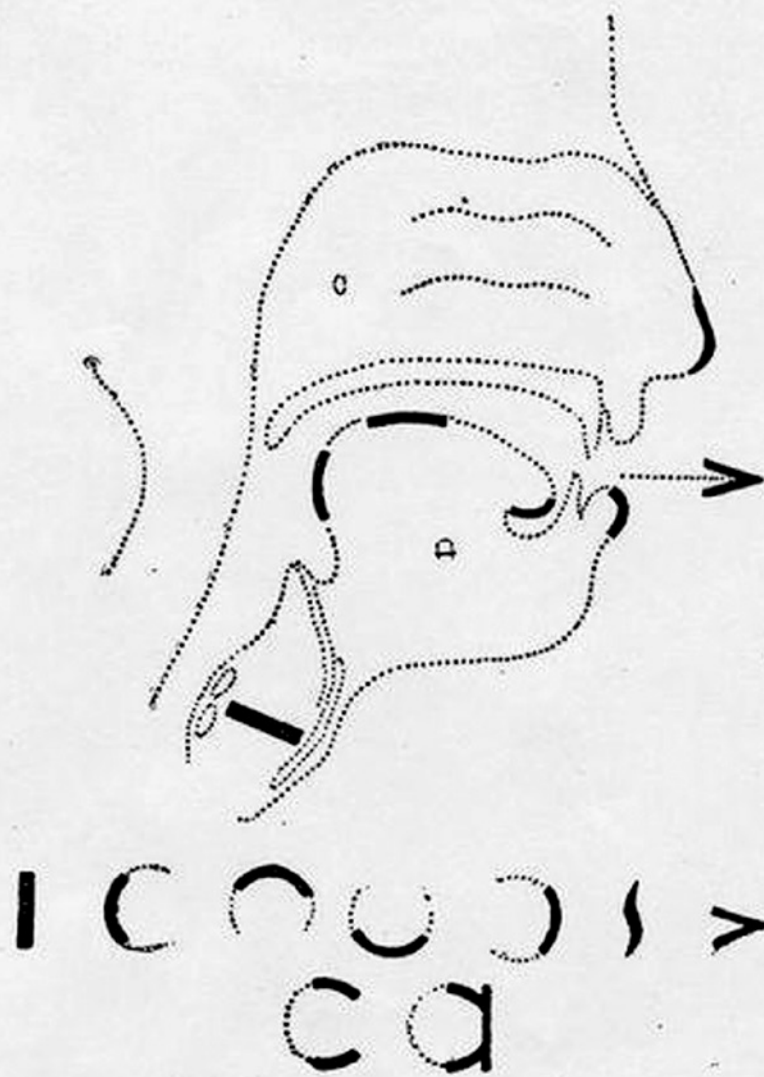· CHART I ·

In "Listening for the Jabberwock" from *The New York Review of Books* (2013), Tim Parks laments the fact that translations of poetry often lose the original work's acoustic, rhythmic patterns of sounds in favor of conforming to the linguistic conventions of the language it's being translated to. He illustrates his point with an extreme example: Lewis Carroll's "Jabberwocky," which opens with the lines, "'Twas brillig, and the slithy toves / Did gyre and gimble in the wabe / All mimsy were the borogoves / And the mome raths outgrabe." How do you translate a poem like that, which imitates a familiar rhythmic device in poetry but uses words that are nonsense in any language?

This bulletin began life as a post on www.are.na/blog.

Cover: From the Google books scan of *Visible Speech: The Science of Universal Alphabetics* by Alexander Melville Bell — as are the rest of the images in this bulletin.

Near where I grew up in southwest Virginia, along the Blue Ridge mountains in Rockbridge County, there's a town called Buena Vista, pop. 6,000. On paper, the name of the town is identical to Buena Vista, Colorado, pop. 2,000, nestled in the Arkansas River Valley of the Rocky Mountains. Or Lake Buena Vista, Florida, pop. 11, one of two municipalities owned by The Walt Disney Company, which is named for Buena Vista street in Burbank, California, where the company is headquartered. All of these would seem, in the context of the neutral everyplace/no-place of a book page, to be the same words as *buena vista*, the Spanish phrase meaning "good view." Yet ask for directions to "bway-na vee-sta" in a gas station in the mountains of Southwest Virginia or Central Colorado, and you may as well be speaking a foreign tongue. These place-names are not the same words, however they may look on paper; their pronunciations are specific to the ear and deceptive to the eye.

