[Excerpted from Michele Friedner and Stefan Helmreich, "Sound Studies Meets Deaf Studies," in *The Senses & Society*, Vol. 7, Issue 1, 2012. Reprinted courtesy of the authors and *The Senses & Society*.]

Sound Studies Meet Deaf Studies

Michele Friedner and Stefan Helmreich

Once upon a time there was a deaf coal miner. Like everyone at the mine, he had to be at work promptly at 5:00 AM. But he could not wake up on time. A kind neighbor agreed to help, tying to the miner's foot a rope long enough to hang out the window. Every morning at 4:30, the neighbor came and tugged at the rope. The miner told a deaf friend about this arrangement, and his friend suggested another method: he could attach an old-fashioned wind-up clock to a heavy iron. When the alarm went off, the iron would fall and the vibration would wake him up. He switched to this method and subsequently the shrill sound of the alarm clock became the sound everyone else in the village used to wake up. Instead of the deaf man depending on others, the villagers came to depend on the deaf man.

Retelling of common Deaf joke, from Ben Bahan's lecture "Deaf Ways: Extending Sensory Reach," held at MIT on April 29, 2009.

How might scholars working in Sound studies, listening to the cultural meaning of the audible realm, join with scholars and activists in Deaf studies to wake up to new articulations between their common and uncommon senses of the world? At first perception, Sound studies and Deaf studies would seem to operate in worlds apart. Sound studies privileges attention to listening, hearing, and soundscapes in cultural experience, seek-ing to combat the primacy of vision as an organizing frame for social analysis. In contrast, foundational work in Deaf studies argues that audist and phonocentric tendencies suffuse everyday interactions as well as cultural theory, which tune to hearing and voicing as key modes of discriminating human sociality. Deaf studies has urged in response to sonocentrism a fresh consideration of the visual, particularly as a space of communicative and interactive possibility.[1]

Both Sound studies and Deaf studies, then, depend on something of a divide between hearing and seeing. So, while music historian Bruce Johnson makes a critical point when he writes that, "an auditory rather than a predominantly visual approach to the past produces a different cultural history," such a phrasing risks posing the visual and auditory as at odds with one another. Deaf studies, meanwhile, often repeats and

[1] By "Sound studies," we mean the interdisciplinary field of inquiry that has lately emerged at the intersection of cultural history, anthropology of music/speech/sound, science and technology studies, and media theory – inquiry dedicated to examining how humans give social significance to sound, whether experienced in small-scale, face-to-face communities of practice or in distributed, highly mediated networks linked together by technologies of sound reproduction and relay (e.g. Bull and Back 2003; Erlmann 2004). By Deaf studies, we mean the academic and activist field inaugurated with the publishing of James Woodward's 1972 article, "Implications for Sociolinguistic Research among the Deaf," in the first issue of *Sign Language Studies*. Woodward wrote about the importance of research on linguistic, social, and cultural aspects of Deaf communities. Deaf studies has largely been a Western-centered discipline, closely joined with the teaching of sign language, especially at such institutions as Gallaudet University in the USA and Bristol University in the UK.

reifies the claim that Deaf people are "first, last, and all the time the people of the eye" (as George Veditz, President of the National Association of the Deaf, phrased it in 1910).[2]

In both Sound and Deaf studies, a clean division is also often assumed between hearing and deafness. In Sound studies, for example, deafness becomes a ready (and audist) figure for critical inattention. Ari Kelman's "Rethinking the Soundscape: A Critical Genealogy of a Key Term in Sound Studies," suggests that "attending to sound can amplify critical aspects of social and cultural life that otherwise fall on deaf ears." Hearing, deafness, and seeing operate as ideal types, which downplays continuums between and multiplicities of sensory capabilities. Such framings obscure points of contact between Sound and Deaf studies. We wish here to explore zones of productive articulation.

