[From Norbert Wiener, "Sound Communication with the Deaf," *Philosophy of Science* 16 (1949): 260-262. Reprinted courtesy of The MIT Institute Archives.]

Sound Communication with the Deaf

Norbert Wiener

A group of us at the Massachusetts Institute of Technology, among whom are Professor J. B. Wiener and myself, have been working on a specific electrical apparatus to enable the deaf to appreciate the sounds of conversation through tactile sensations. After starting on research, we became aware that we had been working along the same lines as the Bell Telephone Laboratories. However, matters as important as this are of such great public interest that they transcend patent boundaries, and for this reason we are continuing to work on the improvement and the use of this apparatus.

For a philosophical journal like this the exact detail of the apparatus is not important; but the general principle used in solving the problem of sensory replacement is extremely important. This little note, therefore, is not a report of progress, but rather a report of those concepts which are guiding our progress.

First among these, is the fact that hearing is not only a sense of communication, but a sense of communication which receives its chief use in establishing a rapport with other individuals. It is also a sense corresponding to certain communicative activities on our part, namely those of speech. Other uses of hearing, such as the reception of sounds of nature and the appreciation of music, are important, but not so important that we should consider a person as socially deaf if he shared in the ordinary interpersonal communication by speech, but in no other use of hearing. In other words, hearing has the property that if we are deprived of all of its uses except that of speech-communication with other people, we should still be suffering under a minimal handicap. For the purpose of sensory prosthesis, therefore, we must consider the entire speech process as a unit. How essential this is, is immediately observed when we consider the speech of deaf mutes. With most deaf mutes, a training in lip-reading is neither impossible nor excessively difficult, to the extent that such persons can achieve a quite tolerable proficiency in receiving speech messages from others. On the other hand, and with very few exceptions and these the result of the best and most recent training, the vast majority of deaf mutes, though they can learn how to use their lips and mouths to produce sound, do so with a grotesque and harsh intonation, which represents a highly inefficient form of sending a message… The difficulties lie in the fact that for these people the act of conversation has been broken into two entirely [separate] parts.

We now come back to ordinary speech. We see that the process of speech, and hearing in the normal person have never been separated, but that the very learning of speech has been conditioned by the fact that each individual hears himself speak. It is not enough for the best results that the individual hear himself speak at widely separate occasions, and that he fill in the gaps between these by memory. A good quality of speech can only be observed when it is subject to a continuous monitoring and self-criticism. Any aid to the totally deaf must take advantage of this fact, and although it may indeed appeal to another sense, such as that of touch, rather than to the missing sense of hearing, it must resemble the electric hearing-aids of the present day in being portable and continuously worn.

The further philosophy of prosthesis for hearing depends on the amount of information effectively used in hearing. The crudest evaluation of this amount involves the estimate of the maximum that can be communicated over a sound range of 10,000 cycles, and an amplitude range of some 80 decibels. This load of communication, however, while it marks the maximum of what the ear could conceivably do, is almost too great to represent the effective information given by speech in practice. In the first place, speech of telephone quality does not involve the transmission of more than 3,000 cycles, and the amplitude range is certainly not more than from 5 to 10 decibels; but even here, while we have not exaggerated what is transmitted to the ear, we are still grossly exaggerating what is used by the ear and brain to reconstitute recognizable speech.

The best work done on this is the Vocoder work of the Bell Telephone Laboratories. They have shown that human speech is properly divided into not more than five bands, and that if these are rectified so that only their form envelope is perceived and used to modulate quite arbitrary sounds within their frequency range, then, if these sounds are finally added up, the original speech is recognizable as speech, and almost recognizable as the speech of a particular individual. This is true even though the amount of information transmitted has been cut to not more than a 10^{th} or 100^{th} of the original information present.

In the most normal hearing individual this cut takes place at several levels. What is perhaps the most important part of it is central, and occurs in the cortex. In appealing to the other senses of a deaf person, we must realize that apart from sight, all others are inferior to it, and transmit less information per unit time. The only way we can make an inferior sense like touch work with maximum efficiency, is to send through it, not the full information that we get through hearing, but an edited portion of that hearing suitable for the understanding of speech. In other words, we replace part of the function that the cortex normally performs after the reception of sound by a filtering of our information, before it goes through tactile receptors. We thus transfer part of the function of the cortex of the brain to an artificial external cortex. The precise way we do this in the apparatus we are considering is by separating the frequency bands of speech as in the Vocoder, and then by transmitting on these different rectified bands distant tactile regions. For example, the five bands may be sent respectively to the thumb and four fingers of one hand.

This gives us the main ideas of the apparatus needed for the reception of intelligible speech through sound vibrations transformed electrically into touch. We have gone sufficiently far already to know that the patterns of a considerable number of words are sufficiently distinct from one another to and sufficiently consistent among a number of speakers, to be recognized without any great amount of speech training. From this point on, the chief direction of investigation must be that of the more thorough training of deaf mutes in the recognition and the reproduction of sounds. On the engineering end, we shall have considerable problems concerning the increase of the portability of the apparatus and the reduction of its energy demands without any substantial loss of performance. These matters are all still sub judice. I do not wish to establish false and in particular premature hopes on the part of the afflicted and their friends, but I think it is safe to say that the prospect of success is far from hopeless.

[Excerpted from Jonathan Sterne, *The Audible Past: A Cultural History of Sound Reproduction* (Durham, NC: Duke University Press, 2003). Reprinted courtesy of the author and Duke University Press.]

Mediate Auscultation: The Social and Philosophical Basis of a Technique

Jonathan Sterne

The technology of the stethoscope was simple enough: Laennec's original instrument and those descended from it were monaural ("single-eared") instruments. Generally cylindrical in shape, they had an ear-piece at one end and a hole at the other that would be placed on the patient's body. The hole could be plugged with a stopper for specific applications. Later innovations to the monaural stethoscope included making the middle of the instrument flexible (through the use of rubber tubing) and modifying the tube into two halves so that it could be unscrewed for easy transportation.[1] Laennec had originally intended to call it simply *le cyclindre*, but others quickly tried to name the device. It was referred to as a *sonomètre, pectoriloque, pectoriloquie, thoraciloque, coronet médicale,* and *thoraciscope*. Laeneec thought all these names improper and instead proposed *stethoscope*, a conjunction of Greek words for "chest" and "examine" or "explore."[2] That the word has a visual connotation in *scope* should not be our primary concern: French thought at the turn of the nineteenth century was suffused with metaphors of connecting sight, light, and knowledge.[3] Laennec's teacher J. N. Corvisart spoke of physicians having the proper tact and glance (*coup d'oeil,* or "gaze"), so it is no surprise that a device so central to medical knowledge invented in France at this time would have a name with visual overtones. As I argue above, the philosophical privilege of sight is not the same thing as its privilege in practice. This is yet another case of a disjuncture between the aurality of a practice and the ocularcentric language used to describe it.