An approximation of the correct pronunciation of the Buena Vista in Virginia, for instance, is "byoo-na vis-ta," with the labial b sliding into the elastic quality of a "y," followed by the inner rounding of "oo," as in "Beauford" or "bucolic." The "i" in "vista" is said like "is," snapping short the elongated "ee" vowel in the Spanish pronunciation. The hiss of the "s" and the tap of the "t" round it out. The name has a quality of languid excess in the first part; a long, lethargic drop in tone down the curve of the "u." The second word is clipped, percussive. Buena Vista.

More precisely, it's pronounced like this:

$$\theta \dagger \epsilon \mathbf{J} \dagger \quad \exists \mathbf{C} \Omega \mho \mathbf{J} \dagger$$

In London in 1864, the British mathematician, philologist, and musicologist Alexander John Ellis was invited to witness a private demonstration by Alexander Melville Bell. Bell asked two of his sons, the oldest of whom was Alexander Graham Bell, to leave the room while Ellis dictated a string of words that were varied and challenging in their pronunciations, and which he had selected specifically for the occasion. He tossed out a few words of Latin, "pronounced first as at Eton, then as in Italy, and then according to some theoretical notions of how the Latins might have uttered them," followed by some English colloquialisms and German provincialisms, a few examples of "Arabic guttural," and a bit of mispronounced Spanish, then watched as Bell transcribed the utterances into lines of inscrutable symbols. When Bell's sons re-entered the room and read the symbols aloud, Ellis felt as though he was listening to his own voice emanating from the mouths of the boys across the room; not only were all of his peculiar pronunciations recited correctly, he was amazed to hear the phrases read back to him with precisely the same tone, drawl, accent, and distinctiveness with which he had said them. As he later wrote in a review for the journal *Reader*, "Being on the watch, I could, as it were, trace the alphabet in the lips of the readers."

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The performance Ellis witnessed was one of several demonstrations of Visible Speech, an alphabet invented by Mr. Bell himself, who was living and teaching in London, though originally from Edinburgh, Scotland. Like his father before him and his more famous son after him, Bell was an expert in phonetics and speech disorders, as well as an educator and advocate for the deaf. By the mid-1860s, he had spent over 20 years researching, classifying, and codifying the articulation of speech-sounds in order to cure stammering and correct speech impediments, and was known and respected within the field. Bell's research into phonetics and the articulation of sound focused on the way the organs of speech — the lungs, the larynx, the pharynx, the soft palate, the nose, and the mouth — all modify the breath to create the sounds that make up consonants, vowels, and the other articulations of speech. In the latter part of his career, he took that physiological know-how and applied it to the creation of a set of characters that are visually analogous to the movements of the vocal organs, with each symbol in the alphabet depicting the organic action that produces the sound it represents.

The symbols are categorized according to consonants, vowels, and glides, the basis of all speech sounds, which are drawn according to the positions of the vocal organs that give them their particular quality. All the consonant symbols are derived from the "stem" **C**, which depicts the shape of the tongue in respect to the palate. Depending on which direction the stem is turned, it represents either the back, front, or point of the tongue, or the lips. Closing the opening of the stem, dividing it, or modifying it with additional symbols indicates the position of the tongue and the action of the throat or the mouth, the squeezing, dividing, or stopping of breath that give each consonant its fricative, voiced quality.

All vowels in Bell's Visible Speech are derived from the symbol **I**, for "voice," and are modified with diacritic symbols that denote the shape and size of the wind passage in the throat and mouth, through which vocalized breath passes. Dots and hooks affixed to the top and bottom of the voice symbol show the expansion of vocal organs that give vowels their non-fricative quality.

Visible Speech is a modular system, consisting of 12 radical symbols that act as the alphabet's core, with a series of uniform modulations for breath and voice, producing 24 elements of speech. The alphabet maps out speech-sounds anatomically, pinpointing their origins within the mouth and giving directions for uttering them. The round, open throat of the "h," the closed lips of the fleshy "b," the toothy fricative "f" — all are traceable within the shapes of the symbols themselves:

O [h]   Ə [b]   Ɜ [f]

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COMPLETE TABLE OF LETTERS,—WITH THEIR NAMES.

Consonants.

