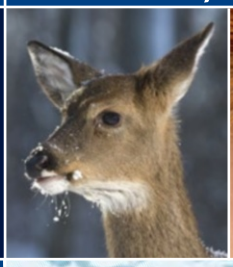
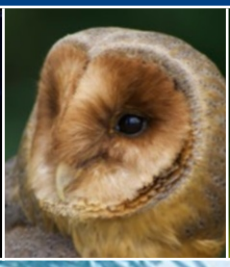
Michael Stocker

Hear Where We Are

Sound, Ecology, and Sense of Place

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In memory of Henry B. Refo
and Leigh St. Maur Stocker

In praise of *Hear Where We Are*

"I read your manuscript and was immediately struck by the importance of this work."
Gordon Hempton, Author, *One Square Inch of Silence*

"Michael Stocker has unique insights and encompassing information of sound in environments ranging from ocean floors to Gothic cathedrals. I know of no others who span such a wide variety of places with such a clear vision of how sound and acoustics makes places what they are."
Peter Warshall, Editor, *Whole Earth*

"What would the world be like as perceived by another animal? Locked into the limits of our own senses, it is difficult for humans to study or even imagine. *Here Where We Are* gives you a window into this fascinating subject. From the lateral lines of fish, to the whiskers of seals, to the acoustic light of snapping shrimp, animals "hear" in ways you would never suspect. It is exciting to imagine worlds of perceptions just outside of our own. I have never thought of the music and animal song that emanates from a tropical reef. With the right ears it would be as loud and wonderful as a tropical rainforest! As you read, you will find yourself getting down on the floor with one ear plug to discover ground level sound and dreaming of whale necropsy. Michael Stocker is a true naturalist and *Hear Where We Are* will open your mind (and ears) to a new world."
John Muir Laws, Naturalist, Illustrator, and Author,
The Laws Field Guide to the Sierra Nevada and *Sierra Birds*

"Michael has an excellent handle on the world of sound and acoustics and is able to convey his understanding to a broad audience. He is making a considerable contribution to the general understanding of how sound and acoustics work in the ocean environment."
Vivienne Verdon-Roe, Filmmaker and Academy Award winner for the film,
Women for America, for the World

"Michael Stocker's work has been enormously helpful to me in understanding the world we live in. Michael has an encyclopedic grasp of science, sound and technology which he is able to communicate in an easy and enjoyable way."

Hallie Iglehart Austen, Author, *Womanspirit* and *The Heart of the Goddess*

"With *Hear Where We Are*, Michael Stocker generously opens the gates into the vast and oft-mysterious world of human and animal acoustics. While his science is solid—and indeed startling in its breadth and ambition—it is his stories and deep empathy that are most compelling here. Over the course of five well-considered chapters, we are drawn into Stocker's world, a place where sound is no longer merely a means of communication, but takes its rightful place as a physical, palpable web of connection that permeates all life on this singing planet. His dual focus on human and animal sound-making leaves us with a much richer, and far more authentic, awareness of the ways that all species share a fundamental experience of sound, yet find incredibly diverse expressions of this primal thread of connection and creation. First, there was the sound. And now, thanks to this gem of a book, we can hear it anew."

Jim Cummings, Executive Director, Acoustic Ecology Institute

Acknowledgements

I was once told that writing a book is much like having a child; sometimes it is intentional, other times it comes about as a surprise. This one was a bit of a surprise. It was quite some time ago that I decided to write an article about the acoustical design of public spaces. I was then designing exhibit spaces for museums. While speech intelligibility and noise control are the rudiments of architectural acoustics, museum spaces particularly need to attend to the visitor's experience; conveying information, framing each individual exhibit and promoting personal autonomy while encouraging a family and community context. These design aspects all play into the visitor's emotions and subconscious "sense of place."

I described some of these characteristics of exhibit design in the article[1] and sent it around to a number of trade publications. Of the ten I sent it out to, seven wanted to publish it. Previously not thinking myself much more than a writer of contracts, the trade editors were telling me that I could write something worth reading. I decided to write a more detailed article looking at how architectural acoustics influences our emotions, and how architectural design can support or sabotage the purpose of inhabited spaces.

Three days and 50 pages later I realized I probably had a book in me and began pulling it out and laying it down on paper (or in Word files to be exact). Like any child it began by being a bit disruptive but relatively easy to control. I realized that in order to convey ideas about how we experience sound in spaces I needed to convey something about the experience of sound; how it can encourage a sense of safety and belonging, or induce a sense of dread and isolation. This led to an examination of how humans—and then other animals use sound to establish their participation in their own soundscape, and in the soundscapes of others.