Physically, the stethoscope was a logical extension of the ear trumpet, which had been in use for centuries. At first, the stethoscope might appear as a kind of reversal of the ear trumpet: instead of the hearing-impaired person listening out into a functional world, the expert physician listens into the diseased body. But the *use* of the stethoscope had some important differences from the use of hearing aids. The stethoscope was not so much the inversion of the hearing aid as the generalization of its principle. Even as it posited the possibility that doctors could become virtuouso listeners, mediate auscultation endowed its practitioners with a functional disability. The unaided ear was not enough: for centuries, the hard-of-hearing had used ear trumpets as hearing aids. Now doctors—whose hearing was ostensibly healthy—could augment their auditory abilities. One early model of the monaural stethoscope, called a *conversion tube*, made

[1] Audrey B. Davis, *Medicine and Its Technnology: An Introduction to the History of Medical Instrumentation* (Westwood, Conn.: Greenwood, 1981), 97–102.
[2] Duffin, *To See with a Better Eye: A Life of R. T. H. Laennec* (Princeton, N.J.: Princeton University Press, 1998), 129.
[3] Martin Jay, *Downcast Eyes: The Denigration of Vision in Twentieth-Century French Thought* (Berkeley and Los Angeles: University of California Press, 1993), 83–148.

the equivalence clear: the stethoscope could be used as a hearing aid. Like the sound technologies that would appear later in the century, the stethoscope was built on a pedagogy of mediate auscultation that rendered the human ear an insufficient conductor of sound. In point of fact, the ear *was* insufficient for the purposes of internal medicine since the stethoscope was designed to render sounds otherwise imperceptible to the human ear more clearly audible. As it would come to be with the ear phonautograph, the telephone, and the phonograph, so it was with the stethoscope: mediate auscultation fetishized the cultural status and trappings of hearing loss. This is to say that, as far as Laennec was concerned, all of his doctors needed a hearing aid—no matter what condition their hearing was in. Even the doctor's trained ear could never hear enough without the stethoscope.

One of the reasons for the apparent breakthroughs associated with the stethoscope was that, in Laennec's own opinion, it made use of hearing—a "novel sense" in diagnosis.[4] The novelty of hearing was not in its presence, however, but in its application: mediate auscultation is not so much a shift *to* listening in medical practice as a shift *in* listening. This new form of listening constitued a whole field of sounds as potentially meaningful in diagnosis. In other words, audile diagnosis shifted from a basis in intersubjective speech between doctor and patient to the objectification of patients' sounds—in mediate auscultation, patients' voices existed in relation to other sounds made by their bodies, rather than in a privileged relation to them.[5] Speaking patients with mute bodies gave way to speaking patients with sounding bodies.

[4] Davis, *Medicine and Its Technnology,* 88.
[5] This was also a result of the clinicalization of medicine and the shaping of the doctor-patient relation through its rationalization and institutionalization.

[Excerpted from Stefan Helmreich, "Seashell Sound," first printed in *Cabinet* no. 48, Winter 2012/2013. Reprinted courtesy of the author and *Cabinet*.]

Seashell Sound

Stefan Helmreich

Shell of the bright sea-waves!

What is it, that we hear in thy sad moan?

Is this unceasing music all thine own?

Lute of the ocean-caves!

Or does some spirit dwell

In the deep windings of thy chambers dim,

Breathing forever, in its mournful hymn,

Of ocean's anthem swell?

—Amelia Welby, "To a Sea-Shell," 1845

What sounds reside in spiral seashells? For generations, people who live by the sea have held that, when pressed to the ear, seashells resound with something like the roar of the ocean—a sensation whose explanation has offered a puzzle pleasurable and provocative to scientists and lay listeners alike.

In his 1915 *Book of Wonders*, popular science writer Rudolph Bodmer suggested that the association followed from the symbolic power of shells: "The sounds we hear when we hold a sea shell to the ear are not really the sound of the sea waves. We have come to imagine that they are because they sound like the waves of the sea, and knowledge that the shell originally came from the sea helps us to this conclusion very easily."[1] But the likeness, he urged, had a technical explanation—though one in which similitude still figured. Both sea and seashell sounds were generated by waves: "The sounds we hear in the sea shell are really air waves"—waves, that is, of concentrated, resonant noise from the listener's surroundings.

[1] Rudolph John Bodmer, *The Book of Wonders* (New York: Presbrey Syndicate, 1915), p. 79. Bodmer's book was described on its title page as giving "plain and simple answers to the thousands of everyday questions that are asked and which all should be able to, but cannot answer."

Tune in a century later, however, and ear-centered explanations like Bodmer's coil in on themselves; his explanation of seashell resonance (in agreement with scientific thinking then and now) loses out in most popular accounts to the erroneous claim that what we hear in seashells is the flow of our own blood. Jennifer Lawson's 2001 *Hands-on Science and Technology* asserts, "Many students will tell you that they hear the ocean in the seashell. Actually, the dull roaring sound they hear is the echo of the blood moving inside their ear."[2] OMGFACTS.com—"the #1 fact source on Twitter," and a contemporary analog, perhaps, to the *Book of Wonders*—offers, "When you put a seashell next to your ear, it's the sound of your blood surging in your veins, not the ocean."[3] Oceanic other, sounded out, outs itself as inside noise.

Why this slide from the sound science of reverberating air to the sciency-sounding flow of blood? In 1889, Robert E. C. Stearns coined the term "ethno-conchology" to describe how shells have "been curiously interwoven with the affairs of men, both in civilized and barbarous communities."[4] I suggest that the changing ratios of ocean, air, and blood in seashell sound accountings track a European-Atlantic-American ethno-conchology, one that unrolls from Romantic enthrallment toward a double-edged modernity that uses the language of science to disenchant at one moment and then re-enchant at another. This essay puts an ear to popular science and poetry, following a history that has, first, shells singing, speaking, sighing, and echoing distant oceanic and communal pasts, and next, shells reflecting back the personal and present moment, and, then, as we approach today, delivering sounds imagined deep inside, rather than outside, human bodies. At stake are changing models of the relation between hearing, the world, and the self, with the avowedly mystical and communal gradually replaced by the secular, scientific, and individual—though, with the arrival of the blood-in-the-ears interpretation, infused anew with an element of the mythical.

