What role can an anthropological voice have in this large mix we're calling acoustic ecology and soundscape studies? How is this voice complementary to, yet distinct from, voices from history, acoustics, performance, design, psychology, geography, musicology, composition, architecture, philosophy, or communications? One way to answer is with the simple observation that anthropologists tend toward the Kantian view that all knowledge begins in experience. We jump off that cliff to study how human experiential patterns and practices construct the habits, systems of belief, knowledge, and action we call culture. And we study it everywhere and anywhere we can. Our ultimate concern is with people, with adequately and evocatively representing their experiential worlds, their voices, their humanity. To take up that concern the anthropological project basically must ask, what could it possibly be like to be - to feel, sense, imagine, act, become - another kind of person? A full answer, of course, is an impossibility. We cannot become another. But the challenge of getting close or at least closer, of glimpsing, hearing, touching other realities, is thoroughly compelling to us. Another way to say it is that what turns us on is human complexity and diversity, and we celebrate and document it all, from beauty and hope to horror and despair. In fact we tend to do this in far more detail and with far more obsession than the general public cares to know about. We justify what others perceive as our excess by claiming, simply, that there is too much we don't know about the sources and varieties of human difference. But deep down we hope that by writing and circulating other peoples' histories, by giving their voices places to speak and shout and sing from, we in some measure combat and counter the longstanding arrogance of colonial and imperial authority, of history written in one language, in one voice, as one narrative.

Let me now position myself a bit more in this story. In the intense climate of race and war politics of the late 1960's I found myself moving from being a musician to wanting to be an anthropologist. I soon found out that there was a kind of hybrid field, an anthropology of music; its practitioners called themselves ethnomusicologists. I took up the study of this field of ethnomusicology in earnest in graduate school, only to find, disappointedly, that a great deal of it mimicked the study of western art musics, replacing western history with a remote ahistorical exotic. Ethnomusicology often seemed very much about doing to presumed "others" what had already been done to a presumed "us". So, for example, it replaced periods of western music history with areal regions of geographically defined others. It presumed western music theory could translate and definitively explain other musical materials and concepts. It focused on reified categories and things, like pieces, instruments, texts, and composers, and otherwise took music as a universal given. It valued the same things elsewhere that it valued in Europe: virtuosity, melodic and rhythmic complexity, sophistication. And predictably, explorers in this field were after discovering and preserving stunning new finds, like their musicological counterparts were after discovering and preserving stunning old manuscripts.

Little of this was intellectually exciting to me, so I spent most of my time training as a linguist figuring that the anthropological study of languages and oral traditions was far less shadowed by such big aesthetic and political agendas. When it came time to do a dissertation fieldwork project on some aspect of language and music, I abandoned the usual framework
and rudely called my project by a deliberate counter term: an ethnography of sound, or, an ethnography of sound as a symbol system. I wanted to study ways sound and sounding link environment, language, and musical experience and expression. Taking up the simple hypothesis (one I'd heard years before, from my undergraduate teachers Colin Turnbull and Edmund Carpenter) that rainforest environments might be the places where humans developed to acute levels of acoustic adaptation, I headed for the rainforests of south central Papua New Guinea, about as remote and different a place as I could possibly try to experience and know.

"As I learned about the symbolism of the weeping and singing voice I was taught about their intimate connection to rainforest birds."

In Papua New Guinea I lived through 1976-7 with the Kaluli people of Bosavi, on the Great Papuan Plateau, working in collaboration with another ethnographer, Edward L. Schieffelin (see his The Sorrow of the Lonely and the Burning of the Dancers, 1976, St. Martin's Press, for a study of Kaluli rituals and ceremonialism), and another linguist, Bambi B. Schieffelin (see her The Give and Take of Everyday Life: Language Socialization of Kaluli Children, 1990, Cambridge University Press, for a study of how Kaluli children acquire language and culture). My focus was on ritualized vocal expression, principally Kaluli women's funerary sung weeping and Kaluli men's ceremonial poetic songs that brought audience members to tears. As I learned about the symbolism of the weeping and singing voice I was taught about their intimate connection to rainforest birds. This is because birds, for Kaluli as with most Melanesians, are spirits, and spirit voices _from talk to cries to song_are reflected in bird sounds. Ritual weeping and song recall and evoke the presence of spirits, and are understood as expressions of sadness embodied in being a bird. This sadness makes listeners cry like birds, completing a symbolic and emotional circle.

In this and other ways I learned how the ecology of natural sounds is central to a local musical ecology, and how this musical ecology maps onto the rainforest environment. For songs and weeping not only recall and announce spirits, their texts, sung in a poetry called "bird sound words", sequentially name places and co-occurring environmental features of vegetation, light and sound. Songs become what Kaluli call a "path", namely a series of place-names that link the cartography of the rainforest to the movement of its past and present inhabitants. These song paths are also linked to the spirit world of birds, whose flight patterns weave through trails and water courses, connecting a spirit cosmology above to local histories on the ground.