Soon enough the child-book became the adolescent-book. It wanted autonomy. It did not want to share the covers with chapters on sacred spaces or the "sound of the commons." After trying really hard to reconcile these differences in opinion I acquiesced, dropping all of the work on architectural acoustics and let the book become what it is now.

Like any child, a book cannot be raised alone. In the beginning I was cataloging the names of the people who in some measure had helped. From the security guards

at public buildings who were kind enough to let me explore their keep, or the Cistercian nun whose humility illuminated for me the sacred sound of the Rose; from bioacousticians such as Art Popper, David Mann, Bob Dooling, and Darlene Ketten for their feedback and input on animal hearing, to indigenous ceremonial elders Rupert Encinas, Luciano Perez, and Fred Wahpepah for framing perception in completely different dimensions. Both prison wardens and university professors had a hand or lent an ear. A conversation with Ivan Illich expanded my thinking on the cultural phenomenology of sound, and Gus the cricket generously unfolded his wings to reveal the secrets of his ventriloquism.

My list began pushing out at over a thousand kind and generous souls. I could write a book about these encounters alone—which is sort of what I did, and I owe them all a debt of gratitude for their contributions. But above all I want to acknowledge my father Godfrey Hugh Stocker who handed down to me—either through genetic predisposition or by example, the inquisitive mind of a generalist, and my mother Marion Lockwood Stocker for her "greatest work" of raising her own children by feeding their curiosity with all of the feathers and bones, salamanders and fish, any book we could digest—and letting us run free in the mountains armed with only a canteen, a pocket knife, and a wrist watch. I wish they were here to share this with in person.

Lagunitas, CA, USA Michael Stocker

Contents

Introduction by Way of a Map

When was the last time you got a thrill hearing the rumble of distant thunder—just at the start of a patter of raindrops overhead? Have you ever been really pleased to hear the sound of someone's keys jingling at your front door? Did you ever notice your immediate relaxation in the silence of turning your office computer off? These scenarios are common experiences many of us have of our environment. We don't usually think of these experiences as "sound" because they are imbedded in other elements of our experience—the promise of a spring rain; the arrival of a loved one; the quitting of work for the day. But even when we hear these sounds on their own—separated from the events that produce them, they still produce compelling responses; invoking pictures in our mind's eye, emotions, and sensations in our bodies.

Hearing, like all of our perceptions, has adapted and developed to the level of complexity it has in humans for many reasons. While we largely frame sound perception in the context of communication and music, these are only two conscious aspects of sound and hearing. Equally important, and less apparent to us is that our hearing is a survival tool; it is a perception that allows us to perceive our environment in dimensions obscured from our vision, out of reach from our touch, and downwind from our sense of smell. Hearing is the perception that allows us to gauge the size, shape, and density of our surroundings, and sense our placement within it.

The overarching premise of this book is that sound perception is a perception of mutual engagement. It is the visceral bridge between us and others, and our contiguous connection to our surroundings. Sound takes time to unfold, and space to manifest. Our perception of sound blends these dimensions into physical sensations that we both affect and are affected by. And while our experience with sound unfolds as a "continuous now," our sound perception also invokes our conscious and subconscious past, and invites a lyrical—or fearful—anticipation of what is to come.

Even when we are not focused on sound—not actively listening, sound plays at the perimeter of our awareness; warning us, pulling at our attentions, informing us about the dimensions and dynamic conditions of our environment; allowing us to

keep tabs on our horizon—all without asking to be monitored. And while sound tickles the perimeters of our consciousness, our sense of hearing also resides in the center of our sense of location and placement; our sense of balance, momentum, vector, and velocity are seated in the organs of the inner ear. Even our sense of unfolding time—melody, rhythm, and tempo—is informed by auditory stimulus. In sum, our physical sense of "place" and belonging is enhanced by the continuity of sound as it embellishes our perception of gravity and movement, mass and density, permeability, proximity, time, change, and physical vibration.

