in a variety of ways. Such acculturative opportunities would seem far less likely in societies that lack specialization, where everyone is encouraged to become immersed in the musical life of the group and deeply attached to its traditions. In such cases it is not difficult to see how there could be profound resistance to cultural change of any sort.

To illustrate his notion of change, Stock compares two historically related choral traditions, one British, the other American. His very interesting and perceptive comparisons are in the spirit of Cantometrics but, as far as I can see, fail to address the point he wants to make regarding its limitations. It is well known that British traditions tend to be altered when translated into American settings, a sea change in which Lomax specialized. Stock, pointing to some very specific differences, observes that each group "held a contrasting sonic aesthetic." If such a dramatic change can happen over 150 years or so, he reasons, one might expect far greater changes over the tens of thousands of years covered by my hypothesis.

Cantometric comparisons of British and British-American vocalizing suggest that, despite the very real contrasts noted by Stock, the two traditions are, in terms of a broader, worldwide context, in fact very close, certainly closer to one another than either would be to, say, African or African-American singing style. There will always be all sorts of change, but one cannot gauge the significance of any change simply on the basis of one-to-one comparisons, assessed from a local perspective, taken out of their larger, global, contexts. As Kisliuk's book demonstrates, there are all sorts of innovations continually affecting the traditional music of the Aka. Nevertheless, all can readily be encompassed within the larger context of Pygmy/Bushmen style.¹⁶ Bringing the issue closer to home, what one person may see as evidence of drastic change in, say, the rock and pop scene of today, another, taking the longer view, may see as just more of the same (same old guitars, beats, chords, rhythm sections, microphones, pampered stars, etc.).

2.10 Marginal Survival

Wishing to solidify his argument that alternative interpretations of the evidence are both simpler and more convincing that the one I have offered, Stock presents the following hypothesis:

Even if "P/B style" really was a coherent and distinctive entity, the old theory of marginal survival would explain it with less strain than the out-of-Africa argument. That is, let us assume for a moment that this style was very common among Bantu peoples just a few centuries ago. The theory of marginal survival...would claim that they must since have moved on to other musical fashions, leaving just isolated societies around and within the Bantu-dominated areas with the older style. This is a simpler explanation than that Grauer proposes; it may be incorrect, but his account gives so little attention to the problem of musical change that we cannot weigh up this option against his more complex hypothesis of a definite series of displacements and migrations stretching back many thousands of years.

Marginal survival is an interesting possibility and certainly deserves consideration. But again Stock is confusing simplicity of description with the much deeper simplicity required by Occam's Razor. In terms of the hypothetical case offered above, it would first be necessary to explain just how P/B style became so "popular among Bantu peoples just a few centuries ago." What mechanism could have brought that condition about? How could that style have become so widespread as to leave its mark not only on all tropical forest groups but also the Bushmen of the Kalahari? What sort of music could have preceded it? And where would that have come from? If P/B style arose, as Stock has conjectured earlier, as the result of reasonable, common-sensical interactions among people desirous of producing music as a group in the most efficient, logical, and/or natural way, then what happened among these Bantu peoples to make them less efficient, natural and logical over such a relatively short time period? And why would they have changed while the Pygmies and Bushmen did not? Every single one of the above questions requires an explanation in terms of some unique mechanism accounting for each situation described. No one process is proposed that could account for all or even some such instances.

2.11 Monogenesis and the Infant Mind

Finally, under the heading, "The Issue of Monogenesis," Stock cites some very interesting research, by Colwyn Trevarthen, "into the workings of the infant mind and so the foundation of personhood more generally." According to Trevarthen: "[T]hat a two month premature infant can engage in precise rhythmic synchrony or alternation of 'coo' sounds with an adult who is making imitative vocal responses, gives important evidence of the precocity of human sensitivity for the beat and phrasing of expression." Stock quotes Trevarthen at length, noting the strong similarities between his description of adult-child interaction and certain key features of P/B style, as I have described it, especially noting the similarity between such interaction and hocketing.

There is much in Stock's discussion of this research and its implications for our understanding of musical behaviour that I find insightful and even compelling. In addition, and especially intriguing for me, we can consider the similarity between Trevarthen's findings and research on primate vocalizations, especially the widespread practices of "duetting" and "chorusing," which according to some descriptions, strongly resemble both adult-infant entrainment and certain types of hocket. Here, for example, is a description of the vocal interaction between two indris:

Interestingly, the two animals vocalized together in a duet-like structure: The first animal would cease to vocalize soon after the second animal joined in but, in four of the seven series...began to vocalize again a few seconds later, shortly before or soon after the end of the partner's uninterrupted series of notes.... This resulted in minimal overlap between the two animals' vocalizations (Thalmann *et al.* 1993:372). The organization of indri songs is much more complicated than had been previously assumed. Various sequences can be differentiated within a song, at least one of which (the descending phrase sequence) appears to consist typically of a relatively tightly-coordinated pattern of vocal interaction (duet) between group members (*ibid*.:379).

What is suggested by both Trevarthen and the research on primate duetting is the possibility that a propensity for "hocketed" vocal interaction could indeed be "hard wired" into the brain of certain primates, including ourselves. This could go a long way toward explaining the origins of P/B style among our most distant human ancestors *and* its persistence among modern humans over such a huge time span, a possibility that cries out for further investigation. Thalmann's research would, of course, need to be expanded to include a wide variety of different ethnic groups, and ethnomusicologists would need to turn their attention more closely to the vocalizing practices of the primates closest to us, chimpanzees and bonobos.

However, I cannot agree with Stock's contention that such research could "provide a far more straightforward origin source for motivic group singing than the single-invention 70,000 years or more ago plus subsequent migrations necessary to underpin the musical version of the out-of-Africa theory." There is nothing in Thalmann's results that explains why certain societies continue such a practice into adulthood and others—the great majority—do not.

3. Reply to Peter Cooke

Peter Cooke's cogent response focuses not only on certain worrisome details but also on more central questions regarding not only the theoretical underpinnings, but also some of the most important evidence supporting my argument. His comments clearly reflect his many years of experience with and knowledge of both British and African music, and would be especially welcome for that reason alone. They also afford me the opportunity to clarify and expand on certain aspects of my argument that were admittedly vague and incomplete.