	Organic Name.	Mixed.	Divided.	Mixed Divided.	Shut.	Nasal.
Aspirate,	O					
Throat,	O			X		
Throat Voice,	θ					
Back,	C	Ͼ	Ɛ	ᘓ	ᗡ	ᘉ
Back Voice,	Ɛ	ᗱ	ᗱ	ᗷ	ᘜ	ᘜ
Front,	Ω	ᘉ	ᙏ	ᙏ	ᗡ	ᘁ
Front Voice,	ᙏ	ᙐ	ᙐ	ᙐ	ᙐ	ᙐ
Point,	U	Ꮸ	ω	ᘓ	�UꞀ	ᗡ
Point Voice,	ω	Ꮸ	ω	ᘓ	ᗡ	ᗡ
Lip,	Ɔ	ᘒ	Ʒ	Ʒ	ᗡ	ᗡ
Lip Voice,	ᗱ	ᘒ	ᙀ	ᘓ	ᗡ	ᗡ

Vowels.

	Back.	Back Wide.	Mixed.	Mixed Wide.	Front.	Front Wide.
High,	ᒍ	ᒍ	ᒏ	ᒏ	ᒪ	ᒪ
Mid,	ᒧ	ᒧ	ᒣ	ᒣ	ᒦ	ᒦ
Low,	ᒍ	ᒍ	ᒏ	ᒏ	ᒪ	ᒪ
High Round,	ᒫ	ᒫ	ᒬ	ᒬ	ᒭ	ᒭ
Mid Round,	ᒮ	ᒮ	ᒯ	ᒯ	ᒰ	ᒰ
Low Round,	ᒱ	ᒱ	ᒲ	ᒲ	ᒳ	ᒳ

Glides.

Breath.	Voice.	Round.	Throat.	Back.	Front.	Point.	Lip.	Back Round.	Front Round.	Point Round.	Lip Round.
˂	Ɪ	ᒣ	ᒧ	ᒣ	ᙏ	ᙎ	ᒧ	ᒣ	ᙏ	ᙎ	ᒧ

Modifiers and Tones.

ᒎ	Nasal.	ᒎ	Trilled.	◂	Suction Stopped.	ᒃ	Abrupt.	–	Level Tone.
ᒃ	Nasal Mixed.	ᒎ	Divided.	▸	Emission Stopped.	ᒃ	Hiatus.	⁄	Rising Tone.
ᒃ	Inner.	c	Inverted. [To Back.]	o	Link.	⌒	Whistle.	\	Falling Tone.
ᒃ	Outer.	ɔ	Protruded. [To Lip.]	'	Accent.	⌒	Voiced Whistle.	v	Compound Rise.
ᴧ	Close.	·	Stopped.	ᒎ	Emphasis.	ᒃ	High Key.	ᴧ	Compound Fall.
ᵞ	Open.	˂	Suction.	ᒎ	Holder.	ᒃ	Low Key.		

ORDER OF NOMENCLATURE.

CONSONANTS:—Organ, first; 'Voice' last. Thus: Back C; Back-mixed, voice Ɛ; Front-divided, voice ᙏ; Front-mixed-divided, voice ᙐ; Point-shut ᗡ; Lip-shut, voice ᗱ; Point-nasal ᗡ; &c.

VOWELS:—Elevation, first; 'Round' last. Thus: High-back ᒍ; Mid-back, wide ᒧ; Low-mixed ᒏ; High-front, Round ᒭ; Mid-mixed-wide, Round ᒯ; &c.

GLIDES:—'Glide' last. Thus: Breath-glide ˃; Voice-glide, Ɪ; Lip Round-glide ᒧ; &c.

The system is so specific, so comprehensive, that it represents all of the peculiarities and idiosyncrasies of speech, enabling the Bell boys to mimic Mr. Ellis's warped Spanish, his variations on Latin, and a series of unconventional pronunciations of the phrase "how odd." His attempts to trip them up with phrases frequently confused across languages — like the French *oui*; English *we*; and German *wie* were to no avail; the slightest expanding of the wind passage, the subtle rounding of the guttural passage, the lips drawn taut with the narrow sound of *ee*, can all be marked upon and read from the cryptic symbols.