In the persuasive immediacy of our visual culture, we tend to forget that our visual surroundings are imbedded in a vibrating field of acoustical energy—a field that doesn't leave us when we close our eyes. This book explores this vibrating acoustical field as a fabric within which our living experience is woven; our communication, our sensations, our emotions, thought, and will. This visceral connection to our surroundings serves both as a reaching out and a collecting within. Our active expressions and our passive experiences are all at play in a resonating, vibrating, and sensuous soundfield. Because this soundfield envelopes the realms of all of our endeavors, the exploration in this book will by course intersect a broad range of experiential phenomena: Cognitive and subconscious, human and other animals' intellect, instincts, and behaviors.

While sound perception is not exclusive to humans, the first two chapters focus on human experience—in terms of how we are affected and influenced by sound, and how we use sound to affect and influence our surroundings. In the first chapter we examine how the elements of the soundfield within which we reside—the noises, familiar voices, the alarms, the sounds of media and technology, and the acoustics of our surroundings—influence how we feel. Our sense of power, size, confidence, and security are all impinged on by the sounds around us. In this chapter we find that our feelings of courage, anxiety, alienation, and conviviality are as seated in our acoustical surroundings as they are influenced by our social (or antisocial) settings.

If we were just passive experiential beings, we would be buffeted by these dynamic soundscapes. Fortunately, humans are also provided with the equipment to affect our acoustical surroundings and the wherewithal to cocreate our soundfields. Chapter 2 explores how we craft and modify our soundfields to serve our intentions. From seduction to warfare, from music to noise, from suspicious surveillance to compassionate healing; humans (and other animals) have consciously used sound to set our boundaries and perimeters; cultivating inclusion with those who are wanted within, establishing exclusion for those who are not, and teasing or testing others across that imaginal line.

Of course none of this would be possible without acoustical energy and the organs to perceive it. Chapter 3 sets out to unfold the phenomena of acoustical energy through the physical experience of sound. In this chapter the mechanics of sound are revealed in the context of our physical surroundings, and the way that acoustical energy impinges on our bodies, our skin, chest, guts, and especially our ears—manifesting it into the neural impulses that we perceive as sound.

This auditory transaction is necessarily very complex; conferring the entire acoustical signature of our environment into an extremely precise, finely detailed

perceptual sound-scene—a scene upon which our very survival hinges. Within this scene we are in balance while at rest, though poised for immediate flight at any instant; relaxed in familiar surroundings but ever aware of threat or opportunity just outside that known realm.

In the preponderance of the literature, our "organs of hearing" have been deconstructed into constituent parts and examined as a set of mechanical transactions: The ear drum, the auditory ossicles, the cochlea, the semi-circular canals—then reassembled into various models called "the ear." We know that the models are lacking because there is more than one version, and medical technologists are just beginning to agree on which is the most useful (and under what circumstances). And still these models only approximate the acuity of our hearing. Scientists are still hypothesizing how we locate sound sources on our neural map with such refined accuracy; how we are able to discriminate delicate sounds buried in loud noise, and how a very simple sound can trigger a flood of emotions and thoughts.

Not only are the shortcomings of the models a consequence of the vast complexity of our hearing process, but they are also a result of systematically ignoring some of the fundamental forms of the ear. These forms are necessarily complex because the hearing process translates our entire auditory world—from sound to sensation, through an exceedingly small envelope and with phenomenal precision. The third chapter orbits around these fantastic forms from a fresh perspective, teasing a bit more out of the mystery of sound perception.

Human hearing is so fabulous and so well adapted to our needs that it is easy to believe that it represents the apogee of bio-acoustic adaptation. It has been from this perspective that most studies of animal sound perception have been filtered—using human perceptual priorities as benchmarks. But on close examination it is clear that each animal in its own habitat has adapted to its acoustical setting in ways most suitable to its own priorities. These adaptations are often outside of our human ability to fully comprehend. Various animals live in realms where pitch discrimination and amplitude sensitivity give way to subtle phase and time-domain distinctions; where localization cues are derived through substrate vibration and where serial streams of sound give way to spatial constructions in four dimensions.

Chapter 4 examines these complexities in some of the many worlds of animal bio-acoustics; from sea to shore, from savannah to sky, from spider webs to subterranean warrens. Each acoustical niche presents sound in unique ways—all suitably reflected in the myriad of adaptations found in the resident creatures. Bearing in mind that these creatures include the hunter and the hunted, the sedentary and the mobile, the land-bound and the free-floating or free-flying, the range of adaptation is vast—all perceiving acoustical energy in ways that are largely outside of our perceptual grasp. Exploring these diverse perceptual realms gives us an opportunity to appreciate the myriad dimensions of sound experienced by the cohabitants of our world, and thus expanding our own experience of sound.