His introductory comments on comparative musicology and archaeology are very much to the point. Whereas archaeologists have tools for more or less precisely dating their evidence, what evidence they have is relatively sparse and, more often than not, due to happenstance. Whereas comparative musicologists have had only very limited access to datable relics (in the form of "fossil" instruments), they do, presently, have access to an enormous treasure trove in the form of "the massive addition to the documentation of the world's musical traditions that ethnomusicologists have contributed," not only in form of recordings (often of very high quality indeed) but also research of all kinds, often in considerable depth. I am not sure, however, that "musical archaeology" is the best term for what I have been attempting. Maybe "musical astronomy" would be more to the point, since the comparative musicologist, like the astronomer, must base logical inferences regarding the past largely on careful assessments of evidence from the present. If so much, from the orbits of the planets to the origins of the universe itself, can be inferred from evidence presently detectable in the night sky, then there is certainly room for hope an analogous process might explain both the distribution patterns and origins of music.

Cooke's discussion of Klaus Wachsmann's interest in comparative issues is both revealing and touching—also disturbing, as his ideas on the comparative musicology of Africa especially would have been of the greatest importance. I agree that the opposition to wide-ranging comparative studies in ethnomusicology has become an academic fashion; actually, as I see it, something of a dogma. I am reassured, however, by Jonathan Stock's comments regarding work along such lines that *has* been done recently, and I am hoping that trend will continue.

3.1 Bagpipes and Breathlessness

After his introduction, Cooke raises "the question of what musical samples the researcher might consider significant." Cooke takes exception on this basis to my use of a recording of the remarkable Hebridean singer Mary Morrison, implying it may have no significance at all in the context of my inquiry into possible links between the bagpipes and Paleosiberian (and by implication, paleolithic) singing style. After supplying some common-sense reasons for discounting the significance of this performance (a tempo so fast there is "nowhere to take a breath," the difficulty of singing disjunct intervals, and a performance rendered primarily "for fun"), he takes further exception to this particular choice as being "unrepresentative of the general singing style of Hebridean women."

With all due respect for Cooke's obviously greater knowledge and understanding of this tradition, I did not choose this performance for its typicality, nor am I interested in the context in which it is being sung, aside from the fact that Morrison is imitating bagpipes and, indeed, singing a well-known bagpipe tune. What interested me is the fact that when we pull this one example completely out of context, to listen with fresh ears, its striking similarity with a common type of Paleosiberian vocalizing suggests the possibility of a deep connection between the Paleosiberian tradition and the bagpipe. Indeed, the bagpipe is an instrument that looks and sounds very much as though its physical structure were designed specifically to address the problem of how to present run-on melodies, of exactly the sort we find today among Paleosiberian peoples, without having to pause for a breath. This implies that the instrument may have been preceded by a vocal style it was designed to imitate, implying in turn that the current practice of "bagpipe imitation" could be a form of role reversal. While this specific tradition of bagpipe imitation may be relatively recent, there is no easy way to estimate the age of the highly idiosyncratic and virtuosic vocal style in which Morrison performs, which could conceivably be much older. I should add that its "breathless" aspect is by no means unique. I have heard several other examples of mouth music where breathing is also unrelated to the phrasing implied by the overall structure of the melody. Since the resemblance to Paleosiberian singing may well be

fortuitous, and the possible connection is so remote, my argument is, of course, highly speculative.

Cooke's most significant objection concerns a more fundamental matter, pertaining to my argument concerning the relationship between the early history of music and its meaning: the very interesting, and too often taken for granted, issue of phrasing. There are, of course, many ways to define musical phrasing, but the aspect that especially interests me is its association with breath. One of the things that struck me most, even many years ago, when considering what appeared as the two traditions most likely to have archaic roots, P/B and Paleosiberian, was the fact that the music of neither seemed organized, as with so much other vocal music, around the need to breath. Closely associated with this was a tendency, also in both, for a kind of continuous, run-on presentation, lacking any opportunities for the sort of end-of-phrase "breath-pause" so common in so many other, more familiar, traditions.

In P/B style, breathing is no problem, as most individual parts consist of short motives punctuated by rests, while other parts fill in the gaps, so the group as a whole presents a seamless, continuous, and apparently "phraseless," flow. (I return to this issue below.) However, most Paleosiberian vocalizations found today are solo (though certainly not all¹⁷), and what is remarkable is that so many of the melodies (again, not all) also have a run-on quality, with no clear phrasing, as will be evident to anyone attempting to analyze them in such terms. Since there are no clear phrase endings, the breathing in such songs often sounds arbitrary, with the singer apparently continuing for as long as possible on one breath and then just stopping *in media res*, to very audibly gaps for air before continuing. Lomax and I referred to this as "breathless style," since the singer's breath plays no role, apparently, in the way the music is organized. (This realization came too late for us to include this as a cantometric parameter, though I have added it recently.)

If the melody sung by Morrison were in fact understood by her primarily in terms of the phrase structure Cooke hears, it seems as though her breaths would have coincided with phrase endings, as I am sure they do when she is singing from her more typical repertoire. Instead, she gasps for breath arbitrarily. This suggests she would seem to be hearing this essentially as a continuous, run-on melody, despite the relatively clear "phrase" divisions implied by the melodic structure *per se*. When Cooke explains that "[t]here is nowhere to take a breath," he is implicitly recognizing the same thing: the bagpipe would also run roughshod over these same divisions; the music seems *designed* to run on without pause. We must also consider whether the "disjunct contours" of the melody, which Cooke assumes to be purely instrumental in origin, could also reflect paleolithic roots, as wide intervals are also a distinctive characteristic of both P/B and Paleosiberian style. There are indeed a great many parameters of Morrison's performance with Paleosiberian characteristics, including considerable glottal shake and some traces of yodel. Whether similar sounds were built into the bagpipe as a response to their presence in archaic vocal repertoires is a fascinating, but admittedly very difficult, question.

Cooke then goes on to suggest, as a more appropriate example of the sort of thing I have in mind, the Hebridean "choral work-song repertory." His discussion of these songs in terms of certain characteristics of Bantu music does, in fact, tend to support my argument. As he points out, and this would be true of a great many British and European songs, there are important differences between the "wordy phrases" of the verses and the mainly nonsense and/or verbally repetitive, even ritualistic, character of the refrains. This suggests that features of archaic traditions may have managed to survive in the latter. In the Hebridean work songs the similarities, as Cooke notes, are even more pronounced, since the refrains are, as so commonly in Africa, choral, "sometimes even incorporating yodelling."

