

Book Review

Sensory Futures: Deafness and Cochlear Implant Infrastructure in India—Michele Ilana Friedner (Minneapolis, MN, USA: Univ. Minnesota Press, 2022, 288 pp.)

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■ **EXPERIMENTS USING ELECTRICITY** to stimulate hearing date back as far as 1748, when the portraitist and electricity researcher Benjamin Wilson electricized a covered vial through a wire that ran from one side of a woman’s temple to the opposite end of her head, bringing about an explosion and small warmth from ear to ear. An experiment from the 1930s made use of a living cat as a microphone, wherein an attempt was made to stimulate the cat’s auditory nerve [1]. If the electrical contact was successful, a listener could hear sounds spoken into the cat’s ear through a connected telephone receiver.

These experiments spurred others that would eventually lead to the development of the cochlear implant, a small device that is surgically inserted into the cochlea of the ear. The cochlear implant converts sound into an electrical current to stimulate hearing. Whereas a hearing aid amplifies sound, a cochlear implant directly stimulates the auditory nerve. Once inserted and activated, the user can no longer use a hearing aid in the implanted ear, in part

because the inserted electrode results in the loss of inner hair cells upon which a hearing aid depends.

Although implant surgery is short, lasting on average about 2 hours per ear, it marks the beginning of a long and complex set of material and financial maintenance routines.

Using hearing implant infrastructure in India as a case study, Michele Friedner highlights the relationship between cochlear implants and the notion of a biomedical normal. Cochlear implants are designed to highlight some sensations while casting a shadow upon those deemed less important. So, while the implant affords new possibilities, such as no longer needing to lip-read or being able to hear in the dark, it also entails the loss of other experiences, such as hearing the low-pitched sound of footsteps.

Throughout the book, Friedner explores these hierarchies of sensation, asking, what can an individual implanted child become? The possibilities are specific, *curated*, and *thus constrained* by technologies aimed at maintaining “ideal” sensory skills.

Sounds cannot be made meaningful with reference solely to decibels and frequencies. And yet, this is the criteria that underscores a “successful” implantation. The AzBio sentence test, which

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evaluates speech recognition, does so by having the implanted person listen to sentences in silence, as well as in noise of 5 or 10 dB. An audiologist sits outside of the booth and tests the ability of the listener to decipher each sentence *without any contextual cues*. The cochlear implant is judged as successful when its recipient can hear within the “speech banana of one’s audiogram,” a banana-shaped area of the audiogram that shows where most speech phonemes are located in terms of decibels. But of course, this disembodied hearing mirrors no experience of the real world.

Consider the sound of rain. Save for thunderstorms, rainfall measures approximately 50 dBA.¹

But this tells us practically nothing about the experience of sensing rainfall, which cannot be isolated from other environmental features that usher its signal toward us. Instead, one may feel a refreshingly cold mist from the open window. One may hear splashes, engines revving, cars passing over heterogeneous potholes, or birds chirping to express their excitement for juicy worms to follow. The sensorium produced by the AzBio test is one deeply shaped by implantation technology, disability discourse, and the politics that uphold the proliferation of both. A “narrow slice of sound, sense, and sociality,” indeed.

The uncritical embrace of technologies once considered at the periphery of health is sometimes referred to as healthism, what Cheek [2] calls a “what if?” approach to health, rather than “what is?” Healthism and ableism are deeply linked, and this is exemplified by many biotechnological solutions aimed at arresting disability. Noninvasive prenatal screening (NIPS), a test that analyzes small fragments of a pregnant person’s DNA to determine the risk that a fetus will be born with a genetic condition, is a salient example.

NIPS, while costing several hundred dollars, is a relatively effortless procedure. The efforts made by the families in *Sensory Futures* are quite different—cumbersome, time-consuming, with impermanent and unreliable results. Whether moving from a local village to Delhi or traveling to Bangalore to attend a postimplant training center, these efforts are difficult to celebrate.

Even under optimal circumstances, implant technologies may become obsolete. Parents in India

often become aware only *after* their efforts about how companies strategically phase out products to create demand for newer iterations. Friedner has suggested elsewhere that we replace the term “planned obsolescence” with “planned abandonment.”

Cochlear, the company with the largest market share, is headquartered in Australia. Friedner explains that they have provided more than 650,000 implantable devices internationally and roughly 150,000 in India. They are one of four major implant corporations. The other three, Med-EL, Advanced Bionics, and Neurelec, are headquartered in Austria, the United States, and France, respectively.

The stories recounted by Friedner show how these sensory affordances are shackled to places and people over whom deaf children and their families have little control. Cochlear implants place families in codependent relationships with insurance providers, multinational implant manufacturers, and medical facilities. *Sensory Futures* details the ambivalences produced by these relations as told by care providers, families, implant recipients, and government officials. Friedner also offers personal anecdotes from her own life. After her second implant surgery, she writes, “I was discomfited that I could no longer hear the (low-pitched) sound of my child’s footsteps coming down the stairs in the morning . . .” Her surgeon reassured her that once the implant was activated, she would no longer miss hearing those sounds.