With a diversity of perceptual tools in play, the idea of "communication" is set in motion: The interplay of body and space, memory and response, form and gesture—all constituting sets of interactions between individuals and kin, kin and community,

and organism with environment. Communication is so much more than groups of representative words set in a tapestry of grammatical rules; rather it encompasses how we establish our relationship with our surroundings and with those with whom we inhabit it. Chapter 5 settles into the foundation of "sound communication" as a visceral connection with others through sound; mediating the ethereal realms of acoustics with the tangible realms of space and consequence.

The larger mission of this book is to lead us back into a stronger appreciation of the world in which we live. I hope that the journey through this work will enhance the reader's perceptions; inviting a deeper listening, and ultimately encouraging a more conscious participation with their environment—allowing you, the reader, to truly hear where you are.

A Note on Endnotes

I have included a reasonably thick body of endnotes to support the assertions I make throughout the text. I use them in a number of ways, and I hope that the reader finds them informative. The field of sound perception is so vast, intersecting so many disciplines, that any general work on the subject is bound to be incomplete to gossamer extents. For this reason I include endnotes that may serve as doorways to deeper inquiry—and if the reader finds a particular topic intriguing, the endnotes will hopefully provide some references to more complete writing on the subject.

Hear Here: The impact of sound on personal placement

1

"She quickly bounced to her feet with a chorus of jingles and chimes and started down the hallway." Don't you just love jingles and chimes? I do," she answered quickly. "Besides, they're very convenient, for I'm always getting lost in this big fortress, and all I have to do is listen for them and I know exactly where I am."

(Norton Juster, "The Phantom Tollbooth," 1961, Random House, New York, p. 145)

As I sit here and soak in these waters, I listen to the silence that surrounds me. Lightly punctuated by a drip of condensation from above, or a bubble releasing from below, the quietude of a Sierra hot spring saturates me to the bone; the warmth of the water, the pulse of my heart, the absence of sound. It is late at night—perhaps 2 a.m. The heat from yesterday's sun, rising up from the earth, has momentarily reached equilibrium with a gentle mist suspended beneath a low cloud cover. The night pauses, there is no breeze, it is dead silent.

As if to test this silence, I hear the choked cough of a red fox coming up from a close ravine. A cricket tentatively chirrups once… a few times… an owl inquires, a pebble falls into a ditch. Softly the night has shifted; the cool midnight air delicately exhales into the treetops of the surrounding ridgelines. This breath moves in and around slowly but purposefully, gently stirring the rushes in a nearby meadow, bringing on the slow seep of the dawn.

I come to these springs for the waters, but I also come for the silence. Though when I close my eyes it is not silence that I hear… just less sound… sounds I can almost count and identify; water, air, rock; the scraping of a beetle on a branch and the flutter of a moth against the sconce of a flickering candle.

When I leave the pools to sleep the alpine breeze whispers into my dreams as it mixes midnight into morning. I am stirred briefly awake by the first strains of the dawn chorus and the waking of the birds, returning to my slumber to be finally awakened by the murmur of human voices at a nearby camp; the sound of fire and

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cooking, metal pans and flatware, the cracking of eggs and the sputtering of sausage. The day has arrived and I am in it…

❖

We are always submerged in sound and vibration; it excites our ears and touches our bodies, our skin and our bones. Sound perception is not voluntary. While we can turn off the lights or shut our eyes to hide our surroundings from view, we can't as easily shut our ears—we do not have "ear-lids." If we occlude sound from our thoughts, it is only meaning that we lose—the sounds that convey the message still strikes our ears, resonates in our chests and glances off our face.

We usually consider sound in terms of the "useful" sounds we can qualify, such as the sounds of music and language, but subconsciously we are more dependent on the incidental sounds of our environment to reveal the hidden dimensions of our reality. The sounds of our surroundings enable us to gauge where we are, how safe or exposed we feel, and our position of dominance or deference in our social and spatial settings. The feelings induced by these sounds influence our ability to act; they inform our communication and affect our willingness to speak. Our response to these feelings is often to make sound—testing our autonomy against our surroundings. We are assured when we hear the sound of our own footfalls; we may be emboldened if our voice or our footsteps robustly fill our environment or may feel timid if those sounds are not quite large enough for our surroundings. As we listen for meaning and information, we are also subconsciously probing our environment through the sounds we make. A cough, a deep breath or a gentle sigh will give us running affirmations of our location and the impact we have on it. The whir of a computer, the clatter of a restaurant, or the thunder of freeway traffic will frame our location and influence the feeling of autonomy that we have in it. We rely on visual cues to confirm our whereabouts; we collect information through our eyes, but our experience of where we are is often more dependent on sound.