Just as Lomax and I considered P/B style prototypical for much African Bantu music, we also felt that aspects of Paleosiberian style might well be prototypical for certain types of "folk music" in Europe. If we understand the Paleosiberian herd followers of today as in some sense survivals of the herd followers of the European paleolithic, this idea may not seem so strange. And the evidence Cooke presents could certainly reflect some aspect of that connection. His concerns regarding other, more matter-of-fact ways of interpreting the same features, for example, simply as the "grunts of labour" or "rhapsodic cries," etc. are not so convincing, to me at least, possibly because I have a built-in resistance to common sense explanations of musical traditions so clearly venerable and deeply rooted in the value system of the culture. Ultimately, however, as with so many of the other alternate interpretations offered here, most such questions strike me as fully open to research, and eminently testable.

3.2 Caution, Context, and Social Structure

Cooke expresses sympathy with my project and, indeed, makes an effort to be helpful, but is also understandably skeptical, reminding us that his "remarks so far illustrate the need for caution." I completely agree — at least to the extent that caution is in fact sensible caution and not simply resistance to speculative thinking of any kind. There is, indeed, a good deal of research to be done before any such hypotheses could be definitively tested. Especially welcome is his call for teamwork between generalists and specialists, something I have always advocated.

He continues, in the same spirit, to raise a significant point regarding the interplay of musical style, social context, and social structure, matters far too complex for me to fully treat here, but nevertheless welcome as they go to the heart of an issue very important to me, as it was to Lomax: the social meaning, and value, of music. Cooke questions my reluctance to associate cultural value and musical style with social structure, "since social structures would generally arise from the shared values held by any community and music is one form of expression of those values." I continue to wonder whether this is really the case. While I agree that social structure may well *originally* arise from shared values, I wonder whether values inherited from the past must always change as social structure changes. Or go underground, into a kind of social unconscious, where they might continue to have an indirect or even "occult" influence on the society—a society which could then be regarded, in some sense as, both socially and psychologically, split.

Equally problematic, though very much to the point, are his ideas on testing: "it would be important to search for cases where one can describe the music as performed in ways that echo P/B style but where the social structure of the group is much more hierarchically organised or where possibly the genetic evidence gives no support. If one finds no such cases then the hypothesis could gain credence." Cooke's suggestions make sense, but can lead to some very tricky problems. For example, a hierarchical society may well incorporate very different cultures with different value systems within its domain and/or have a history, as does ours, of slavery. So the presence of a style such as P/B within such a society may well not be representative of that society as a whole. Here is where collaboration with specialists would be especially helpful, as only someone with a real understanding of the history and inner workings of such a society would be in a position to "place" any given musical style within its proper sociocultural context. More basically, as I stressed above, I do not think it wise to assume beforehand that musical style does in fact consistently reflect social structure. That is something to be determined, not taken for granted.

I have no problem with Cooke's suggestion regarding the genetic evidence. With its potential for the sorting of lineages and reconstruction of early histories, genetic research, as I argue in the article, does hold great promise. But here too we must proceed with caution, as there is nothing straightforward about the tracing of lineages and the science is only just emerging from its infancy.

3.3 The Crofters of Lewis

He then moves from the theoretical to the concrete, to consider a specific "musicohistorical problem," in the form of a choral tradition sustained by a community of crofters on the island of Lewis, in the Outer Hebrides. Noting that "[t]he singing style could fairly well be described as canonic/echoic/breathless in that their singing is only very loosely coordinated with each singer taking their own time to embellish the chosen 'tune' and to breathe when he or she runs out of breath," he wonders whether such similarities with Paleosiberian singing could possibly connect it, via a historically documented Viking presence, with "an ancient Scandinavian style." On the other hand, "[c]ould the style-shaping factors have little to do with the ethnological and linguistic history of the islanders but be more a result of personal and culturally shared values?" For Cooke, such questions "illustrate the difficulties that inevitably will abound in this kind of research." Moroever, "[t]he broad sweep of Cantometric sampling could well have missed this musical practice altogether, or conversely (or even perversely) used it as an example of Hebridean singing style in general."

My response: offhand, I would be reluctant to associate this kind of singing with canonic/echoic style, since certain of the characteristics Cooke mentions, such as ex-

treme embellishment and slow tempo, do not fit profile. On the other hand I would be reluctant to dismiss the possible association with Paleosiberian "breathlessness" simply on the basis of the slow tempo. In any case, it would be interesting to code a representative sample and see where it fits in the worldwide dataset. If there is a match, then that would certainly give us something to explore. And if not, then perhaps it *is* uniquely grounded in the shared values of that particular community, though that possibility too would require further exploration, into the roots of both the style and the community.

As far as the possibility that Cantometrics could have missed this community, yes, it probably did. There are all sorts of musical practices that have so far been missed, which is why there will always be the necessity for more samples and continually updated research. Assuming it had been included, could it have been taken as representative of Hebridean style in general? Not likely, since, first of all, I would imagine Lomax had enough personal experience with Hebridean traditions to avoid such a blunder; and secondly, because Cantometrics is designed to take us from the specific to the general, and is thus unlikely, assuming a sufficiently representative overall sample, to mistake a local for a regional style type.

3.4 Pipes and Panpipes, Bound and Free

In his additional comments, Dr Cooke raises important questions concerning a variety of issues requiring close attention. He is, first of all, troubled over the emphasis I have placed on panpipes, since:

sets of stopped single-note flutes are even more common and are widespread from Sudan and Ethiopia down to South Africa and also across to the west, and in many cases there seems to be a kind of continuum between men playing single pipes in ensemble and others (often the leader) who may play more than one pipe (whether bundled or rafted up permanently or not). So it might be better to talk about stopped pipes in general with the panpipe gradually evolving out of them.