It is old news that technologies of sound reproduction and relay have been bound up with hearing and deaf people's attempts to ameliorate deafness, commonly understood as a condition to be "overcome." From Thomas Edison to Alexander Graham Bell, phonographs and telephones emerged in part from attempts to render the deaf hearing or to train deaf speech into alignment with the norms of the hearing world. Mara Mills proposes the phrase "assistive pretext" to examine how deaf people have been at once the target of "improving" technologies as well as guinea pigs for technological investigations made primarily for the benefit of hearing persons.

In the 1980s, the US-based Deaf Pride movement staked claims forcefully against such assistive pretexts, articulating a Deaf politics modeled on the civil rights, identity, and liberation movements of the 1960s and 1970s.[3] Many followed sociolinguistics scholar and activist James Woodward, who in 1972 suggested writing "Deaf" with a capital D in order to mark Deaf people as a cultural group. Many scholars began to write of a distinctive Deaf culture, one forged within communities held together by sign language.[4] The move from "deaf" to "Deaf" marked a contestation of the naturalization of deafness (often as disability) and an affirmation of Deaf identity (sometimes "deafnicity"). In what follows, we slide between "deaf" and "Deaf" (not always consistently), flagging how deaf/Deaf, like sex/gender, makes use of, but unsteadies divisions between nature and culture – though if "gender" in sex/gender underscored the malleability of gender, "Deaf" in deaf/Deaf asserts the coherence of Deafness as culture. As we will see, though, "Deaf" may also enable a diversity of Deafnesses, akin to what has happened with "queer."[5]

---

[2] Also consult Fjord (1999) for an anthropological report on how the Deaf community locates itself within the larger social world by defining itself in opposition to the Hearing world and to hearing; focusing on vision and visuality becomes a trope of resistance.

[3] For discussion of American race politics in Deaf struggles, see Kristi Merriweather's history of the National Black Deaf Advocates: http://www.nbda.org/history_NBDA.html.

[4] For scholarship on international d/Deaf politics, consult Nakamura (2005) and Monaghan et al. (2003). Note that deaf politics outside the USA often do not follow identity or cultural models; indeed, the question of what constitutes a deaf "politics" or "public" in non-Western contexts is one with which social scientists and Deaf studies scholars struggle. In response to the hegemony of the concepts of Deaf culture and identity within Western deaf worlds, Ladd (2003) has put forth the concept of "deafhood" as a more inclusive category. Our section on "articulation," below, attempts to foreground work that analyzes different ways of relating to deaf and hearing others as well as to family, community, and nation.

[5] Compare Rodas (2009) on varieties of "blindnesses" and the ways that "blindness is always a mediated experience, informed, even defined, by language and culture" (ibid.: 129).

We consider four major practices that might prompt scholars in Sound studies and Deaf studies into new conversation. These practices ask how sound is inferred in deaf and Deaf practice, how reimagining sound in the register of low-frequency vibration can upend deaf-hearing dichotomies, how "deaf futurists" champion cyborg sound, and how signing, non-speech-based communicative practices, and listening might unwind phonocentric models of speech and move us away from "speech communities." Proceeding through an inventory of these trends, we ask how to move beyond ear and eye, waking up to rethinking the subjects of Sound and Deaf studies.[6]

Inferred Sound/Informed Vision

Far from being peripheral, sound also penetrates deaf worlds. Carol Padden and Tom Humphries write about the ways Deaf children learn about the significance of sound to the hearing. They tell of Deaf people being told to regulate and censor their own voices and of learning about the shame associated with some bodily noises. For Padden and Humphries, a "sound barrier" exists between Deaf and hearing people. Similarly, Haualand writes about the difference between hearing and Deaf worlds by arguing that communities of hearing people "hear together" and "hear same," or have the same ability to hear.