SPEAKING SHELLS

Begin with shelly speech. Around 1800, William Wordsworth wrote of a dream in which he was given a book in the form of "a shell / Of a surpassing brightness." Instructed to hold it to his ear, he "did so,"

And heard that instant in an unknown tongue,

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[2] Jennifer E. Lawson, *Hands-on Science and Technology: Sound, Physical Science* (Winnipeg: Portage & Main Press, 2001), p. 39.

[3] See www.omg-facts.com/view/Facts/13.

[4] Robert E. C. Stearns, "Ethno-Conchology: A Study of Primitive Money," *Annual Report of the Board of Regents of the Smithsonian Institution 1887,* part 2, p. 297. I cannot follow all ethno-conchologies here, and sound created by blowing though shells is a major absence here. Take, too, Southern black American tradition, which uses shells to mark graves. A woman from St. Simons Island, Georgia: "The shells stand for the sea. The sea brought us, the sea shall take us back. So the shells upon our graves stand for water, the means of glory and the land of demise." In William S. Pollitzer, *The Gullah People and Their African Heritage* (Athens: The University of Georgia Press, 1999), p. 184. In another context, audio designer Pietro Desiato in 2007 proposed a memory project for graves sited in Malmö, Sweden, that would use seashells outfitted with internal digital audio recorders as repositories for visitors' words of remembrance. See Pietro Desiato, *Memorie: Supporting the Practices of Memory in the Graveyard* (Malmö, Sweden: School of Arts and Communication, Interaction Design Master Thesis, 2007). Available at dspace.mah.se/bitstream/handle/2043/6350/Memorie.pdf.

Which yet I understood, articulate sounds,

A loud prophetic blast of harmony;

An Ode, in passion uttered, which foretold

Destruction to the children of the earth

By deluge, now at hand.

—William Wordsworth, *The Prelude or, Growth of a Poet's Mind*, Book Fifth, 1799–1805

English and American poetry through the nineteenth century continued to hear speech in seashells, sometimes clear, sometimes ghostly.[5] Wordsworth's ode came from the future (a "prophetic blast"), but most—and we need not distinguish between lesser and greater poets—heard sounds from a distant past:

Gather a shell from the strewn beach,

And listen at its lips; they sigh

The same desire and mystery,

The echo of the whole sea's speech.

—Dante Gabriel Rossetti, "The Sea-Limits," 1849–1855

I send thee a shell from the ocean beach;

But listen thou well, for my shell hath speech.

Hold to thine ear

And plain thou'lt hear

Tales of ships

—Charles Henry Webb, "With a Nantucket Shell," 1888

[5] Spiral shells were new in Romantic poetry, displacing scalloped shells (which had been employed as sounding boards for lyres): "The seashell indicates the emergence of a new image of poetic voice as that which releases powers trapped in nature and in objects by breathing in (inspiring) voice as pneuma or spirit. … [But] … the voice or music which is projected from a seashell is not an original, external sound, but a series of echoes … the shell transforms these sounds by submitting them to the transforming acoustic of its resonating cavities, whether these belong to a seashell or to the Romantic poet." Theresa M. Kelley, "Proteus and Romantic Allegory," English Literary History, vol. 49, no. 3 (Autumn 1982), p. 636. Welby's poem, with its shell moving from "lute" to "breathing," may exemplify the shift from pre-Romantic to Romantic.

FROM VOICE TO VIBRATION AND PART WAY BACK

While poets invited readers to listen at seashell lips and hear tales of ships, scientists put forward accounts of seashell sound as the result of wave mechanics. The explanation was in place by 1835, in a college textbook:

The concave, undulating, and perfectly polished surface of many sea shells, fit them to catch, to concentrate, and to return the pulses of all sounds that happen to be trembling about them, so as to produce that curious resonance from within, which resembles the distant murmur of the ocean.[116]

In 1836, John Ayrton Paris's *Sports and Amusements for the Juvenile Philosopher* translated this accounting for a younger readership: "The interior of the shell merely concentrates and thus multiplies the sounds around us, so as to render them audible."[7] The language of vibration became a steady feature in such explanations, as, for example, in 1857's *The Reason Why: A Careful Collection of Many Hundreds of Reasons for Things Which, Though Generally Believed, Are Imperfectly Understood*:

Why do sea-shells give a murmuring noise when held to the ear?

Because what may be called expended vibrations always exist in air where various sounds are occurring. These tremblings of the air are received upon the thin covering of the shell, and thus being collected into a focus, are transmitted to the ear."

Political cartoon from 1910 depicting President Taft listening to various seashells representing prominent political figures rather than to the unmediated voice of "the people," symbolized by the ocean. The accompanying caption read: "Shells give a good imitation; but, just for a change, why not listen to the real thing?"

Such understandings of sound, which would be famously codified in 1862 by Hermann von Helmholtz in his *On the Sensations of Tone*, were not immune to fanciful appropriations, especially alongside spiritualisms that held that worldly vibrations might contain the voices of the dead.[8] In Florence McLandburgh's 1873 story "The Automaton-Ear," a scientist constructs an ear trumpet that can be tuned to the decaying sound waves of any moment in history.[9]

EERIE AND EARY DOUBLES

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[6] Dension Olmsted, *An Introduction to Natural Philosophy: Designed as a Textbook for the Use of the Students in Yale College*, vol. 2, second edition (New Haven: Hezekiah Howe & Company, 1835), p. 78.

[7] John Ayrton Paris, *Sports and Amusements for the Juvenile Philosopher* (Middletown, CT: E. Hunt and Company, 1836), p. 168.

[8] Hermann Helmholtz, *On the Sensations of Tone as a Physiological Basis for the Theory of Music* (New York: Dover Publications, 1954). On vibrations as the persisting voices of the dead, see Jeffrey Sconce, *Haunted Media: Electronic Presence from Telegraphy to Television* (Durham: Duke University Press, 2000).

[9] For analysis of this story, see Shelley Trower, *Senses of Vibration: A History of the Pleasure and Pain of Sound* (London: Continuum, 2012).

The seashell was a whisperer of secrets,[10] a vulval threshold, and sometimes, reversing identification as an organ of speech, an ear (or, even, a nascent telephone):

I saw the sea-shell's lips burn like a flame

When the wave chased and caught it with a breath of laughter,

And whispered in its ear the ocean name

That it sings o'er and o'er forever after.