This is an excellent point, which requires some clarification. While I did not completely ignore single pipe ensembles, I focused on panpipes because they play so important a role in so many different traditions worldwide and, more practically, because their distribution throughout the world has been relatively well documented. They interest me especially because they remain so closely wedded to hocketed ensemble traditions wherever found among indigenous peoples. While panpipes are certainly not unusual in Africa, they are, as Cooke notes, less common than ensembles of free pipes, suggesting, as he also notes, that free pipes and similar instruments, such as whistles of various kinds, and the Pygmy hindewhu, came first, "with the panpipe gradually evolving out of them." This would suggest, in terms of the hypothesis I explore in the article, a historical progression from the purely vocal interlock/hocket of a hypothetical "founder" group, to the creation of ensembles of free pipes playing more or less the same repertoire, either in concert with voices or separately, to the bringing of two or more free pipes together in the hands of a single person, and then finally to what Cooke calls the "rafting up," i.e., binding, of bundled pipes to produce what we now recognize as the panpipe "proper." The hocketed, P/ B-style, ensemble tradition would continue essentially unchanged, but the instruments would have evolved from free to bound pipes.

This makes a great deal of sense, and would explain why ensembles of hocketing free pipes and bundles of unbound handheld pipes, for example, as found among the Russian women referenced in the article above, are also so widely found in so many places worldwide. What it does not explain, and here I must admit to a certain amount of puzzlement, is whether or not the original Out-of-Africa migrants carried bound panpipes from Africa with them from the start, or the instrument "proper" was invented at some later time. They would, as I see it, almost certainly have been carrying free pipes. Otherwise it is almost impossible to explain the ubiquity of such instruments both in and out of Africa at the present time. But if the panpipe had also been invented prior to the African exodus, then why isn't it found more commonly in that continent? The question is more interesting than it might seem, because if bound panpipes post-date the Out-of-Africa move, then by what means did they find their way back to Africa again? Was there a back migration associated with the same initial exodus? Or did panpipes come to that continent much later, through some completely different set of circumstances?

Cooke's point regarding the widespread use of hocket in Africa generally is also well taken. The trumpet and horn ensembles he cites seem to have also been part of the Out-of-Africa journey, since, as I mentioned, but failed to sufficiently stress, hocketed ensembles featuring such instruments can be found in locations as widespread as Melanesia, South America, and Europe, not to mention Africa, where they are, indeed, abundant. Additionally, all such practices, where found among non-P/B groups such as the Bantu, might well be signs of the tendency discussed in the article for P/B style to have functioned as a prototype for African music generally.

3.5 Male-Female Pairs

In a great many areas, including East and Southeast Asia, Indonesia, Melanesia, and South America, where panpipe and other hocketing ensembles are found, the instruments, as is well known, are often grouped in pairs designated as "male" and "female." As this compelling piece of *emic* evidence seemed so strongly to support a common origin, the apparent lack of such symbolism in Africa puzzled me. Therefore, Cooke's observations regarding the gender identity of various instruments in Africa, especially the example he provides of "hocketing wedding flutes…described as male/female," come as welcome news indeed, apparently filling an otherwise perplexing gap. As Cooke suggests, the lack of gender distinction in many African languages may indeed have obscured the presence of male/female pairing on that continent. If we can add Africa to the long list of places where instrumental hocket is

associated with such symbolism, the link connecting all such practices with the Outof-Africa migration would be immeasurably strengthened. One might want to speculate as well on the possibility that the symbolism associated with this tradition, where instruments function very clearly as signs, could suggest a link between music, gender, and the origins of signification itself.

3.6 Continuous Melody and Phrasing

Cooke then moves, again, to the very tricky issue of phrasing, questioning my interpretation of Pygmy and Bushmen music "as having 'continuous melody, elusive or non-existent phrasing', etc.":

If one looks at the excellent transcriptions that have been made of Pygmy music (Fürniss, for example) it is clear that each person is well aware of the structure of the phrases they contribute and of the variations they are making (I wouldn't call them improvisation), and of how their phrases fit into the cycle—and their breathing does not seem to be arbitrary—it is only the fact that the phrases overlap contrapuntally that gives the impression of continuous flow.

Again, I am grateful for the opportunity to clarify an issue I ought to have explained more fully to begin with. As I stressed above, in the section on bagpipes and breathlessness, there are many different ways of defining "phrases" and "phrasing." In the article, I simply state that P/B style lacks phrases "in the usual sense," unfortunately without any further explanation—a serious omission. What I was referring to as "usual" is the traditional sense we have, at least those of us trained in Western traditions, of musical phrases as goal oriented, delineated by cadential formulae of various kinds, and strongly associated with breathing. Not that every phrase must end with a breath, but that all breaths usually coincide with phrase endings, a practice that, indeed, helps the listener determine the structure of the phrasing overall. This is not simply a Western practice, but indeed would appear to be a consistent approach to musical organization in the great majority of cases, covering a wide variety of many different traditions, worldwide. I do not find phrasing in that sense consistently present in either P/B or Paleosiberian singing. Moreover, much P/B style music, though certainly not all, seems realized (though not necessarily organized) at the motivic, rather than phrasal, level, the basic units tending to be relatively short and fragmentary, rather than sustained and goal oriented. For this reason the performers can simply catch their breaths between motives, as needed, without interrupting the musical flow. I agree with Cooke that such breathing is not "arbitrary," but neither would it seem to play, as in traditionally "phrased" music, any role in delineating musical structure.

Perhaps "phrase" is not really the best term, since, as Kisliuk, Fürniss, and Olivier point out, and Cooke reminds us, much P/B music is rooted in an often unstated, though conceptually grasped, central melody that could be also understood, structurally, as a "phrase." Broadly speaking, and as we know from much instrumental mu-

sic, one does not really need breathing to infer the "phrase" structure of music familiar to us (as in the mouth music example discussed above), but, as we also know, there is more to our understanding of the notion of "phrase" than simply an identifiable structural unit. I am not trying to defend my own preferred definition of this term so much as clarify certain distinctions that, whatever one might want to name them, could be significant. Clearly, there is room for a wide range of opinion and debate on such matters, which would hopefully lead to additional research and analysis.

As for the issue of "continuous flow," Cooke is correct in his observation that much Bantu music, as much dance music generally, tends to flow rather smoothly. But that is not really what I meant. By "continuous flow" I meant something more like the "run-on" quality I pointed to in the bagpipe music discussed above. A good example from the Western classical repertoire would be the well known melody used by Holst in the finale of his St. Paul Suite, known as "The Dargasson." This fascinating tune, consisting of four short isorhythmic "phrases", the last of which leads smoothly back to the first note of the beginning, repeats relentlessly while Holst juxtaposes, in a remarkable display of contrapuntal legerdemain, the more conventionally phrased melody, "Greensleeves." While both tunes "flow," it is "The Dargasson" that gives Holst's finale its distinctively continuous, run-on quality. This composition is instructive in that it juxtaposes two very different melodic conceptions, one conventionally phrase-oriented, the other not, one designed with breathpauses built in, the other "continuously flowing" with no regard for breath.