Visible Speech could even do the difficult job of translating the pronunciation of certain English words with voiceless consonants. For example, "felt" in English ᗱᒪωωᗡ is often mispronounced as ᗱᒪωᒎᗡ by foreign language speakers, who miss the liquid quality of the "l" before the full stop of the "t."
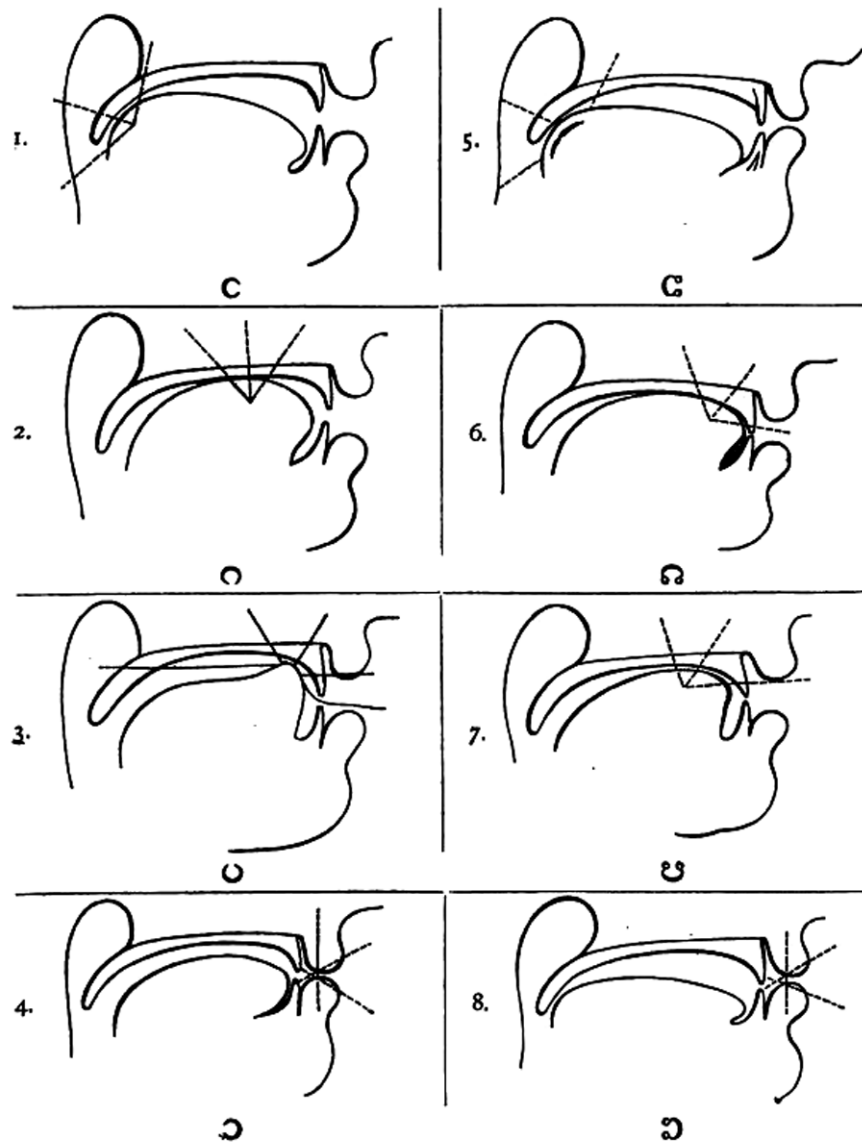
Diagram of the consonant organic positions

Ellis, who had developed his own phonetic alphabet called Palaeotype some decades earlier, was so impressed with Bell's alphabet that he wrote a follow-up letter to *Reader* insisting that the British government support Bell in his efforts to make the alphabet publicly available. "What do *thick* or *thin*, *heavy* and *light* vowels mean to different nations?" he asks, alluding to the shortcomings of our existing languages when it comes to describing sound. Like trying to relate a specific smell in English — which can be earthy, or smoky, or chocolate-y — attempts at capturing sound in writing are often associative and awkward. Our shortcomings in this area, according to Ellis, are due to our imperfect knowledge of "certain landmarks of sound," which Bell's system corrects by locating and then depicting their genus within the body. In practice, the symbols of Visible Speech bypass our clumsy attempts at describing sound, with a set of characters that are "self-interpreting."

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"There is nothing vague, nothing figurative," Ellis writes. "Each symbol, and each part of a symbol, has meaning, and contains direction for utterance. They are words of command, which any raw recruit can obey after proper drilling."

. . .