For such Deaf studies scholars, the way around sound is attending to Deaf peoples' visual orientations. In such an approach, Deaf people are, as Veditz put it, "first, last, and all the time the people of the eye." One can find this articulation acquiring continued momentum in some online worlds, with the emergence of blogs such as "Deaf World as Eye See it" and "Deaf Eye for the Hearing Guy." For much of Deaf studies, Deaf culture has a visual future – as evidenced by the National Science Foundation-funded Visual Language and Visual Learning Center at Gallaudet University, a major center for deaf undergraduate and graduate education where research is conducted on Deaf peoples' visual learning practices. Such programs as the Michigan-based deaf music camp (deafmusiccamp.com) encourage deaf teens to experiment with music "through deaf eyes" which include "seeing" (in addition to "feeling") music. Sound studies scholars might undo audist notions of "music" by examining such practices, expanding what it means to have an "acoustemology" (a sonic way of knowing and being in the world) that expands beyond a limited definition of the auditory.

Infrasound/Vibration

Emerging alongside strategies of inferring sound or valorizing the visual is a practice of tuning in to the zone of low-frequency vibration. This is a zone in the frequency spectrum where hearing and deaf scholars have recently been meeting in order to unsettle the ear-centrism of Sound studies and the visually centered epistemology of much Deaf studies.

One data point for thinking about this attention to "infrasound" (vibration lower than 20 Hz) is the work of artist and sculptor Wendy Jacob who in April 2009

[6] This article represents an exploratory effort, based upon our reading of key works within Sound studies and Deaf studies. As anthropologists, we are aware that there are no speaking, signing, listening, or viewing subjects in this article (with the exception of our section on articulations, which explores anthropological works). We hope our theoretical ruminations are useful to future ethnography.

organized a conference at MIT entitled "Waves and Signs," a workshop on low-frequency vibration co- organized by faculty and students from Gallaudet University along with MIT's Center for Advanced Visual Studies. The idea was to refuse a simple hearing/not-hearing binary by pitching the discussion, quite materially, down to a frequency register in which all parties could hear-by-feeling sound. For this event, Jacob built a raised 12 × 12 foot platform through which sound and infrasound was transduced…

A variety of material was played through the floor – elephant rumbles, a low-frequency recording of a bike ride a Gallaudet student took that morning, and dubstep music. The workshop might be understood as an intervention in what Steve Goodman (a.k.a. dubstep artist Kode9), in *Sonic Warfare: Sound, Affect, and the Ecology of Fear*, calls the "politics of frequency." Goodman's interest in very low sounds – sounds that edge from hearing into tactility – has him developing concepts such as "infrasound" or "bass materialism," an intriguing place for new encounters of Sound studies and Deaf studies since it moves away from purely audiological conceptions of sound, torques notions of "shared experience," and queries connections between mediation and experience. As Shelley Trower points out, "vibration appears to cross distances between things, between people, between self and environment, between the senses and society, promising (or threatening) to shrink or break down such distances." Here vibration produces a social and experiential space for hearing and deaf participants alike. Lest this way of phrasing matters appears to romanticize vibration as some proto- or infra-sensory force of unity across bodies and difference, however, we note, along with Trower, that vibration is itself in need of cultural and historical situating. As Trower writes, ever since nineteenth-century theories of electromagnetism, vibration has been "imagined to operate before being translated into sense-data (sound, light, heat), let alone language or image or sign." The "Waves and Signs" conference made it clear that vibration is rather always already itself a kind of mediation. It may produce shared experience, but it does not therefore produce identical experience; even within "one" individual, sense ratios and relations may shift and mix synesthetically. Phenomenologies of vibration are not singular.[7]

Deaf presenters at the "Waves and Signs" workshop, in discussing affinities for music, resisted dichotomies of sound and silence. In "Re-Defining Music Through a Deaf Lens," Summer Crider recounted attending rock concerts while holding balloons to capture the vibra- tion of music. Kindred Deaf artistic productions include the work of Rathskellar (www.rathskellar.com), a Deaf performance group that employs sounds in the form of heavy bass and drumbeats at such intense volumes that hearing audience members are offered earplugs for comfort. The UK-based "deaf rave movement" (www.deafrave.com/) delivers similar experiences. These examples define "sound" as a vibration of a certain frequency in a material medium rather than centering vibrations in a hearing ear; sound therefore plays a role in these experiences – and this troubles the pronouncement that deaf people are "all the time people of the eye."[8]

[7] Our argument here departs from such universalizing psychoanalytic approaches as those advocated by Didier Anzieu and Edith Lecourt, who develop the notion of the "sonorous envelope" to describe motherly sounds surrounding a baby, sounds they hold to be essential for ego development (see Lecourt 1990).