While I have no intention of directly equating P/B style with either bagpipe music or tunes such as "The Dargasson," I do hear a definite tendency for Pygmy and Bushmen music to similarly "run on" continuously, with no audible pauses or gaps reflecting either the beginning or ending of the implied melody or "phrase" that, as we have learned, serves as the conceptual basis. The tendency is clearly evident from the manner in which each section is seamlessly linked to the next in the transcription of Pygmy music provided by Stock (see his Figure 1). That a somewhat similar type of continuous flow can manifest itself in possibly related traditions outside of Africa, is illustrated equally well by Stock's second transcription, of the duet "Ratsi Rope," from Guadalcanal (see his Fig. 2).

Regarding Cooke's experiences playing tuba in a concert band, I can commiserate, as I too, in my youth, was a performing musician, on the clarinet; and also from time to time needed to unobtrusively "steal a breath." I am not sure why such experiences would make him "uneasy" about the very different practices I have noted among the Paleosiberians and elsewhere. It is one thing to be required by the limitations of one's instrument to "steal a breath" while playing music very clearly divided into distinctly articulated phrases; and quite another to find some place to breathe in music organized according to completely different principles, where such a need is simply not taken into account.

As for his last point, regarding the ability of Pygmies to travel great distances through all parts of the tropical forest, implying that there could be a more recent, cultural-diffusionist explanation for their remarkable stylistic unity, as I too understand it the regions of tropical forest inhabited by any given Pygmy group are indeed very easily traversed, with little in the way of underbrush to impede movement. However, it is the regions *separating* the eastern from the western forest that are so tightly packed with what anthropologist Giovanni Destrol-Bisol called, as quoted in the article, "a high density of vegetation…very difficult to cross without the help of an adequate technology, such as the iron metallurgy practiced by Bantu peoples but unknown to African Pygmies."

4. Concluding Remarks

With respect to many of the objections raised above, I must emphasize that the most intriguing aspect of the interpretation I have proposed is the all-important link with the fundamental shift in our perception of history necessitated by the Out-of-Africa paradigm.¹⁸ Unfortunately, many students of culture have not yet heard much about this idea, much less come to terms with it. If our species had its origin in Africa, some 150,000 to 200,000 years ago, and our earliest ancestors there managed to develop a musical (i.e., tonal/rhythmic) tradition prior to the exodus of one small group to Asia and beyond, then music would without question have had its origin as part of that development — and there is no reason to believe this same tradition could not have been passed down, in one form or another, from generation to generation as humans made their way from Africa to all points just about everywhere else on the planet. This indeed, would be the simplest explanation by far of the widespread distribution of music among virtually all peoples today. If this were not the case, and music were independently invented in different places and different times, we would be hard pressed to understand: (1) how something so sophisticated and complex as the intricate, interdependent, value system described by Saussure, expressed by both the phonemic structure of language and the tonal/rhythmic fields of music, could have been discovered and/or lost and then rediscovered at different times, among different groups, in precisely the same form each time, to the point that with few exceptions the music of any human group can be notated according to essentially the same tonal and rhythmic values; and (2) how it is that we do not find certain human groups making "music" in some other way, based on elements closer to, say, the vocalizations of apes, monkey cries, wolf howls, or bird songs, instead of tonemes and rhythmemes (musical notes).¹⁹

Indeed, it seems that music in this sense would have to have been present very early in the history of "modern" humans in Africa, long before the Out-of-Africa migration. If that were not the case, then several branchings of our phylogenetic tree prior to its invention would have "missed out," there would very likely be populations in Africa lacking music altogether, and it would be all but impossible to explain why it is found so richly and abundantly, and plays so important a social role, in virtually every corner of that continent. The above summary applies to music generally, not any specific style, such as P/ B. But once we recognize the strong likelihood that music might well have originated among a founding group of "modern" humans in Africa, spreading from there to the rest of the world, then, I would think, the scenario I have proposed regarding the importance of P/B and its history as a tradition should be much easier to accept. As for that idea, and my arguments for it, I can only refer the reader back to the article itself.

Acknowledgment

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Notes

- 1 Some typical criticisms of Cantometrics, and my responses to them, can be found in Grauer and McCormick 2005.
- 2 It is important to understand that the famous signifier/signified relationship is not being referenced here, but Saussure's relatively obscure, but more widely applicable, notion of *value*. I deal with this issue briefly toward the end of the article, but in much more detail in two extended essays, "Toward a Unified Theory of the Arts," and "A Field Theory of Music Semiosis" (Grauer 1993, 2000). In terms of my theoretical construct, the traditional music of almost all societies can be understood as an expression of what I call "tonal/metric" (or, equivalently, "tonal/rhythmic") fields, producing both pitch and time-point classes analogous to the phonemes (vocable classes) of linguistics.
- 3 Actually the term "tonal/metric" has been employed by me in the past for reasons that have little to do with the traditional "Western" notion of the term "meter," but might well cause confusion in a discussion centering on non-Western music. For that reason I have decided on the more culture-neutral term "tonal/rhythmic" for my purposes here.
- 4 Some clarification is required here. As I see it, my notion of tonal/rhythmic fields is especially useful in establishing a working, widely applicable, definition of music. However, the assumption that the tunings, scales, note values, melodic types, etc., produced by such fields can, in and of themselves, account for everything of significance is indeed, as Lomax so often argued, both reductive and ethnocentric.
- 5 For an extensive list of recent anthropologically oriented publications on the role of the new paradigm (also known as "the branching hypothesis") in determining cultural similarity and difference, see Collard *et al.* 2006:53-54.
- 6 With the aim of both testing and expanding aspects of earlier research, I am presently engaged, along with Dr Anna Lomax Wood and members of her staff at the Association for Cultural Equity, in a collaborative study of the relation between African musical styles and genetically determined lineage patterns, with Dr Sarah Tishkoff, of the University of Maryland, one of the leading figures in genetic anthropology, and her associate Dr Floyd Reed. Our study involves comparisons and possible correlations between their extensive database of African DNA and the newly revived and expanded Cantometrics database.