—Avanelle L. Holmes, "A Beautiful Life," 1871

Such ear-shell connections were in the making earlier (rendering this whole history, perhaps, more spiral than linear, with symbolisms washing to and fro, especially in the devious sounding devices that are poems). Paduan anatomist Gabriele Falloppio, describing the spiral cavity in the inner ear in 1561, called it the *cochlea*, Latin for "snail."[11] Ear-seashell analogies remain saturated with the oceanic. Tara Rodgers explains that the ear has been construed as holding an ocean within: the "term ear 'canal' itself evokes a channel of water for navigation, an arm of the sea."[12] She reports that physicist James Jeans in his 1937 *Science & Music* advanced a "vibrant analogy of sound and water waves that transposed this turbulent fluidity of the sounding world onto the interior of the subject." Jeans wrote:

Sound reaches our ears in the form of waves which have travelled through the surrounding air, much as waves travel over the surface of a sea or river; some of these waves travel down the inch-long backwater formed by the auditory canal, and finally encounter the ear-drum, which forms a barrier at the far end.[13]

The shell operates at once as mouth, damp and resonant grotto, and doppelgänger ear—an eerie object becoming (never entirely) a disenchanted scientific thing.

Walter Benjamin played with the notion that shells contain worldly echoes, writing in the 1930s about his childhood around 1900: "Like a mollusk in its shell, I held my abode in the nineteenth century, which now lies hollow before me like an empty shell." Imagining he could hold that century to his ear, he asked, "What do I hear?" answering,

the brief clatter of the anthracite as it falls from the coal shuttle into a cast-iron stove, the dull pop of the flame as it ignites in the gas mantle, and the clinking of the lampshade on its

[10] Avanelle W. Holmes, "A Beautiful Life," in *The Ladies' Repository: A Monthly Periodical Devoted to Literature and Religion*, ed. I. W. Wiley, vol. 31 (Cincinnati: Hitchcock and Walden / New York: Carlton and Lanahan, 1871), p. 279.
[11] Gabriele Falloppio, *Observationes anatomicae* (Venice: Marco Antonio Ulmo and Gratioso Perchachino, 1561).
[12] Tara Rodgers, "Toward a Feminist Epistemology of Sound: Refiguring Waves in Audio-Technical Discourse," in *Philosophy After Irigaray*, ed. Mary Rawlinson, Danae Mcleod, and Sara McNamara (Albany, NY: SUNY Press, forthcoming).
[13] Quoted in Rodgers, ibid.

brass ring when a vehicle passes by on the street. And other sounds as well, like the jingling of the basket of keys, or the ringing of the two bells at the front and back steps.[14]

Robert Ryder suggests that, "what Benjamin hears in the conch are the primordial murmurings of the universe, but in the form of their smallest acoustical singularities."[15] This, argues Ryder, is the acoustical unconscious (or "un-*conch*-ious"). But Benjamin's is also a moment in Euro-conchology in which shells concentrate memory by gathering the history of the vibrating world around them. We have the meeting of two models for seashell sound: a mythic model that has seashells as channels for voices from a communal past, and a materialist model that has seashells as resonant chambers of individual, located experience.[16]

BLOOD MUSIC

Seashells echoing back sounds around us—that interpretation might have been that, were it not for the fact that today a weird explanation of seashell sound has wormed its way into folk acoustics: that shells amplify the flow of listeners' own blood. Although I have not been able to trace a definitive origin, the notion appears in the late nineteenth century. From 1882:

The hollow sea-shell, which for years hath stood

On dusty shelves, when held against the ear

Proclaims its stormy parent; and we hear

The faint far murmur of the breaking flood.

We hear the sea. The sea? It is the blood

In our own veins, impetuous and near,

And pulses keeping pace with hope and fear

And with our feelings' every shifting mood.

—Eugene Lee-Hamilton, "Sea-Shell Murmurs," 1882

James Joyce's *Ulysses*, 1922:

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[14] Walter Benjamin, *Berlin Childhood around 1900*, trans. Howard Eiland (Cambridge, MA: Harvard University Press, 2006), p. 98.
[15] Robert Ryder, "Walter Benjamin's Shell-Shock: Sounding the Acoustical Unconscious," *New Review of Film and Television Studies*, vol. 5, no. 2 (12 July 2007), pp. 135–155.
[16] Thanks to Hillel Schwartz for this parsing, as well as for reports from his research into the biographical details of many of poets I quote here, details that often point to lives filled with mourning and loss.

Bloom through the bardoor saw a shell held at their ears. He heard more faintly that that they heard, each for herself alone, then each for other, hearing the plash of waves, loudly, a silent roar...

The sea they think they hear. Singing. A roar. The blood is it.

For this explanation to gather momentum, blood must first be imagined to have a sound. Such became newly possible with the stethoscope, invented in 1816 and fine-tuned through the nineteenth century. Interestingly, the sounds it delivered were sometimes compared to those from a seashell. An 1893 manual: "The principal pathological venous murmur is the *venous hum* or *bruit de diable*. It is compared to the sound heard on placing a sea shell of moderately large size against the ear."[17] It would be important for doctors not to confuse the sound of blood with stethoscopic channels; an 1886 advertisement for a "binaural stethoscope" suggests that an imperfect device "reminds us of the child's toy resonator, a sea-shell."[18] But if seashells play tricks, stethoscopes enable people to imagine hearing their own blood.[19]

The move from hearing a communal mythical past to auditing an individual present continues, now reaching into physiology. Lee-Hamilton's sly suggestion that even heart sound has no intrinsic meaning, however, indicates an emergent ambivalence here—something like the ambivalence of modernism, which oscillates between disenchantment and re-enchantment.

One can find the blood-echo explanation these days in many venues, mostly—ironically—educational ones devoted to clearing up misconceptions of scientific facts. The 1993 textbook *Science Interactions* reports, "What you're really hearing is the sound of your own blood rushing through the vessels inside your ear. You normally don't hear this sound. The seashell makes it easier for you to hear it."[20] *Gifted and Talented, Questions and Answers: Super Edition for Ages 4–6* from 2000 suggests, "The seashell's hard, smooth surface bounces, or echoes, the sound of the flowing blood back into your ears. This sound is very much like the sound of the ocean."[35] Even rationalist skeptic Carl Sagan got behind this angle: "Everyone knows the 'sound of the sea' to be heard

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[17] James Tyson, *Manual of Physical Diagnosis* (Philadelphia: P. Blakiston, Son & Co., 1893), p. 134. Figurative swirls into literal in 1995 with a stethoscope head "constructed from a sea shell having a relatively broad, generally circular aperture defining a sound chamber opening, said chamber having a naturally polished, sound reflecting, interior surface" (D. B. Katz, US Patent 5,420,382, 30 May 1995). The phrases venous hum and bruit de diable were bold in the original advertisement. See Hillel Schwartz, *Making Noise: From Babel to the Big Bang and Beyond* (New York: Zone Books, 2011) for the definitive history of stethoscopy.