[8] And there are of course d/Deaf people who utilize hearing aids, cochlear implants, and/or residual hearing who have the experience of "hearing" music (e.g. Chorost 2005a).

Cyborg Sound/Utopian and Dystopian Visions

Technologically mediated – transduced – vibration might recall to us a device at the heart of debates about deaf relations to sound: the cochlear implant. Deaf scholars and activists have in the last decades participated in an impassioned debate about this technology. A cochlear implant consists of a tiny receiver placed under the skin behind the ear. The receiver has a probe with electrodes that is implanted into the cochlea, a spiral-shaped portion of the inner ear filled with liquid that transmits vibration to cilia ("hair-cells") attached to the interior of this coiling structure. A person with a cochlear implant wears a hearing-aid-like device that features a microphone, a processor, and a transducer. The processor manipulates what the microphone captures and sends a signal to the transducer, usually worn just behind the ear. The transducer changes the signal from electrical to magnetic, a signal that can be received through the skin by the implanted receiver. The receiver then stimulates the probe in the cochlea, causing "hearing" (cf. Helmreich 2007 on the making of self "presence" through transductive processes that, when they operate seamlessly, become invisible, inaudible, intactile supports for imagined "unmediated" experience). Where some envision cochlear implants bringing deaf people into the hearing world by providing sound through electromagnetic interface, others worry the technology may contribute to the attenuation of signing and to the valorizing of speech, and therefore, more calamitously, to the death of Deaf culture. The most heated debates around this technology center on whether it is acceptable for parents to choose implant surgery for deaf children.

Some users of cochlear implants, however, have lately been staking out another position, one Mara Mills calls "deaf futurism." Mills suggests that the standard terms of the debate – are implants devices that support audist and oralist supremacy or are they heralds of liberation for the deaf into the hearing world? – have recently been joined by a position that poses implants as cyborgian elements that are more than just devices that make deaf people "hear." Here, cochlear implants are technologies that betoken new human–machine interfaces, with the deaf at the vanguard of a networked post-humanism. If cochlear implants, for example, can be used to port into virtual worlds, then people with implants are at the forefront of sonic cyborgian embodiment, with hearing people left behind in an unaugmented state. In "deaf futurist" readings of implant technology, neuro-enhancement is ultimately the goal. Michael Chorost, a well-known public face of cochlear implantation, in his autobiographical 2005 book *Rebuilt* celebrates what he experiences as the emancipatory capacities of his implant. His 2011 book, *World Wide Mind: The Coming Integration of Humanity, Machines, and the Internet* extrapolates into a fully web-worked cybernetic sensory future in which virtual and actual sensory worlds intertwine. It should be stressed that the discourse of post-humanism has only been adopted by a few. Many implant recipients have ambivalent relationships with what this technology means for their identities and abilities, especially since, through implantation, they become biomedical subjects and consequently are more likely to identify as being disabled. More, the question remains as to what kind of relation a cochlear-implanted cyborg might have to the sociality of sign language and other Deaf social forms. Cochlear implantation may betoken the rupture of some key kinds of Deaf sociality.