Try this experiment: After reading the following paragraph, close your eyes and listen to your surroundings—try to identify what you hear. Are there birds, cars, or dogs present? Is your neighbor mowing her lawn? Is someone talking on the phone nearby, are there airplanes overhead? Do you hear water running or wind in the trees? Is your refrigerator humming? What are the elements in the environment outside of your field of vision that tell you where you are? What or who is outside of your realm, but still in your world?

This little "hear where you are" exercise is something I do when I feel jangled from "information poisoning"—being subjected to too much stimulus. It allows me to gauge myself in my surroundings solely through my experience of sound—I use sound to help me feel "in place." If I am indoors, I can hear the size and texture of the room I'm in. I can hear if the room has concrete, wooden or carpeted floors; whether I am in a small home or a large building, and if I am in the city or in the country. I can verify my placement in the room by the sound of my chair squeaking and the air whispering through my nose and lips as I inhale and exhale. I can affirm my location with my voice, in a sigh, a cough, a call, or a song. I may do this consciously and intentionally, but even when I am not deliberately exploring the

acoustics of where I am, the sounds that support my experience of place continue to surround and influence me.

The common understanding is that we humans generate sounds most specifically to convey meaning in the form of language, but much of the sound and noise we generate conveys little new meaning and may be more driven by our need to constantly gauge ourselves within our surroundings. The noun "sound" refers to the acoustical energy that we hear, but the verb "to sound" refers to an examination, to find out, question, or query. The allusion is to plumbing the depths of the ocean, to gauge a dimension which we cannot see. The maritime principal of "sounding" is still used in lieu of radar for guiding ships through narrow channels and away from rocks in foggy weather. Ship pilots use sound to find out where they are in their ocean and surrounding geography just as we use sound to place ourselves in our own terrestrial surroundings. We may not be consciously aware of it, but we use this principal of "sounding" continuously as we make and perceive sounds. Sounding helps us gauge the socially appropriate volume to use when we are speaking to others; if we feel confident, we may deliver our strident speech in a voice more than adequate for our message; if we feel fearful, we may retract our voice to a whimper—or in attempt to embolden our fear, we may shout—as if in anger—to push back what is making us fearful. We set our will against our surroundings with the sounds we make, but even in silence the sounds around us are constantly affecting our emotions. The world enters us by way of sound—we sound back to gauge where we are in the world.

In this chapter we will examine the subjective experience of sound and how it plays into our emotions and feelings. Our exploration will transect the experience of sounds that warn us of danger, keep us alert, invite our comfort, or lull us into calm. We will find that our individual responses to particular sounds may differ, but they are framed in the biological responses to sound cues that we have in common with other people, and even other animals.

Sound and the Perceptual Body

Our sense of personal placement through sound perception is stimulated by the fact that sound reaches us through our bodies as well as through our ears. It is easy to localize sound perception to the organs of hearing—our ears—but rapid changes in pressure gradients over time in our environment—what we call "acoustical energy"—stimulate our bodies as well. We feel sound in our chest cavities and against the broad plain of muscle and skin of our backs. The nerves surrounding our hair follicles, the positioning sensors of our skeleton and the delicate nerves on our cheeks are all sensorineural pathways that stimulate auditory processing in our brains. Our sense of sound includes the embrace of our body by the environment.

Determining whether sound perception through our ears has precedence over the sensation of sound through our bodies is perhaps moot; at any given moment we may be consciously focusing on hearing sound while simultaneously responding to any degree on how our body is stimulated by sound in our environment. This distinction may be revealed in how well our body inhabits space. We may be agile and responsive, dancing through our surroundings at one time, and clumsy and

uncoordinated, stumbling and colliding with things at another. At any time we may find ourselves tuned into the music of our surroundings, or oblivious to the rhythms and noise we inhabit.

Our personal sense of placement within an environment depends on two distinct realms of hearing; our sensation of the sounds we personally generate, and our perception of the soundscapes we are within. This sense of personal placement is substantiated by the fact that our perception of sound does not reside exclusively within our ears—it includes our entire body.