[18] Advertisement for "Dr. Spencer's Improved Binaural Stethoscope," *The Practitioner: A Journal of Therapeutics and Public Health*, vol. 36, no. 3 (March 1886).

[19] Medical professionals argue that one's blood cannot be heard from within:"The ear filters out or minimizes these sounds. Thus, for instance, the auditory ossicles (the *malleus*, *incus*, and *stapes*) are separated by fluid-filled membranes that reduce bone-conducted vibration. Sounds from inside the body are screened out so as to make the outside world audible. Ackerman suggests that, were this not to occur, even the sound of a person's own blood flow 'would be as deafening as sitting in a lawn chair next to a waterfall.'" See Tim Rice, "Sounding Bodies: Medical Students and the Acquisition of Stethoscopic Perspectives," in *The Oxford Handbook of Sound Studies*, ed. Trevor Pinch and Karin Bijsterveld (Oxford: Oxford University Press, 2011), p. 304.

[20] Bill G. Aldridge, *Science Interactions*, vol. 1 (New York: Glencoe / Macmillan / McGraw-Hill, 1993), p. 109.

when putting a seashell to one's ear. It is really the greatly amplified sound of our own blood rushing."[21]

Sometimes such explanations bring waves back in; the cochlea contains fluid that carries traveling waves.[22] Deeper confusion arrives, courtesy of www.faqkids.com:

When you put a seashell up to your ear, what you hear is not the ocean. The sound comes from inside your own ear. The inner part of your ear, the part that is far back into your head, has both bone parts and soft tissue parts. In between these is your cochlea, which is a tiny organ that looks like a snail's shell. Your cochlea is filled with fluid. This fluid helps you transmit sounds from your eardrum to your brain. And it sloshes around like waves. We don't usually hear this sound because it is so quiet. But when you hold a seashell to your ear, this small sound echoes off the shell and back into your ear.[38]

This explanation recalls Jeans's conception of the ear holding its own ocean. But how has the blood-(or other fluid)-in-the-ears account gained its popularity?

The shell, which in Wordsworth had a "tongue" and an "articulate sound," came to have a voice whose "speech" (Rosetti, Webb) was always competing with the "moan" of "unceasing music" (Welby), a "sigh" (Rosetti, Quarmby), an "echo," or a "murmur" (Rosetti, Bäärnhielm). The murmur became vibratory, a sign of present-day rather than long-ago worlds. It blurred boundaries between mouth and ear, and the shell became like a telephone—as in Holmes's 1871 poem in which shell is "lips" *and* "ear," a chamber of echoes conjoining listening and speaking, turning auditors back on themselves.

That transformation prepared the way for a model of subjectivity in which people could imagine themselves sensing themselves sensing. Fast forward to a key moment in the history of modernist sound. In the early 1950s, after visiting an anechoic chamber, a room designed to absorb all sound, composer John Cage wrote: "In that silent room, I heard two sounds, one high and one low. Afterward I asked the engineer in charge why, if the room was so silent, I had heard two sounds. He said, 'Describe them.' I did. He said, 'The high one was your nervous system in operation. The low one was your blood in circulation.'"[23] As Douglas Kahn has observed, Cage, who in most settings refused to ask after the "source" of sounds (he wanted "sounds to be themselves"), here conjured a dematerialized, disembodied self: a listener inside the shell of the body.[24] [40]

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[21] Carl Sagan, *The Cosmic Connection: An Extraterrestrial Perspective* (Garden City, NY: Anchor Press/Doubleday, 1973), p. 224. Sagan gets weirder: "But is this really true? Has this been studied? Has anyone attempted to decode the message being sounded by the seashell? I do not intend this example as literally true, but rather as an allegory. Somewhere on earth there may be the equivalent of the seashell communications channel. The message from the stars may be here already."

[22] Elizabeth S. Olson, "Direct Measurement of Intra-Cochlear Pressure Waves," *Nature*, vol. 402, issue 6761 (2 December 1999), pp. 526–529.

[23] John Cage, *A Year from Monday* (Middletown, CT: Wesleyan University Press, 1967), p. 134.

[24] Douglas Kahn, "The Art of Anechoic Perception in Postwar America." Lecture presented at Amsterdam School of Cultural Analysis, 30 March 2005. A 2003 poem has the writer losing her hearing, listening to sounds generated by her wounded ear: "…ocean sounds / the sound a seashell makes when you put it / to your ear." See Sheryl St. Germain, "Tinnitus," *Women's Studies Quarterly*, vol. 31, nos. 1 & 2 (Spring 2003), pp. 181–183.

The blood-echo explanation winds the scientific back to the fantastic. The echoing ocean, once dethroned by vibrating air, has now been displaced by brute blood, something of a solipsistic surrogate for the salty sea. But what the ocean wave and blood pulse explanations have in common is the idea that human experience reaches into depths we cannot fathom—that what we feel in the moment arrives from far away or inside, from zones that evade direct apprehension.

[Excerpted from Avital Ronell, *The Telephone Book: Technology, Schizophrenia, Electric Speech* (Lincoln: University of Nebraska Press, 1989). Reprinted courtesy of the author.]

The Deaf

Avital Ronell

Since one of the branches of its genealogical tree link it to the predicament of deafness, the telephone will always be hard of hearing, and thus unhinging. With the deaf-mute, language is cut to the quick. Theories rush in emergency supplies to dress the wound. The stakes are high and abundantly argued. We shall have to content ourselves with the results of a micro recording that situates telephonies within an order of deafness. The condition which Dr. Johnson called "the most desperate of human calamities," deafness focalized the subject's site in language and the spatialization of accoustical images. David Wright, the deaf man who wrote, and among the first to accede to language in this way, speaks of the "phantasmal voices" which he constantly hears. Wright contends that for those deafened postlingually, the world remains full of sounds even though they are "phantasmal." According to Isabelle Rapin's "The Effects of Early Blindness and Deafness on Cognition," to be born deaf implies a plight infinitely more serious than to be born blind. These calculations are difficult to reckon; nonetheless, they make a certain amount of sense. Try to imagine the prelingually deaf, unable to hear their parents, denied entry to the Symbolic. Empirically, they risk being severely impaired, defective in their grasp of language. If we cannot enter language "we will be bizarrely disabled and cut off, whatever our desires, or endeavors, or native capacities." They suffer an a priori disconnectedness that technology promises to repair, ever trying to rehabilitate the Wild Boy of Aveyron. The deaf, unable phenomenally to hear the Other. I think Bell was working both sides of the switchboard at this time. On the night shift, and always
working for the Other, he outlines his early incredulity concerning the value of lipreading to the deaf:

> My original scepticism concerning the possibility of speech reading had one good result: it led me to devise an apparatus that might help the children . . . a machine to hear for them, a machine that should render visible to the eyes of the deaf the vibrations of the air that affect our ears as sound. . . . It was a failure, but that apparatus, in the process of time, became the telephone of today. It did not enable the deaf to see speech as others hear it, but it gave ears to the telegraph, and to-day we hear in Boston what is spoken in New York and Chicago. (M, 56-57)

"I trust," Mr. Bell concludes apologetically, "that you will pardon personal allusions to my own work" (M, 57). He trusts and he apologizes; he has somehow become too personal—" pardon personal allusions to my own work"—in this history of an aberrant invention, as i f his ownmost work were to expose the personal work of the grief-stricken. He assigns the origin of the telephone to the missing children known as the deaf—children or siblings fully out of earshot. " It is only right that it should be known that the telephone is one of the products of the work of the Horace Mann School for the Deaf, and resulted from my attempts to benefit the children of this school" (M, 57).

Bell thought, "if I could discover the shape or form of vibration that was characteristic of the elements of English speech, I could depict these upon paper by photographic or other means for the information of my deaf pupils" (M, 67). Even with the help of material borrowed from the lab of MIT, the difficulties of photographing the flickering band of nervous light were no less than photographing a phantom. Bell turned his attention to the phonautograph of Leon Scott at that time, which, as its name indicates, was a sound-writer.

The phonautograph consisted of a stretched membrane and conical mouth piece. A plain sheet of glass covered with lampblack was so arranged that, when a sound was uttered into the mouthpiece and its vibrations thus communicated by the stretched membrane to the wooden lever, the bristle wobbled up and down, tracing its motions on the lampblack surface. We are most transparently talking writing, or on the tracks of a ligaturing between the pair. Moreover, the sheet o f glass was arranged to move along at a uniform rate, recording the vibrations thus made, implementing a kind of vibrography.

And so sound writing soon caught the human ear: "I was struck by the likeness between the mechanism of the phonautograph and the human ear, the membrane of the one being loaded by a lever of wood, and the membrane of the other by levers of bone. It appeared to me that a phonautograph modelled after the pattern of the human ear would probably produce more accurate tracings of speech vibrations than the imperfect instrument with which I was operating" (M, 70). He already had gotten in touch with Dr. Clarence J. Blake during the autumnal mourning period of 1871. Let us tap this call one more time.

Lecturer on otology at Harvard and aural surgeon at the Massachusetts Eye and Ear Infirmary, Dr. Blake provided Bell with some expert advice for reproducing the structure of the human ear. Bell, in his own words, calling on him: "I told him that I wanted to get a phonautograph modelled after the ear, and he quite startled me with the suggestion—'Why not take an ear from a dead man and get tracings from the little bones of the ear?'" (M, 71). Startled or not, Bell went for it but didn't know where to go. Blake volunteered his professional services, and "went to the Harvard Medical School to get it." But it was not a single ear that was got from Harvard; a pair of ears were pulled out, for Blake "had not only an ear from a dead subject prepared for Bell's use, but secured one for himself" (M, 71). This kind of conduct tends to border on illegality, but it turned out that because the ears were a missing pair, they legally assisted Bell.

He moistened the ear with glycerine to make it flexible, attached a small piece of hay as a substitute for the bristle of the phonautograph, and when he spoke into the membrane of the ear he saw the hay vibrate. (M, 71-72)

The ear enlarges, starts walking. He carries it home with him; or rather, it transports him. He shouted vowels into the dead ear, he watched the tracings made on the smoked glass. He had brought one of a pair of dead ears to his father's home, to make it respond to a call, to make it produce tracings of itself on smoked glass, neither transparent nor entirely lost in a fog of invisibility.

Describing this moment, AGB was to write: “And the telephone was conceived” -> “I had reached this idea and had gone a step further. I had obtained the idea that theoretically you might [who is you?], by magneto electricity, create such a current. I f you could only take a piece of steel, a good chunk of magnetized steel, and vibrate it in front of the pole of an electromagnet, you would get the kind of current we [who is we?] wanted” (M 72-73). The statement announces itself as a “you” that slips into the position of a “we.” The telephone’s birth pangs already determine the pronominal displacement, the vibrography of address.

“The conception of the telephone,” he adds in 1916, “took place during that summer visit to my father’s residence in Brantford, in the summer of 1874, and the apparatus was just as it was subsequently made, a one-membrane telephone on either end” (M, 73).

What compels attention at this point is the way the telephone, in the figure and person of Alexander Graham Bell, splitting itself off into the poesy of body parts, conceptually plugs into genetic research and engineering—something that should come as no great surprise to those who maintain a theory of organ extension or amputation as concerns technological tools. Precisely because the telephone was itself conceived as a prosthetic organ, as supplement and technological double to an anthropomorphic body, it was from the start installed within a concept of organ transplant, implant, or genetic remodeling in a way that the Promethean Frankenstein monster already had foreshadowed.

In the particularized case of Bell, there had been something that he could not swallow, a death paired, impossible to assimilate or digest and whose figuration shaped the place of the telephone—properly a place of absence, where the Other speaks in the absent tense of its many voices, engaging multiple path transmissions of disfigured tracings. The ghosts that accompanied both Watson and Bell, whose permanent residence has been registered neither inside nor outside technology, have been made to disappear, falsely translating the most uncanny of phenomena, whose effect is not reducible to a phenomenology of spirits, into a cannily at-hand household object—an organ attachable, that holds a membership card to the human body, from which it detaches.

The telephone makes you swallow what is not there.

[Excerpted from Sophie Woolley, "Cyborg," first published in *Tacet, Or The Cochlear Vertigo* (www.formsofcouncil.org/en/inquiries/30_tacet_or_the_cochlear_vertigo/248_cyborg). Reprinted courtesy of the author.]