- 7 As stated in the article, I see Cantometrics as essentially a heuristic method, better suited to the exploration and preliminary evaluation of a hypothesis than testing it in the strictly scientific sense. On this view, any cantometric result must therefore be regarded as provisional until reinforced by more rigorous techniques, strictly conforming to scientific method. Cantometrics can certainly be a part of the testing process, but not necessarily the only part.
- 8 What strikes me as remarkable, nevertheless, is the presence of words for "singing" and "playing" in so many societies where a word for "music" itself cannot be found. Anyone still troubled by Nettl's dilemma, therefore, could probably get around it by defining "music" as all forms of either *singing* or *playing* or both together.
- 9 Many other aspects of Nattiez's extraordinary essay are highly relevant to issues raised both here and in my article, not the least his pioneering employment of genetic research.
- 10 My point regarding the relative simplicity of the two explanations should not be construed as a claim that one is thereby necessarily more valid than the other. The relative validity of a great many different explanations for the distribution of musical styles worldwide is discussed at length in sections 3 and 8 of my article.
- 11 Olivier's reference to "rhythmic time-lag," calls to mind an important feature of what I have called "canonic/echoic" style, a variant, as I see it, of P/B style.
- 12 Unfortunately their principal essay on the comparison of Bushmen and Pygmy music (Olivier and Fürniss 1999) is not readily available in the United States. I am currently making an effort to obtain it.
- 13 For a summary of the worldwide distribution of panpipes, see section 6 of the article.
- 14 Panpipes excavated at so-called Mound Builder sites seem invariably to be associated with artifacts of Mexican origin. See note 24 in the article.
- 15 For discussions on the question of why panpipes are not found in Australia, North America and other areas, see sections 9, 10 and 14 of the article.
- 16 The presence, among some groups, of Western musical styles due to missionary influence is, of course, another matter, to be assessed in very different terms.
- 17 In fact some groups have very interesting hocketing traditions, similar to the "throat singing" games of the Inuit (Nattiez 1999).
- 18 There is always a possibility that the Out-of-Africa theory, though now widely accepted, could prove incorrect, and the most likely alternative, the so-called "multiregional" hypothesis, ultimately be declared the winner in the great debate over human origins. Such a result would, to be sure, undermine certain aspects of my argument, but the worldwide distribution patterns for musical instruments and styles would not change; nor would the unlikelihood that music, as here defined, could have had more than a single origin. No matter what the outcome, such mysteries should continue to intrigue and challenge anyone with a serious interest in human culture, values, and history.
- 19 While many groups certainly employ animal cries in various contexts, I know of none who do not also produce music in the sense I have defined it here.

References

Collard, Mark, et al.

2006 "Branching versus Blending in Macroscale Cultural Evolution: A Comparative Study," in Carl Lipo *et al.* eds., *Mapping Our Ancestors*, 53-63. New Brunswick: Aldine Transaction Press.

Derrida, Jacques

1993 Aporias, transl. Thomas Dutoit. Stanford: Stanford University Press.

de Saussure, Ferdinand

1922 Cours de linguistique generale. Paris: Payot.

Fürniss, Susanne

2006 "Aka Polyphony: Music, Theory, Back and Forth," in Michael Tenzer, ed., Analytical Studies in World Music, 163-204. New York: Oxford University Press.

Grauer, Victor, and Fred McCormick

2005 "Cantometrics: Song and Social Structure – A Response." Music Traditions 159. http:// /www.mustrad.org.uk/articles/cantome2.htm, last accessed 9 September 06.

Kisliuk, Michelle

1998 Seize the Dance! BaAka Musical Life and the Ethnography of Performance. New York: Oxford University Press.

Lomax, Alan, and Victor Grauer

1968 "The Cantometrics Coding Book," in Alan Lomax, et al., Folk Song Style and Culture, 34-74. Washington: National Association for the Advancement of Science.

Merker, Björn

2000 "Synchronous Chorusing and Human Origins," in Nils Wallin, Björn Merker, and Steven Brown, eds., *The Origins of Music*, 315-28. Cambridge, MA: MIT Press.

Mithen, Steven

2005 The Singing Neanderthals: The Origins of Music, Language, Mind and Body. London: Weidenfels and Nicolson.

Nattiez, Jean Jacques

1999 "Inuit Throat Games and Siberian Throat Singing: A Comparative, Historical and Semiological Approach." *Ethnomusicology* 43:399-418.

Olivier, Emmanuelle

1997 Namibia: Songs of the Ju'hoansi Bushmen. CD. Rec. with notes by the collector. Ocora 560117.

Olivier, Emmanuelle, and Susanne Fürniss

1999 "Pygmy and Bushman Music: A New Comparative Study," in Karen Biesbrouck, Stefan Elders, and Gerda Rossel, eds., *Central African Hunter-Gatherers in a Multidisciplinary Perspective: Challenging Elusiveness.* Proceedings of the Colloquium on Hunter-Gatherers of Equatorial Africa, held at Leiden, The Netherlands, 7-9 October, 1996, 117-32. Leiden: CNWS.

Thalmann, Urs, et al.

1993 "The Indris of Anjanaharibe-Sud, Northeastern Madagascar." International Journal of Primatology 14:357-81.

Wallin, Nils L., Björn Merker, and Steven Brown, eds.

2000 The Origins of Music. Cambridge, MA: MIT Press.

Zemp, Hugo

1995 Solomon Islands: 'Are 'Are Intimate and Ritual Music. CD. Le Chant du Monde CNR 274 963.

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Ruth Hellier-Tinoco (PhD.) is a scholar, performer and creator, and is currently a Senior Lecturer in Performing Arts at the University of Winchester, UK. She is working on a monograph examining processes of hegemonic folkloricisation and tourism in Mexico in the twentieth century. Her research is predominantly in the areas of performance studies, ethnomusicology, dance anthropology and community arts and focuses upon themes of nationalism and identity construction, power relations, tourism, gender in performance, and ethics in/of performance and research. She is director of the Inter-Act Theatre Workshop and she undertakes practice-as-research in the area of extended vocalisation.