Articulation

Studies of sign language would seem to offer little intersection with Sound studies, since here questions of visuality are paramount and sound has no clear relevance. We would like to experiment, however, with the notion that spoken and signed language both concern *articulation*. For phoneticians who make their living tracking the sounds of speech, articulatory phonetics details the physiological motion of parts of the vocal tract in the production of speech. Sign language also operates through a process of articulation, though here not of bodily managements of the flow of air via the larynx, glottis, tongue, and teeth, but rather through the positioning of fingers, hands, and facial expressions in space and time. But by articulation, we also wish to move beyond the bodily mechanics of speech and sign, attending to the ways language and sociality are entangled with one other in fashioning phenomenological and cultural worlds. Sound studies' sometimes phonocentric approach and Deaf studies' often oculocentric epistemology can miss shared interests in articulations of communicative practices with lived experience.[9]

But Sound and Deaf studies have also both been interested in transcending spoken language as a starting point in creating social worlds, an interest evidenced in some recent ethnography and cultural history. Ethnographers of music such as Steven Feld examine the making of *relational ontologies* – practices that call anthropologists, their interlocutors, and many others into co-presence through sound and vibration not always spoken (and not always only human; Feld's recent work on recordings of toads in Ghana adds a multispecies dimension to his dialogical anthropology of sound). Bauman discusses the ways that Quaker meetings, constituted through silent worship, create a shared sense of purpose and community. Friedner examines how deaf young adults in India engage in "sameness work" through which differences such as class, caste, and religious belief are backgrounded in order to create a cohesive deaf sociality. Members of this deaf sociality learn deaf practices and norms from each other, in addition to learning sign language.

Sign language, then, is not only a language; deaf social practices and aspirations are articulated within its transmission. Studies of signing and sign-language-using communities analyze Deaf poetics and narrative, the formation of Deaf social and political organizations, integrated Deaf and hearing sign language communities, myths surrounding "utopic" integrated sign language communities in which both hearing and Deaf people are purported to sign, or ideas of "deaf development," the emergence of Deaf administered structures and institutions that are premised upon valuing sign language, helping other deaf people, and sharing and working collectively.[10] Learning sign language means becoming a specific kind of deaf person who is always oriented towards other deaf people and deaf development. Such articulations of language, culture, and sociality foster new forms of affiliation as well as new senses of self and belonging.[11]

---

[9] Speech and sign share another feature: they are both ephemeral. And they are contemporaneous; we do not wish here to align our approach with speculations that speech "evolved" from gesture.

[10] Also consult Senghas and Monaghan (2002) for an overview of ethnographic work on sign language and Deaf cultural practices.

[11] In these ethnographic examples, neither deaf subjects nor researchers take language for granted.

Unsound, Unseen, and Beyond

In Deaf studies, a focus on the visual may erase deaf experiences of sound. Scholars in Sound studies, meanwhile, may miss deaf and Deaf experiences of sound because of audist assumptions. Attending to different degrees, kinds, genres, and articulations of perceiving sound, however, can open up new ways of "hearing with" and "being with," complicating Deaf studies' attachment to the "deaf-deaf same" (a phrase translated from sign language, indicating an experience on the part of the signer of similitude with other deaf people). Such challenges can build on those in motion from studies on Deaf-Blind communication. Deaf-Blind studies challenge the hegemony of the visual and auditory by centering attention on the possibilities and politics of tactile sign language. A new bumper sticker reading "Pro Tactile," found on cars in Seattle, Washington, home of America's largest Deaf-Blind community, and exhortations, also found mostly in Seattle, such as "Tactile love" remind us of the centrality of something other than sound or vision in many peoples' social worlds.

Goodman proposes the notion of "unsound" to refer, among other things, to "that which is not yet audible," to "sonic virtuality," and to "the nexus of imperceptible vibration." He means primarily to attend to the infrasonic and the ultrasonic as zones at "the fuzzy periphery of auditory perception, where sound is inaudible but still produces neuro effects or physiological resonances." In so doing, he stays near the realm of "sound," canonically conceived. But he also opens up space to think about the not-yet-articulated. Sound studies and Deaf studies have points of articulation – points of common concern about sensory socialities in their shared desire to carve out analytical and experiential spaces for contemplating what is unheard and unseen. In such spaces, and in focusing on how diversities of sensory socialities emerge, we can join with George Veditz who said of deaf people what we might say of anyone seeking to think anew about and from embodied circumstances: "They are facing not a theory but a condition." "Condition," as we read Veditz, is *experience* – and experience rarely fits into ideal types such as "seeing," "hearing," "signing," or "vibrating." What is called for are more ethnographies of the places where the objects and subjects of Sound and Deaf studies meet, domains in which, as with the joke that opened this article, we can stir from our everyday senses of social relations.