I analyzed these sorts of issues to write an ethnography of sound (Sound and Sentiment: Birds, Weeping, Poetics and Song in Kaluli Expression, 1982, University of Pennsylvania Press; expanded second edition, 1990). The book concerned the Kaluli world of birds, myth, and cosmology and how they were united with poetry, song and lament. My interpretation showed how Bosavi birds turn into Kaluli singers and weepers, how Kaluli singers and weepers turn into Bosavi birds, and how all of this is a local ecology of "voices in the forest".

It wasn't until the early 1980's, when most of this research and writing was initially done, and I was teaching courses on sound at the Annenberg School of Communications at the University of Pennsylvania, that I encountered R. Murray Schafer's The Tuning of the World (1977, Knopf) and the publications of the World Soundscape Project. I found these publications very exciting; they opened new windows into a familiar world, one that could now be re-imagined from the standpoints of acoustic ecology and soundscape studies. I took these publications with me to the Bosavi rainforest during my field trips in the 1980's, and re-reading R. Murray Schafer's suggestion that people "echo the soundscape in language and
music" I began to transform myself from an ethnomusicologist to an echo-muse-ecologist.

"Ethno" always implies otherness, but "echo" is about presence, about reverberant pasts in the present, presents in the past. And I remembered: sound is memory, here as everywhere. From there I began to explore how the Kaluli soundscape, from its bird calls to song paths of place-names, is always about memory, about absence and presence, about how in the forest sound reveals what vision conceals. This is beautifully enunciated in the Kaluli idea for "echo", the mimetic compound "gugu-gawgaw." "Gu" is downward moving sound; by duplication "gugu" marks the action as continuous. "Gaw" is outward moving sound; "gawgaw" likewise marks continuity. So the auditorally ambiguous melange of continuous downward and outward moving sound is what is heard and instantly felt as "echo". In the forest one easily confuses the height and depth of sound, particularly in the absence of visual cues. In this place "echo" means that upward sounds like outward. The phonesthesia (phonetic synaesthesia) of Kaluli vowels trace movement this way, becoming one with what they sound like in both everyday language and song poetry.

"Lift-up-over sounding", like "harmony", is both a grand metaphor for natural sonic relations ... as well as for social relations ...

The blur from music-ology to muse-ecology was equally obvious, for the important thing in Bosavi wasn't "pieces" or "forms" of music in isolation, but rather the constant interplay of inspiration, imitation, and incorporation that linked the flow of natural and human sound expressions. A way of hearing the world comes from interacting with it, but it also has to do with appreciating it, imagining it as one's very own. Linking forest birds and places with voices and experiences was more a search for "patterns that connect", Gregory Bateson's notion in Steps to an Ecology of Mind (1972, Ballentine), than it was the "sciencing about music" my ethnomusicology professor Alan Merriam advocated in his The Anthropology of Music (1964, Northwestern University Press).

Exploring Kaluli echo-muse-ecology in the Bosavi rainforests lead me to realize that what I was trying to understand all along was that the language and music of nature are intimately connected with the nature of language and music. Shifting from the realm of ritual performances to that of everyday experience and expression I learned that sounds are heard as time of day, season of year, vegetation cycles, migratory patterns, forest heights and depths. Place resounds as a fused human locus of space and time. Local acoustic ecology can thus be considered a kind of aesthetic adaptation, a naturalization of place, or, put differently, a pattern of ecological and aesthetic co-evolution.

The most recent extension of these concerns, developed in the field research I've done in the 1990s, is what I call acoustemology (i.e., acoustic epistemology). These days I am exploring acoustic knowing as a centrepiece of Kaluli experience; how sounding and the sensual, bodily, experiencing of sound is a special kind of knowing, or put differently, how sonic sensibility is basic to experiential truth in the Bosavi forests. Sounds emerge from and are perceptually centred in place, not to mention sung with, to, and about places. Just as "life takes place" so does sound; thus more and more my experiential accounts of the Kaluli sound world have become acoustic studies of how senses make place and places make sense.

...the full body is always present in the "flow" of the voice, just as the connections of land are always present in the "flow" of water...