By way of example, the seat of confidence is in our heart; the heart is at the core of the word "courage," which we express through the motions of placing our hand over our heart, or striking our chests when declaring our convictions. The strength of our voices resonating within our chest cavity helps set our confidence; the relationship between the strength of this resonance and the strength of what we hear reflected back to us from our surroundings gives us an impression of how subjectively "large" we are. If we are in an intimate, close environment (such as a breakfast nook) we don't need to expand our voice to fill it, so we speak on a comfortable *sotto vocce*; if we are in a huge voluminous reverberant space (such as a cathedral,) we may fear meeting its size, compelling us to whisper. These responses have less to do with size of a space than with its acoustical setting. A shower stall or a large auditorium—dimensional equivalents to the breakfast nook and cathedral examples—may compel us to sing out or yell rather than hide our voice. The differences largely reside in how we hear ourselves in these surroundings. Through sound, we can gauge the power and size of our environment, our personal power and size within it, and our ability to transform it through our personal power. The extents of our self confidence are continuously at play on the perimeters of our perception of sound.

Cultural and Gender Distinctions

Within this context, everybody inhabits a distinctly individual soundscape, dynamically responding to our surroundings and to others that inhabit it with us. Personalities notwithstanding, our individual sense of sound perception is also influenced by social, cultural and even economic meta-factors that establish the backdrop of our auditory sense of who and where we are. One clear example of this resides in the perceptual artifacts of human sexual dimorphism—the distinct physical traits that define gender and also engender perceptual differences between men and women.[1] These gender-based perceptual adaptations influence how each man or woman responds to their surroundings. In the archetypal "hunter/gatherer" social structure this is represented both in terms of the gender roles in the community as well as predictable gender responses to stimulus.

A common framing about historic hunter/gatherer community settings is that the chatting, singing, and gossip of women's work circles was in part a strategy used to keep their community sound alive within an otherwise hostile environment. When the men were off silently hunting in groups, the women—who were somewhat unprotected, would both ward off predators and keep aural tabs on their community

by generating a constant flow of sound. The stopping of sound within the women's circle would trigger fear and signal danger—some threat from outside the circle, perhaps even the abduction of a community member. Conversely, when out stalking their prey or protecting the perimeter of their camp from predators, the men needed to be silent. For the men, a sudden outburst of noise announced an encounter, triggering fear and signaling danger.

While the hunter/gatherer society is rapidly disappearing into the blur of globalization, many of the gender influenced perceptual artifacts remain. Women's desire to speak about, and communicate their emotions may have grown out of a historically accepted role for women to "keep the community fires burning" and to know what is happening within the circle. Meanwhile, men's traditional need for silence in unpredictable and changing environments may be borne out of their need to silently survey and assess their surroundings when they feel threatened. Somewhere between these two gender perspectives of sound and silence, safety and danger—men and women attempt to communicate.

Of course this line of conjecture is an over-simplification of our gender-acoustic responses to our soundscape, illustrating how creatures of the same species can have completely different relationships to sound and silence, hearing and listening. It does not account for the varied qualities of the sounds or the textures of the silence, or the distinctly different relationships that each individual has with sound.

There are no real blanket statements that generalize human responses to specific sounds; in the end, most responses to sounds and noises are learned through cultural context, environmental experience, and social setting. For example, some cultures have traditionally been considered "quiet and demure," while others "loud and boisterous," but these characteristics have as much to do with their surroundings as with their social predilections. Similarly, physical acuity in sound perception, once considered a "culturally" distinct attribute of some peoples—are more likely due to the acoustic environment of the specific groups rather than any cultural predisposition. For example both the Inuit of the North American continent and the Mabaan people of the Sudan are often referred to in audiology texts as being representative of tribes who have refined hearing because they've dwelled in a world of quietude. Comparisons of "normal" and aggravated hearing loss often used these people as benchmarks. The Inuit were once known for their quiet arctic hunting life; the Mabaan didn't have a drumming tradition and the murmur of their villages was referred to as "quieter than a refrigerator" in one text.[2] In their quietude, each of these groups also had very distinct responses to the sounds of their surroundings; the voices of the wind, the rustle of their unique fabrics, and the songs of their harvests would by nature and setting be very different from each other and from our own culture.

Today these "cultural" distinctions of sound perception are much more difficult to determine than they were 50 years ago because the sound of the dog-sled team for the Inuit, and the murmur of the Mabaan village have been replaced with sounds known across many cultures. For the Inuit families, the barking of a husky team bringing the hunters home—the warm herald of arrival and abundance, has been