Victor Grauer, based in Pittsburgh, PA, is a composer, musicologist, film-maker, media artist, poet and dramatist. He holds a Masters Degree in Ethnomusicology from Wesleyan University (1961), with additional studies in that field at UCLA (1961-62), and a Ph.D. in Music Composition from the State University of New York at Buffalo (1972). He was co-creator, with Alan Lomax, of the Cantometric coding system in 1961. Grauer has taught at the University of Pittsburgh, Pittsburgh Filmmakers, the Pittsburgh High School of the Creative and Performing Arts and Chatham College. His writings on musicology and the arts have been published in journals such as *Ethnomusicology, Semiotica, Art Criticism, Music Theory Online, Other Voices* and the *Millennium Film Journal*. He is presently engaged in research linking his earlier work on Cantometrics with current developments in genetic anthropology and archaeology.

Kim Kattari completed a Master's Degree in Ethnomusicology at the University of Texas at Austin after graduating with BA's in Ethnic Studies and Anthropology from the University of California, Berkeley. Her current focus is on Latin American popular music and her Master's

Report addresses the identity politics and media representation of reggaeton in the United States, based on ethnographic research in Los Angeles, Austin, and internet forums. Other interests include hip-hop, rock and roll, and other popular music of the US. She has written for *Parent Wise* about her ethnographic research at the Puerto Rican Folkloric Dance and Cultural Center in Austin.

William P. Malm is Prof. emeritus at the School of Music, University of Michigan, and a researcher in Japanese music since 1955.

Marin Marian-Bălaşa works as a principal senior researcher with the "C. Brăiloiu" Institute of Ethnography and Folklore (of the Romanian Academy of Sciences), in Bucharest. He founded the international yearbook *European Meetings in Ethnomusicology*, has done research and fieldwork in various Eastern and Western countries, and published eight multidisciplinary books and numerous academic, specialized, and multicultural essays.

Carol Fisher Mathieson is Professor of Music and Director of Opera Workshop at Culver-Stockton College in Canton, Missouri, where she teaches courses in music history, choral techniques, non-Western world music, and music education as well as applied voice. A frequent lecture-recitalist on the Appalachian ballad tradition. Dr Mathieson's academic degrees are from Maryville College, Tennessee (BA), the University of Tennessee, Knoxville (MM), and the University of Iowa (DMA).

Bruno Nettl, born in Prague, 1930, is Professor Emeritus of Music and Anthropology at the University of Illinois at Urbana-Champaign. With fieldwork interests in Blackfoot Indian communities and in Iran, he is the author of several books, recently including *Blackfoot Musical Thought: Comparative Perspectives* (1989), *Heartland Excursions: Ethnomusicological Reflections on Schools of Music* (1995), and a thoroughly revised and expanded edition of his 1983 book, *The Study of Ethnomusicology* (2005).

Mariano Muñoz-Hidalgo is Head Professor and Researcher at Universidad de Talca, Chile, and Director of the Program for Fundamental Humanities. He has authored three books on culture and communication and popular music, four books in collaboration (literature and studies of popular culture), and over 30 articles on language and popular culture. Psychology (Universidad de Chile), M.A. in Social Communication (U. de Chile), PhD in Culture and American Studies (Universidad de Santiago). He received the UNESCO Award V Centenario (Relationships between European and Latin-American Thought); is a member of IASPM, a writer, lecturer, poet and professional bookbinder (a real passion).

Karen A. Peters recently completed an MA in Library and Information Studies, with an emphasis in Archives Administration, at the University of Wisconsin-Madison. Previously (2002), she received a PhD. from that institution after completing her dissertation, "Macedonian Folk Song in a Bulgarian Urban Context: Songs and Singing in Blagoevgrad, Southwest Bulgaria." She was invited to speak at the Musicology Institute of the Bulgarian Academy of Science's conference on Music and Cultural Identity, held in Sofia in October of 2002. Her ethnomusicological interests include the construction, representation, and expression of identity; and the relationship between folk and popular musics.

Tess J. Popper has Master's Degrees in Near Eastern Languages (University of California, Berkeley) and Music (University of California, Santa Cruz). She is currently a doctoral student in Ethnomusicology at the University of California, Santa Barbara, studying this year on a Foreign Language Areas Studies fellowship for Arabic. She is specializing in the music cultures of the Arab Middle East and Israel.

Helena Simonett received her doctoral degree in ethnomusicology at the University of California, Los Angeles, and is currently teaching at Vanderbilt University, Nashville. She conducted extensive research on Mexican popular music and its transnational diffusion. Her publications include *Banda: Mexican Musical Life across Borders* (2001, Wesleyan University Press) and *En Sinaloa nací: Historia de la música de banda* (2004, Sociedad Histórica de Mazatlán, Mexico). Her current field project and interest focus on ceremonial music-making/ dancing among the Yoremem (northwestern Mexico) under the onslaught of globalization.

Mark Slobin is Professor of Music at Wesleyan University and the author or editor of 14 books on the musics of Afghanistan, Central Asia, and the eastern European Jews, and ethnomusicological theory. He has been President of the Society for Ethnomusicology and the Society for Asian Music.

Jonathan P. J. Stock, co-editor of *the world of music*, is professor in ethnomusicology at the University of Sheffield. His books include *World Sound Matters: An Anthology of Music from Around the World* (London, 1996), *Musical Creativity in Twentieth-Century China: Abing, His Music, and Its Changing Meanings* (Rochester, NY, 1996), and *Huju: Traditional Opera in Modern Shanghai* (Oxford, 2003).

Martin Watt is currently a senior lecturer in music theory and composition in the School of Music at the North-West University in Potchefstroom, South Africa. He holds a number of qualifications (including an Advanced Diploma in composition from the Royal Academy of Music in London, a Master of Music degree from the University of Cape Town and a Doctorate in composition from the University of Pretoria). He has published on South African music and many of his compositions have been performed and broadcast, both in South Africa and Europe.