[Excerpted from H-Dirksen L. Bauman and Joseph J. Murray, ed., *Deaf Gain: Raising the Stakes for Human Diversity* (Minneapolis: University of Minnesota Press, 2014). Reprinted courtesy of the authors and University of Minnesota Press.]

Deaf Gain: An Introduction

H-Dirksen L. Bauman and Joseph J. Murray

Aaron Williamson began to lose his hearing at the age of seven. Having spent the rest of his childhood in visits to audiologists, he now wonders, "Why had all the doctors told me that J was losing my bearing, and not a single one told me that I was gaining my deafness?"[1] This is, to be sure, not a common question. Common sense tells us that *deaf* is defined by the loss of hearing. A visit to any dictionary confirms that there is no way to conceive of deafness other than through the loss of the auditory sense. Yet this definition is not always so common and does not always make sense among those who are deaf.[2] Rather than defining their particular sensory orientation in relation to a norm of hearing, deaf individuals live within the plenitude of their particular sensory orientation and languaculture.[3] To many in the deaf community, being deaf has nothing to do with "loss" but is, rather, a distinct way of being in the world, one that opens up perceptions, perspectives, and insights that are less common to the majority of hearing persons. The biological, social, and cultural implications of being deaf are not automatically defined simply by *loss* but could also be defined by *difference,* and, in some significant instances, as *gain*. In order to explore this notion, the editors of this volume coined the term *Deaf Gain* to counter the frame of hearing loss as it refers to the unique cognitive, creative, and cultural gains manifested through deaf ways of being in the world.[4]

"Deaf" within the Framework of Normalcy

The shift from hearing loss to Deaf Gain is only one instance of a larger paradigm shift in thought from an overarching framework of normalcy to one of diversity. As Lennard Davis and others have shown, the invention and enforcement of standards of normalcy gained ascendency within the industrial nineteenth century and have continued to be a dominant means of measuring and defining human biological, psychological, and cognitive abilities.[5] The concept of "normal" emerged as a way of understanding human beings only between 1840 and the 1860s, with the emergence of statistical science as a way of measuring human populations.

---

[1] Aaron Williamson is a British performance artist. He asked this question during a lecture to a graduate class in deaf studies at Gallaudet University in 2002. His work can be found at aaronwilliamson.org.

[2] A note on usage: as has become customary in deaf studies, the lowercase *deaf* refers to the audiological condition of deafness, whereas the capitalized *Deaf* refers to people who identify with the culture of deaf individuals.

[3] For more on the notion of "languaculture," see Thomas Horejes, *Social Constructions of Deafness: Deaf Languacultures in Education* (Washington, D.C.: Gallaudet University Press, 2013).

[4] H-Dirksen L. Bauman and Joseph J. Murray, "Reframing: From Hearing Loss to Deaf-Gain," *Deaf Studies Digital Journal* 2 (2009); and H-Dirksen L. Bauman and Joseph Murray, in *Oxford Handbook of Deaf Studies, Language, and Education*, ed. Marc Marschank and Patricia Spencer, vol. 2 (Oxford: Oxford University Press, 2010).

[5] See Lennard J. David, *Enforcing Normalcy: Disability, Deafness, and the Body* (New York: Verso, 1995).

This "age of normalcy" has had profound implications for Western deaf communities. Although American deaf education was conducted in sign language for much of the nineteenth century, for most of the following century educators forbade its use in the classroom and tried to abolish its use among deaf people. This philosophy, called oralism, fit in with a particular approach to biological difference—one that is intent on fixing, rehabilitating, and minimizing the distance between the normal and what is seen as pathological… Within the framework of normalcy, which insists upon pushing individuals into standard bodies, cochlear implants were an ideal device with which to extinguish the existence of a signing deaf community. This goal was publicly acknowledged by Gerald E. Loeb, a self-described coinventor of the cochlear implant, who predicted in 1993 the "extinction of the alternative culture of the Deaf, probably within the decade."[6] Loeb's prediction was wrong, but he accurately illustrates the point that those who promoted cochlear implants saw no harm in eliminating sign language and Deaf culture. The approach of normalizing deaf individuals has become so pervasive that the use of sign language, a naturally occurring human language, is often discouraged.

