SEASHELL SOUND

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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." 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.

That explanation sought to supplant superstition with science, trading sublime enchantment for fascinating fact. The account in Bodmer’s book rested on a century of empirical and theoretical investigation in which sound had come to be understood as vibration, and not, as earlier, more nominously, on the model of music or voice, exemplifying what Jonathan Sterne names as a “shift from models of sound reproduction based on imitations of the mouth to models based on imitations of the ear.”

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.”*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.”*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.” 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.

above: 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?”
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.” 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.”

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. 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. Not dissimilarly, seashells sometimes harbor the diminishing, but never final, sounds of the dying:

*I low mine ear incline:*

*Within your convolutions sway and swash*

*All voices of the brine:*

*I hear on barren reefs the surges dash.*

*The breakers roar;*

*The homeless billows fret and foam and wash.*

*And die far off upon an alien shore.*

...\n
*Though all things fade apace,*

*Do fade and fall, they pass not utterly;*

*Within your jasper vase*

*There lingers still a tone, a mystery.*

*A something hides*

*Of glory fled, of love that cannot die:*

*All Life that ever was somewhere abides.*

—Benjamin Hathaway, “Sea-shells,” 1878

As spirit mediums, shells were strangely active vessels. Like mediums, they were often female, with voices...
Like the sigh of a maiden in lone despair,
...  
Such, such are the sounds of the wild sea shell
...
Across my ear like the tones of woe,
It soundeth to me
Like the voice of the sea,
And sweet is its mournful melody,
...
Like a holy hymn
Of nymphs in deep devotion.
—William Quarmby,
“The Song of the Sea-Shell,” 1867

or like the sound

Of my mother’s voice—the ocean’s voice—
The murmur of the sea.
—E. W. Bäärnhielm,
“The Song of the Sea-shell,” 1891

As Susan Gubar suggests, “Associated iconographically with Venus and the Virgin, the shell is also said to represent the female genitals.” Mother Ocean bodied forth messages from a mysterious past, with seashells the vibrating vessels of that murmurous history.

EERIE AND EARY DOUBLES
The seashell was a whisperer of secrets, 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.” 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.” 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.

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 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.

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.” This, argues Ryder, is the acoustical unconscious (or “un-conch-i-ous”). 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.

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:
a sea shell of moderately large size against the ear.\textsuperscript{30}

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."\textsuperscript{31} But if seashells play tricks, stethoscopes enable people to imagine hearing their own blood.\textsuperscript{32} In further lines of Lee-Hamilton’s “Sea-Shell Murmurs,” the heart itself becomes a shell:

\textit{Lo! in my heart I hear, as in a shell,}
\textit{The murmur of a world beyond the grave,}
\textit{Distinct, distinct, though faint and far it be.}
\textit{Thou fool: this echo is a cheat as well,—}
\textit{The hum of earthly instincts; and we crave}
\textit{A world unreal as the shell-heard sea.}

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.\textsuperscript{33}

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 \textit{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."\textsuperscript{34} 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."\textsuperscript{35} Even rationalist skeptic Carl Sagan got behind this angle: "Everyone knows the ‘sound of the sea’ to be heard when putting a seashell to one’s ear. It is really the greatly amplified sound of our own blood rushing.”\textsuperscript{36}

Sometimes such explanations bring waves back in; the cochlea contains fluid that carries traveling waves.\textsuperscript{37} Deeper confusion arrives, courtesy of www.faqkids.com:

\textit{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, Bäähmhelm). 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.’”39 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.40

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.

I thank Noel Jackson, Douglas Kahn, Heather Paxson, John Picker, Sophia Roosth, Michael Rossi, and Hillel Schwartz for listening.

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1 Amelia B. Welby, Poems, by Amelia (Boston: A. Tompkins, Cornhill, 1845), p. 21.
2 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.”

I have seen
A curious child, who dwelt upon a tract
Of inland ground, applying to his ear
The convolutions of a smooth-lipped shell:
To which, in silence hushed, his very soul
Listened intensely; and his countenance soon
Brightened with joy; for from within were heard
Murmurings, whereby the monitor expressed
Mysterious union with its native sea.

8 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. 836. Welby’s poem, with its shell moving from “lutes” to “breathing,” may exemplify the shift from pre-Romantic to Romantic.

From thy dead lips a clearer note is born
Than ever Triton blow from breathed horn!
While on mine ear it rings,
Through the deep caves of thought I hear a voice that sings—

The shell, when put to child-like ears,
Yet murmurs of its bygone years,
In echoes of the sea;


15 For analysis of this study, see Shelley Trower, Senses of Vibration: A History of the Pleasure and Pain of Sound (London: Continuum, 2012).


22 Gabriele Faloppio, Observationes anatomicae (Venice: Marco Antonio Ulmo and Grattioso Perchachino, 1561).


24 Quoted in Rodgers, ibid.


27 Thanks to Hillev 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.


29 James Joyce, Ulysses (New York: Vintage Books, 1993), p. 231. Poet Winfield Townley Scott in 1937 fuses the blood-in-the-ears account with the then-contemporary radio imagery:

My changing blood that heard
This constant sound of sea,
That raging in its course
Keeps fleshless breath in me.
Sings nothing till this shell
Wound for wave music—takes
The radiant miracle
Broadcast in ethered wakes

30 See Winfield Townley Scott, "Blood and Seashell," Poetry, vol. 50, no. 4 (July 1937), p. 188.


32 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. Aslerman suggests that, while this was 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.

33 This can have modernist peet H. D. write, mythically, at one moment, There is a spell, for instance.

In every sea-shell:

and, more acoustically, at another,

He heard, as it were, the echo
Of an echo in a shell.


36 Carl Sagan, The Cosmos: A Halloween Perspective (Boston, MA: Anchor Press/Doubleday, 1972), 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.