Jeanne Zaidel-Rudolph, holds as professor the chair of Composition and Theory and is Acting Head of Music at the University of the Witwatersrand, Johannesburg. She was a piano student of John Lill at The Royal College of Music London and studied composition with György Ligeti in Hamburg in 1974. She was the first woman in South Africa to obtain a Doctorate in Music Composition, graduating at the University of Pretoria. In 1986 she was awarded First Prize in the prestigious Total Oil SA Competition for composers.

the world of music

Idea and Concept

The English-language journal the world of music has been published since 1997 at the Department of Ethnomusicology of the University of Bamberg (Germany) by Max Peter Baumann (Editor) and Linda Fujie (Co-Editor deceased in 2002) and by the VWB-Verlag für Wissenschaft und Bildung in Berlin (ISSN 0043-8774). Jonathan Stock (Sheffield, England) serves now as Co-Editor, Helena Simonett (Nashville, USA) as Book Review Editor, and Kevin Dawe (Leeds, UK) is the Record Review Editor. (See also Impressum.) The journal appears as a scholarly oriented periodical three times a year. Each issue contains approximately 160 to 200 pages. As an intercultural journal, the world of music deals with the multifarious musical traditions of the world. Other forms of artistic expression that have a close relationship to music also receive attention in the world of music. The journal contains articles by (ethno-)musicologists, anthropologists and others of international reputation, as well as high-quality research papers by newly emerging scholars. Each article is refereed before being published. In addition, a high level of professional competence is also guaranteed by the practice-now firmly established in a series of issues—of inviting well-known scholars to serve for one issue of the journal as Guest Editors to design a concept for an issue on a topic that involves their special research area and to supervise the carrying out of this design.

The journal *the world of music* presents original articles concerning music, dance and theater from the perspectives of musicology, anthropology, and folklore. By emphasizing particular regional and thematic aspects of music-making and documentation, *the world of music* focuses on the diversity and variety of musical traditions of the world. Articles cover a broad range of interests, from methodological as well as ethnographic perspectives. Normally, each issue concentrates on a theoretical or systematic topic, or is concerned with a specific geographic region. The Journal delves into descriptions of entire musical cultures and ethnic groups, as well as into particular paradigms of music, song, dance, and theatre. *The world of music* has a deliberate policy of presenting the best scholarly research on music from around the world, sometimes translated by the editors or guest editor, thus functioning as a forum for discussion from an intercultural viewpoint and furthering the development of scholarly dialogue concerning the musical cultures of the world. Each issue is richly illustrated with numerous photographs, graphics and, musical examples.

Prospective Guest Editors should send a proposal for a special topic to the Editor: Max Peter Baumann, Editor, the world of music, University of Bamberg, Ethnomusicology, Feldkirchenstr. 21, D-96045 Bamberg (fax: +49-951-863 4934 4934; e-mail: <max-peter.baumann@ppp.uni-bamberg.de>; homepage: <http://www.uni-bamberg.de/ppp/ethnomusikologie>.

Book Reviews and Book Review Editor

The book reviews section of *the world of music* offers a critical space for informed reflection on new and recent developments in our subject area. Other than "standard" reviews of newly published monographs in ethnomusicology, space is made for review essays that break new ground in themselves as contributions to research. No review is edited simply for length; engaged and worthwhile discussion of important issues raised in new books thus receives a substantial amount of space in the journal as a whole. The range of publications reviewed is deliberately catholic. Significant new journals, professional publications in (for instance) music education, and major works in musicology can all have an impact on our discipline, and they need to be considered alongside more explicitly ethnomusicological material. Space is also given to the review of important new books in languages other than English—if ethnomusicology is to be an effective intercultural forum, we need to be as aware of this work as we are of that by anglophone authors.

To develop a greater sense of critique, independently composed reviews are sometimes grouped in *the world of music* by subject matter or reviewer stance. Moreover, the special approach of the "review symposium" has been generated to co-ordinate multiple responses to works on topics of particular significance to the field as a whole. Such an approach specifically draws out the diversity of view crucial to the ongoing development of ethnomusicology as a discipline. For the same reason, reviews are regularly commissioned from those who face similar issues in other parts of the world from that of the book in question, including from leading musicologists and music psychologists. Such a review typically draws greater attention to shared themes (and perhaps also to distinct approaches) than that of the fellow area specialist. The juxtaposition of these several kinds of reflection on our growing literature, then, is intended to stimulate thought, both on the books in question and on the field of music research that they represent.

Books for review should be sent to Prof. Helena Simonett, Book Review Editor, *the world of music*, Blair School of Music, Vanderbilt University, 2400 Blakemore Avenue, Nashville, TN 37212, USA; e-mail <helena.simonett@Vanderbilt.edu>homepage: http://www.people.vanderbilt.edu/~helena.simonett.

Recording Reviews and Recording Review Editor

The recording reviews section of *the world of music* provides readers of the journal an opportunity to engage commentary, reflection, insight, and critique of recently released and reissued, historically important recorded materials. Reviewers are from all areas of the world, often drawn from academia, the recording industry, musical organizations, libraries and archives, and from local cultures. Recordings selected for review represent significant recorded traditions of world musical practices, and contributions range from traditional, popular, art, religious, folk musics to syncretic or intercultural musics. The reviews section is intended to be inclusive in the breadth of materials represented, and every effort is made to solicit as broad a range as possible of recordings. Since valuable recordings are released in many parts of the world today, much effort is made to identify contributions in local markets and to locate potential reviewers. As musicians throughout the world often increasingly perform and record in multiple markets, reviewers are sought who are knowledgeable of an artist's or an artistic traditions' participation in and contribution to both local and global markets.

A recently introduced feature is the review essay in which a critical response to a significant recording project is offered (such efforts might include the introduction of a new series or a rereleased or re-mastered set of important field recordings). Such essays are intended to provide a more substantial space for theoretical and critical reflection on the role(s) recordings and their accompanying materials have had on the formation of ethnomusicology as an academic institution. Reviews that also draw on the original research of the reviewer are encouraged. Readers of the journal are encouraged to contact the recording review editor with suggestions for possible reviews as well as for submitting recordings for review. A section of briefly noted reviews is often included by the review editor as is a listing of recently received materials.

Audio and video recordings for review should be sent to Professor Dr Jonathan Stock, Department of Music, 38 Taptonville Road, University of Sheffield, Sheffield S10 5BR, UK; tel. +44-141-222 0483; e-mail <j.p.j.stock@sheffield.ac.uk>.

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Authors are invited by the Editors or a Guest Editor to contribute articles to *the world of music*. Each volume has a special topic that is developed by the Editors, Guest Editor and Authors.

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Further information on issues of *the world of music* since 1977 is available on the World Wide Web, including an overview of titles, tables of contents and abstracts of individual articles, and with sound examples to complement specific articles.

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