Currently the rapid increase of medical interventions-cochlear implants and educational programs that focus exclusively on auditory and oral education threaten to cause a precipitous decline in numbers of sign-language users. A November 2011 conference cohosted by the World Federation of the Deaf and the European Union of the Deaf took up the question of whether sign languages could be considered endangered languages. Although no sign language currently approaches the status of an endangered language according to UNESCO's measurement of language vitality, a number of presenters at the conference made it clear that their sign languages were in danger under a key measurement of language vitality: intergenerational transmission…[7] The opportunity for sign-language transmission in the schools has declined so precipitously that the world has now seen its first sign-language refugees, with seven deaf children having moved from Denmark to Sweden with their families in order to receive an education in sign language in Sweden, something no longer available in their country of birth.[8]

The decline of sign language is not inevitable. It is, however, logical within the framework of normalcy, for such a framework sees sign language as a type of prosthetic, a compensation for the loss of hearing, and if this can be even partially remediated, then there is little need for anyone to use sign language. This is the crux of an argument advanced against bilingual education for deaf children-that if they can get by with one language, then there is no need for them to be bilingual in both their national signed

---

[6] See http://www.usc.edu/uscnews/experts/653.html for Loeb's description of himself as the coinventor of the cochlear implant. The description appears in a letter to the editor of the *Atlantic Monthly,* December 1993, 8.
[7] Ad Hoc Expert Group on Endangered Languages, "A Methodology for Assessing Language Vitality and Endangerment" (UNESCO, 2003), a document submitted to the International Expert Meeting on UNESCO Programme Safeguarding of Endangered Languages, Paris, March 10–12, 2003. Retrieved from http://www.unesco.org/new/en/culture/themes/endangered-languages/language-vitality/.
[8] Janne Boye-Niemelä, "The Current Status of Danish Sign Language" (paper presented at the conference "Sign Languages as Endangered Languages," World Federation of the Deaf and European Union of the Deaf, November 6–9, 2011, in Ål, Norway).

and spoken languages.[9] But instead of conceiving deafness as a deviation from a norm of hearing, it may be seen as one particular way of being that is no less human, or no less valid, than any other. The concept of normalcy does not do this, but there is a different framework available, one that predates the invention of the regime of normalcy by thousands of years: that is the fundamental condition of *biocultural diversity.*

"Deaf" within a Framework of Biocultural Diversity

We are perhaps most familiar with the notion of biological diversity, as our earth is home to an astounding array of genetic variation, with more than one and a half million identified plant and animal species and millions more yet to be discovered. The number of mollusk species alone - 85,000 - is incredible, not to mention 12,600 varieties of ant, and between 7,000 and 10,000 kinds of mushroom. As biologists have made abundantly clear over the past few decades, one of the prime indicators of the health of an ecosystem is the genetic variation that exists within it. In contrast, a decrease in biodiversity results in the condition of mono-culture, in which ecosystems become increasingly fragile and vulnerable to widespread degradation and disease. This may be the case for ecosystems, but what are the implications for human wellbeing?

Although biologists have long recognized the fundamental nature of biodiversity, we have only begun to recognize the deep connection of biological diversity with linguistic and cultural diversity, resulting in a new field of study: biocultural diversity. As Daniel Nettle and Suzanne Romaine write, "Research has shown quite striking correlations between areas of biodiversity and areas of highly linguistic diversity, allowing us to talk about a common repository of what we will call *biolinguistic diversity:* the rich spectrum of life encompassing all the earth's species of plants and animals along with human cultures and their languages."[10] Although this correlation has been observed for some time, recent research has verified the correlation through a larger and more accurate set of data.[11] Results from this large set of data indicate that biodiversity hot spots and wilderness areas often contain significant linguistic diversity, amounting to 70 percent of all languages on earth.