Two important keynotes of a Kaluli acoustemology, both richly hearable on Voices of the Rainforest (CD/cassette, 1991, Rykodisc), my hour-long soundscape of a day in the life of Bosavi and the Kaluli, are complex local notions translatable only as "lift-up-over sounding", ...
and "flow." The first of these, "lift-up-over sounding" is as potentially omnipresent in the experiences and aesthetics of Kaluli as the notion of "harmony" is in the West. "Lift-up-oversounding", like "harmony", is both a grand metaphor for natural sonic relations, the ways tones combine together in time, as well as for social relations, for people doing things together in concert. In the Kaluli world "lift-up-over sounding" sounds are dense and layered, blended, and forever thinning and thickening. One hears no unison, only a constant figure to ground motion of densities, decays and fades, of overlapping, alternating, and interlocking sounds. These sounds, whether in the forest, in Kaluli music singing, or in the overlap of the two, are "in-synchrony but out of phase". By this I mean that they are always cohesive, yet always seeming, as well, to be at different points of displacement from a hypothetical unison. Neither a clear-cut polyphony nor heterophony, "lift-up-over sounding" sounds define an acoustic space-time where upward is outward. One sound stands out momentarily, then just as quickly fades into a distance, overlapped or echoed by a new or repeated emergence in the mosaic. This pattern of sounding in the natural environment is the inspiration for many Kaluli vocal and instrumental forms. Likewise it is the pattern of fluid but tense egalitarian social life, where an anarchic synchrony of energy and assertion take prominence over fixed categories, in a social order without political or economic hierarchy.

One of the ever-present "lift-up-over sounding" sounds of the Bosavi environment, layered as a ground to the remarkable figures of avian life, is the hiss of water. Runoff from Mt. Bosavi, an extinct volcano, crisscrosses the Bosavi lands, turning into numerous rivers, creeks, falls, and streams. Walking means crossing water, yet always hearing it before seeing it. Water carries in and out of visual perceptual immediacy but always has dramatic, though ever-changing, acoustic presence. This carrying power, moving through and connecting lands, is water's "flow". But this "flow" does not only exist in the way water connects what Kaluli call the "thighs" (i.e., saddles) and "body" (i.e., hills) of the land. Water is to land what the voice is to the body. The voice connects the many parts of the body; by resounding in the head and chest, the full body is always present in the "flow" of the voice, just as the connections of land are always present in the "flow" of water.

Water flow also animates much of Kaluli musical imagination, as all waterway terms are also the names for the musical intervals, the segments of song, the patterns of rhythm, and the contours of melody. And composing songs is like getting a "waterfall in your head"; the pool is the melody in motion and the fall the text mixing into the melody to create song. Kaluli compose their songs by creeks or waterfalls, singing with and to them. And the texts of these songs are maps of waterways or trails, viewing them from above as spirit birds might. Additionally, "flow" is also the carrying power of poetic song, the way it stays in memory. A waterway can be continually heard but visually appears, disappears, and reappears when one walks through forest trails. This is its "flow", its path of carrying. Likewise as one hears a song, it disappears quickly from an experiential foreground and reappears through time in memory, reverberating and lingering in sonic traces and fragments, far past and beyond the moment of an immediate experienced performance.

This is how Kaluli songs, like Bosavi waterways, "flow", emerging in the density of a "lift-up-over sounding" soundscape of rainforest acoustic ecology.

On Voices of the Rainforest you can hear many kinds of Kaluli "liftup-over sounding", from birds waking a village, to women singing, whistling and talking with their children as they work to scrape and pound sago, to men whooping and singing as they clear a forest garden, to a bamboo jews harp duet with cicada rhythms and bird calls, to singing with a creek, to the dusk volleys of frogs and birds overlapped by an evening rainstorm, to a quartet of in-sync and out of phase drummers, and a duo of ceremonial singers overlapped by a man who is moved to crying by their song, to the density of night winds, mists, frogs, and insects.
The aesthetic apex of this "lift-up-over sounding" is where it meets with the "flow" of poetic song, on a section of Voices of the Rainforest called "Relaxing at the Creek." Here a woman named Ulahi sings three songs, in three different song genres, all with and to the Wolu, a creek situated near her village. Her voice develops a pulsing pattern that densely flows with the sounds of the creek where she sits, and her songs develop different place paths, including one that sings a long succession of places connected to the creek she is singing in. On these selections the performative flow of singing with water and the musicality of singing like water connect deeply to the emplacing poetry of singing about water. Evoking the flowing presence of creek paths, Ulahi's songs, like the Wolu creek where she sang them, meander and flow through Kaluli lives and memories, by linking together places and suggesting that the flow of their names tell stories about events and feedings. Ulahi once told me that every one of her songs (I've recorded about 200 of them since the mid-1970's) was like a pool on a creek. So every Kaluli song swirls, centres, circles in place, then flows on to mingle and merge with places and voices elsewhere.

Singing about water, with water, and imagining song as water and vocal flow here the poetry of place meets the sensuality of soundscape and the singing voice. This is where the "lift-up-over sounding" of Kaluli song "flow" creates an acoustemology of embodied place resounding.

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