Cyborg

Sophie Woolley

Date : XXXXXXX
From : Sophie Woolley
To : Inigo Wilkins
XXXXXXXXXX

I had an Advanced Bionics cochlear implant recently and yesterday it was switched on. It's exciting and will help me hear better. Over the next few weeks I will be having 'hearing rehab' to train my brain to use the implant. I'm having a party on Saturday 14 September to celebrate my 40th birthday. It's in Bethnal Green. I will send a proper invite soon. I feel like I'm beginning a new life, as a cyborg. So it's really my first birthday. 1 again! Diary that.

The surgery was quick, an hour and half. I recovered quickly, without much pain or side effects. After 'switch on' yesterday I could hear my voice, which rapidly sounded more like my voice as the seconds went by. It was as if my brain was decoding and descrambling some 1990s bleepy electronica and turning it into speech - vocoder style.

When I speak R2D2 simultaneously mimics my words in bleep language. These bleeps will go away in time as my brain rehabilitates to the high frequencies that were missing for years. Speech will sound more natural in time.

The initial, intensive hearing rehab will take a few weeks, I go to hospital for weekly tweaks and rehab sessions. On skype Thomas's voice was crystal clear but with a metallic edge. I'm exposing myself to lots of sounds, training my brain to interpret the electrical signals that are being sent to my auditory nerve via electrodes inserted into my right side cochlea.

I was with friends yesterday and their voices sounded low in the mix. Frustrating. This was because the CI mapping is not complete. I have to go back on Friday. Sound quality and speech comprehension will continue to get better and more natural.

Traffic sounds like cars made of skidding bleeps, although yesterday after many motorbikes, one sounded farty instead of bleepy. More like a motorbike. This demonstrates the process of habituation.

It's an adventure. Getting implanted felt like a drastic option. But meeting an implanted person who had been deafened like myself, swung it in the end. He said he'd got his life back and had never looked back. He could speak to people on the phone and

everything. After many tests, the surgeon and audiologists said unreservedly that an implant would help me a lot, more than hearing aids, and that I would do very well.

Date : XXXXX
From : Sophie Woolley
To : Inigo Wilkins
XXXXXXXXXX

Hello

Further to last week's update on my bionic conversion.

What can I hear? What does it all sound like? So much changes every day, over the seconds sometimes. I'm in a near constant state of awe.

I've gone from feeling like a happy cyborg, because of off the techno noises I was hearing, to feeling like I'd gone back in time, or entered the body of a 'parallel I' – a more hearing me – a person I'd actually sometimes wondered about, and whether she would live life differently to the deaf me? I usually decided the parallel universe hearing me would be a massive bitch, and felt sorry for her even though she was rich and had a yacht and a helicopter and a better career than me.

Now I've stepped through some kind of quantum sliding door into this other life of sound, I feel more and more optimistic. The rate things are going I expect to lose the (alas) the remaining robotic sounding effects and acquire more and more naturalism of sound. Things get more natural every day. I'd heard from some CI users that things would sound metallic. Maybe I'm letting my expectations run away with me in my post switch on euphoria, but that hollow metal clank acoustic and vocoder double voice effect seems to be on the way out in most areas. Shit just started sounding real.

The process of hearing rehabilitation has amazed me. I'm astonished by the interaction of my brain with the electrical signals that stimulate my auditory nerve inside my head. Progress since I last wrote has been very rapid.

There have been plenty of perplexed pauses in conversations this week, not because I didn't understand, but because I did. Listening to whole sentences without butting in to say 'can you say it again?', and instead just letting the words tumble in – like I can hear or something. Like one of the dreams I used to have about being able to hear.

I'm a bit rusty on the old quick-fire repartee. I keep reminding myself not to monologue at people, to ask questions and listen instead. At the same time I'm really excited and want to tell people everything I'm hearing, what they sound like, how they sound like a smurf, a robot, how they sound like themselves. As the days go by I'm telling more and more people that they sound like them. But how does the computer, the implant know how people sound? How does the brain know how to accept the electrical signals and instantaneously make Lulu sound like Lulu or Gemma sound like Gemma?

People have written to ask what the implant sounds like and what it does for me. Is it just a powerful hearing aid, or is it a cure? (Kind of both). Have other deaf people been annoyed with me (no! they understand why I did it). As I said, things change every day

so to make itself, I'll break things into topics. There is loads, so before that I'll break it into bullet points for people who can't read the whole, rambling essay.

Next week I hope ultra zoom' will be enabled on my ci. This is for zooming in at people at dinner party and cutting out everyone else. A skill humans do not possess and is a feature exclusive to the Advanced Bionic Naida processor. Friends told me my speech sounds different. I don't yet understand what they mean. But it's all for the good.

Hearing speech

I've gone back in time, I haven't 'gone hearing', I've reverted to being hard of hearing. Sometimes I can hear and sometimes I don't know what the hell is going on. My brain naturally prefers to understand speech over lip-reading because it's easier. So when the sound suddenly malfunctions – because of background noise or the wrong setting maybe – then I tumble back to deafness.

It's worth noting now that I'm still deaf – more deaf as the implant destroys residual hearing and I cannot revert to hearing aids if the device fails. I still use sign language with friends and family. At night I take off the implant and cannot hear anything at all. But when I'm switched on, I'm like a hard of hearing person at the moment. I remember what that's like because I went from hearing to profoundly deaf.

I can do things more spontaneously, I feel like in future I won't have to over plan things and avoid doing things in case I get too tired from lip-reading. I've been very social this week and haven't had the lobotomy after effects of lip-reading which brings a vicious fatigue unlike other types of tired. At the time of writing, people's voices sound like I remember, but more nasal. I guess this is because the auditory nerve is rehabbing the high frequencies. It's nearly there. The high frequencies have stopped bleeping and now are just nasal. The acoustic needs a bit of work.

Radio and Music

After volume was turned up at hospital on Friday and new programs tuned I went to a synth jam where people played electronic bleeps and music on synths, my brain and implant were very happy. It sounded beautiful and right. I liked this music before I went deaf, but even more now!

If you are hearing and suddenly had to start hearing other forms of music the way it sounds to me at present you might say – 'ugh' – but for me, knowing that I've only just been switched on, and knowing my hearing will continue to improve in time, to be able to hear the melodies and for it to sound like music, not just a horrible mess of noise. Last night I decided I wanted to listen to Elgar's cello concerto no. 5 after I'd heard a cello on my rehab sound recognition software. It sounded good, really good. Beautiful. Moving. Like proper music, like a cello. Like Jacqueline du bloody Pre.