The majority of the research and language-planning work within biocultural diversity focuses on spoken languages. Yet what about signed languages? Clearly, signed languages of deaf communities do not hold the ecological wisdom of indigenous languages of cultures that have been in intimate contact with their environment for a thousand years. Yet there is another mother lode of human diversity at work within signed languages and deaf communities. As will be seen throughout this book, users of sign languages contribute toward a robust diversity in their unique epistemological take on the world characterized by a visual-kinetic language and a host of embodied cultural behaviors and products that are virtually unknown to the rest of the world. Along with

---

[9] Harry Knoors and Mark Marschark, "Language Planning for the Twenty-First Century: Revisiting Bilingual Language Policy for Deaf Children," *Journal of Deaf Studies and Deaf Education* 17, no. 3 (November 2012): 291–305.

[10] Daniel Nettle and Suzanne Romaine, *Vanishing Voices: The Extinction of the World's Languages* (New York: Oxford University Press, 2000), 13.

[11] L. J. Gorenflo et al., "Co-occurrence of Linguistic and Biological Diversity in Biodiversity Hotspots and High Biodiversity Wilderness Areas," *Proceedings of the National Academy of Sciences (PNAS)*, May 7, 2012, doi:10.1073/pnas.1117511109.

the emergence of sign-language studies comes a new perspective on cognitive, creative, and cultural production that increases the already astounding variation on ways to be human.

In this light, deafness looks less like a biological dead end than like another evolutionary adaptation. Deaf people, rather than representing a net loss to be fixed, represent instead one of the necessities of evolution. Consider that, for some reason, the 400-odd assorted genes for deafness have not been phased out over the past ten thousand years of human history. In this time, we have gone from walking on all fours to standing erect, from being cave dwellers in the hills of East Africa to loft dwellers in the concrete canyons of Manhattan. Evolutionary biology theorizes that all species evolve by natural selection, with genes not optimal for survival being weeded out either by their carriers' dying out or by carriers' not finding reproductive partners. Yet the gene for deafness has stubbornly persisted across thousands of generations and is found everywhere in the world. This alone should indicate that deafness is not an evolutionary error but a natural human variation that continues to thrive.[12] One such "deaf gene," Cx26, has been found to be so persistent that biologists have sought to explore its properties in greater depth, finding that those individuals with two mutated copies of the Cx26 gene have thicker skin than those without. Studies have shown that the Cx26 gene is responsible for increased protection against infections from bacteria as well as accelerated healing of wounds[13]… This notion of the unexpected benefits arising from genetic variation encourages us to broaden our perspective to inquire into the multitudinous effects that a particular biological difference may bring about. When we look through the lens of biocultural diversity rather than normalcy, we are better able to move beyond the single story of deficit to the many stories of complex cause and effect. In this reckoning, what could be considered a pathological condition-deafness-could instead be seen as a contributor to a more robust social and cultural ecology.

Placing deaf studies within the frame of biocultural diversity provides a frame of reference that predates the frame of normalcy by some tens of thousands of years; it also expands the frame of biocultural diversity, which has yet to consider the epistemological and physical diversity inherent in the wider spectrum of minds and bodies in order to encompass the full range of human flourishing

[12] These ideas were raised by David Armstrong in "Deaf Gain in Evolutionary Perspective" (presentation at "Difference as Diversity," conference at Gallaudet University, Washington, D.C., April 2010).
[13] D. P. Kelsell et al., "Connexin 26 Mutations in Heredity Non-Syndromic Sensorineural Deafness," *Nature* 367 (May 1, 1997): 80-83; Christian G. Meyer et al., "Selection for Deafness?" *Nature Medicine* 8, no. 12 (2002): 1332-33, doi:10.1038/nm1202-1332.