In the second chapter, Friedner provides an overview of best practices concerning speech and auditory therapy. In auditory-verbal communication (AVT), unlike speech-based therapy or sign language, hearing is understood as the most important sense, “audition *first*, and then everything else will follow.” AVT stresses that even the most profoundly deaf children have some residual hearing that can be harnessed by bathing a child in sound.

This belief persists and is buttressed by implantation technology. Mothers are told that they must narrate everything to their children postimplantation. They must become akin to “cricket commentators.” In Chapter 3, Friedner shares observations of time spent at The Mothers Teaching Center, located in Bangalore, and Balavidyalaya, India’s most well-known early intervention program and school for deaf children. One of the most striking observations made by Friedner concerns how the mothers are, like their children, expected to cultivate a new

¹A-weighted decibel. This refers to the loudness of sounds. Whereas dB (decibel) usually refers to the amount of pressure change exerted in the air by a sound, A-weighting gives more value to frequencies.

sense. They must observe their surroundings in a thoroughly active way, pointing at and describing all features of their environment, whether intriguing or banal.

Strictly speaking, a cochlear implant is not an assistive device. A hearing aid is. This is because an assistive device maintains the boundary between the individual and the technology, allowing the user to tinker with the object in the way that suits their desired sensory reach. Assistive technologies *should* afford their users greater independence. Scholars in the field of “crip” technoscience show how disabled people are expert designers and hackers who often find ways to tinker with assistive technologies.

In this regard, Friedner argues, cochlear implants occupy a liminal space. They do not afford the user the possibility to tinker. One reason for this is that a cochlear implant requires surgery. And yet at the same time, cochlear implants require the continued maintenance of an external component and its parts, comprised of coils, cables, and batteries. The internal and external parts are intertwined, and so one cannot tinker with the latter, although it must be maintained. Chapter 4 offers copious descriptions of this maintenance work—how care for the external processor is synonymous with care for one’s implanted child. As one interlocutor put it to Friedner, “Madam, see, we take so much care of the machine, maybe more care than that of the child.”

This maintenance effort has affective value. Consider, for instance, the numerous YouTube videos showing implanted children reacting to their parents’ voices for the first time. In these clips, families gather in living rooms, armed with their phones ready to record what Friedner calls “viral switch-on moments.” There are viral switch-on videos for other sensory-adjustment technology too, like electronic eyewear for visual impairments. In many of these videos, it is not always clear that the moment of activation is enjoyable for the recipient. Despite this, uncritical heartfelt remarks abound in the comments sections. One reads, “I don’t understand how ANYONE could put a thumbs down on this one!!!!”

From this comment, we can glean what most people believe about cochlear implants: that they are net positive, that hearing something is always better than hearing nothing, and that implant corporations are benevolent entities. This is not all that surprising as marketing material for biotechnology tends to be, at once instruction and command. They act

as pedagogical devices, aimed to teach the future recipient about what normal is through its typical appearance [3]. This is apparent in a marketing video for the Kanso, Cochlear’s wireless processor unveiled in 2016. In it, a young college graduate of fashion design describes her device as a “chic” fashion accessory.

Or consider a Cochlear blog post highlighting the implantation story of Lou Ferrigno, who played The Incredible Hulk in 1977. Who better to symbolize the overcoming of disability than a real-life action figure? Ferrigno says that having a cochlear implant makes him feel as though he is “reliving [his] life.” This is a common feature of the integrated scale of development, wherein children are viewed to be multiple ages at once because cochlear implantation is marked as the beginning of one’s life. Children thus have a chronological birthday and a hearing birthday, where the latter must catch up with the former.

Cochlear implants have changed what it means to have impaired hearing. This transformation is not apolitical, nor does it guarantee a richer sensory life. Instead, cochlear implant infrastructure creates beautiful and taxing relationships—between implant recipients and their caretakers, as well as between care providers and the state.

Friedner’s injunction for societies to begin fostering sensory alternatives might seem hard to imagine. What kind of sensory infrastructure would be permitted, in her view? Skeptics will argue that sensory infrastructures, however constraining, must be maintained, lest we all wander around misunderstanding each other. After all, if the upshot is being able to communicate, as Friedner observes “what could be problematic about the state providing poor children with a missing sense?”

HOWEVER, THIS QUESTION fails to acknowledge how maintenance efforts are unevenly distributed. What is more, according to Friedner, cochlear implants do not eliminate disability—they privilege manufacturers that thrive off deficit framing. To see an experience as one of deficit entails viewing that experience as lacking something, of being empty or partial. The word deficit calls to mind an absent space. The interventionist will insist, “this space *must* be filled with *something!*” And, so begins the construction of a particular sensory infrastructure. This biotechnical embrace may seem harmless at the outset, but over time, less onerous alternatives

begin to erode, and deaf communities bear the consequences.



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