Last night I was thinking all this as I listened to the nice cello music. And I wanted to know – why didn't anyone tell me? Why the big secret? Why didn't anyone tell me I could hear music again? That this was possible? That this happiness was possible? Was it

only recently possible? Was it previously impossible? Why didn't anyone tell me I was eligible before 2011? Was I really that blinkered to technological possibility? Yes.

I have just had an email from my speech and language therapist who has read my rehab diary notes and says I must take more time to relax as tiredness will affect my progress. So I will stop writing now and take a break. I hope this email gives you more of a sense of what I'm hearing – and not hearing! Some of you have asked to forward the last email. It's fine to forward these emails. There is not enough detailed information about the hearing rehab process.

Bye for now. X

[Excerpted from Sophie Woolley, "I Am The Walrus," in *One For The Trouble*, Book Slam, Vol 1 (London: Book Slam Productions, 2011). Reprinted courtesy of the author.]

I Am The Walrus

Sophie Woolley

A few days earlier. London

Something wakes me; someone sitting on my bed wakes me. I open my eyes. I frown in confusion. The duvet is pulled tight across my chest. I can't hear anything. Pete, my husband, makes a single-barrelled gun shape with his hand, smiles, and cocks it at my face. It takes me a moment to realize he's telling me it's seven o'clock in the morning. The gun thing means the number seven. I remember I'm deaf now. That's why I can't hear anything.

Once I'm fully awake, my brain kind of likes it – the deafness. At that moment, in our apparently quiet flat in North London, a whole load of audio information might be occurring: fire alarms, street fights, sirens, bomb explosions. But my ears don't care. It's not their job. They're just ornamental now, a place to hang earrings.

I pad through the flat to the toilet. I can't hear my footsteps. My body parts have been sonically amputated. I thump my feet heavily on the parquet floor as I walk … Nothing. It's still a novelty, this muted reality. Without digital amplification, my urine exists only as a feeling as it exits the hole. Anticipating verbal interaction with Pete, I return to the bedroom to get my hearing aids out of the dehumidifier. When I switch them on, they play a perky, four-note tune. I hear a male voice next door.

'What did you say?' I shout.

Pete is in the kitchen making my breakfast and doesn't reply because there's no point: I can't do inter-room conversations since I went deaf. Besides, I've already recognized the classic intonation of a Radio 4 presenter. The reassuring hum of talk radio conveys no meaning, and sounds something like this: 'Mumf hohihohi wumf gornorder pum om nor nor nor wa we or ah wuh.' I boot up the Internet, my replacement for the radio. I read about what's on Radio 4; the *Today* programme's Twitter feed throws me a few crumbs in the form of brief quotes from a gaff- prone politician in the studio.

I drink my tea and eat my cereal, spooning from the top, being careful not to scrape or clank the side of the bowl. It feels nice to help hearing people by doing things gingerly and softly. It's easy to forget that hearing people can be disturbed by the noises I make, even though I can't always hear them myself.

Pete signs and speaks to tell me to hurry. I have to get dressed. We're catching the train to visit his old friend Dick at his new old house near Fort William in Scotland. Pete is a carpenter by trade and is hoping Dick will commission him to make some eco furniture and fittings. This trip is a PR mission disguised as a social visit, although Pete is genuinely keen to rekindle the friendship. Dick quit London two years ago, to 'get away from it all' and reduce his carbon footprint, and has been inviting us to visit ever since. Despite my suspicion of London escapees, I'm looking forward to the fresh air and wide-open space. I only remember Dick vaguely – we met once at a wedding five years ago, but he was funny, and quite stylish. All in all, it should be a lovely weekend.

Pete falls asleep as soon as our train leaves the station. I try to memorize a script for a job that starts in two weeks. I've been cast as the 'mute' in Brecht's *Mother Courage* for a small touring theatre company, so no lines to learn as such, just a whole new disability to fake. Having spent most of my life as a hearing person, my speech doesn't sound deaf, at least I don't think it does, but as an actor I sometimes get asked to put on a deaf voice, or in this case to remain silent for most of the play. Mimicking a deaf voice makes my heart feel heavy and gives me a lump in my throat, but maybe this 'mute' role won't be so bad.

The journey to Fort William takes ten hours. We're hungry and tired by the time we arrive. Dick is standing at the other end of the platform, dressed in a vintage tweed suit. There is something terrible growing on his face. He waves slightly, then suddenly turns on his heel and walks away, disappearing through the exit. We find him standing under an outdoor heater, outside the station pub, sucking Guinness froth off his bushy black walrus moustache.

My heart sinks. Moustaches make lipreading impossible; they're my nemesis. I know right then, looking at him stroking this monstrous facial abomination, that this weekend is going to be truly appalling. I smile nonetheless, and say, 'Nice moustache.'

Dick only knows me from before my genetic hearing loss got so bad, so he leans forward to try and talk into my ear. I back off and put my hand up, but I can't say, as I usually would, 'I have to lip-read you now, I went more deaf,' because his walrus moustache makes that an impossibility. He looks like Mr Twit's nephew. His 'lady tickler' (or so he calls it) covers his entire mouth.

I watch Dick speak and feign interest. I'm not going to ask him to shave his neo-country-gent moustache just for me. But I'm willing the parting of the hairs, some kind of spontaneous moult. I stare through Dick's moustache, through to his sausagey lips and tooth-lined cavern, every opening and closing a personal insult, a national disgrace, a series of meaningless, pointless audio non-events issuing relentlessly from behind a tangled mass of mangrove shrubbery. The general effect of hearing his speech but not knowing what it means makes me feel as though an unhinged master craftsman is chiselling away at my self-esteem, chipping until nothing remains but disconnected debris and dust. It is noise torture. It's a sonic cluster bomb in my mind. I might be an actress, but I'm certain I'm not being melodramatic when I say it destroys me. I know what I was before.

The dialogue between Dick and Pete goes like this: 'Hohihohiho Labardoubandika rabbababarbar pondalornica ramambadobido rah rah boh bah la oma.'

'Yeah, I rah muh duh car fa do rei me fa so tee la.'

And so on, until I feel like I might go mad. Until I feel like burying my head in the ground or smashing it against a wall, just to make the annoying noise stop shut up shut up shut up won't they shut up? Will they never stop talking blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah blah. Blaaaargh. BLAAAAAAR- RRRRGH. Bluh.

I switch off my hearing aids and listen to the Arctic roar of my fatigue-induced tinnitus.

… I pluck up the courage to ask him to trim his moustache. Taken aback at first, Dick suggests he could talk with his fingers holding up his moustache at the corners. This seems even worse somehow. I shrug.