Persuasive as it may have been, Ellis's review of Visible Speech fell on deaf ears. The British government did not grant Bell's modest request to fund the publishing of the project, for which he offered to relinquish the copyright, pro bono. In the introduction to an instructional book on Visible Speech, produced on Bell's own dime, he includes Ellis's review alongside several others from linguists who tested the system to satisfaction, as well as glowing reviews of the language in newspapers from Glasgow to London. His bitterness at the government's rejection rings sharply throughout the introduction: "To a country like Great Britain, which can afford the annual disbursement of many millions of muniments [sic] of war, the cost of introducing this 'small arm' of peace, even in the widest scale, would be a mere bagatelle."

Bell's alphabet was first meant for those who heard no sound at all, as an instrument for teaching the deaf to speak. But as the system grew to accommodate for the plasticity of the organs — and thus, all the possible "shades of sound" — Bell's ambitions for it ballooned likewise. Unlike existing alphabets, which contain enigmatic combinations like the English "th" or Polish "cz," Visible Speech transcends cultural boundaries and arbitrary letterforms with a basis grounded firmly in universal sound, the body, and science. It was a humanist alphabet at its core — anyone with lungs and larynx could make use of it. Which made it perfectly suited for building a "sound bridge from language to language," as Bell put it in one of his written propositions to the British parliament, "macadamizing the linguistic highways between nations." Bell intended for Visible Speech to be the world's first universal alphabet.

While 17th-century philosophers like René Descartes proposed universal languages that addressed language's semantic roots, 19th century attempts, like L.L. Zamenhof's Esperanto, were patterned after real language patterns, with phonemes, morphemes, words, and sentences. The first major example of the latter was Volapük, an 1880 language patterned after English and German, with eight vowels and 20 consonants. The standard alphabet by Karl Richard Lepsius, published in the 1850s and 1860s, and Ellis's own Palaeotype were formed by an aggregation of elementary sounds in different languages. But these provided only a fraction of the available sounds of speech.

Importantly, these universal systems weren't linguistically neutral, since they had to be derived from one of the major language families — in most cases, Indo-European. Bell felt that for an alphabet to truly be universal, it couldn't be rooted in a system already in existence. Rather, it should be completely new, built on its own rules and laws, and offering "no exclusive benefits to individual nations," therefore relying on all countries to learn and adopt.

In 1854, philologists from all around Europe congregated in the Prussian Embassy in London with the intention of forming a common universal alphabet once and for all. The London Alphabetic Conference, as it was called, broke up after just four meetings, only managing to produce a set of guidelines for a *potential* new alphabet. The first rule stated that the "basis of our alphabet must be a physiological one," meaning that every sound had to be physiologically defined before it could be included as a character in the alphabet. From there the rules tapered down into more limiting territory — territory with boundaries reflecting colonial aims. Sounds were to be categorized as "primary" and "secondary" and whittled down to a fixed number, and the graphic symbols should "in the first place, be drawn from the Roman alphabet." Greek letters could be included only "by way of exception"; Arabic, Russian, and other "fanciful types" should be excluded altogether.

This version of a universal phonetic alphabet came up short for Bell, who did not attend the conference but did watch intently from the sidelines. In his writing, he pointed out that Roman letters would not facilitate the association of sounds to symbols for millions of the world's inhabitants, in China, India, and Russia, for example, as well as in many other countries. He also couldn't understand why, in a system that claimed to be based on physiology, none of the symbols even alluded to the positions of the speech organs that produced the sounds the symbols were meant to stand in for. Visible Speech, by contrast, accounts for every variety of linguistic sound, with no sounds prioritized over others. Nations would simply choose among the symbols the ones that exactly expressed the sounds common in their language. And because the sound of every symbol is deducible from the form of the symbol itself, readers wouldn't need to memorize the letterforms before learning to make meaning from them. One of Bell's proposed uses of Visible Speech was to teach the illiterate in all countries to read their vernacular tongue in the matter of a few days. As one critic of the system put it, "A great many attempts have been made to spell words, but Visible Speech spells spelling."

Other philanthropic uses imagined by Bell for his universal alphabet were to teach the deaf to speak, to facilitate the learning of foreign languages without the presence of a native speaker, to correct impediments of speech, to study fast-disappearing languages and dialects, and to allow

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for the "world-wide communication of specific sounds with absolute uniformity," consequently paving the way for the construction of a truly universal communication. "Without such a medium of self-interpreting letters, [it] … might fairly be deemed an impossibility," he wrote with dramatic flair. "By means of Visible Speech, if at all, this Dream of Philosophers will be realized. The foundation is laid, and the Linguistic Temple of Human Unity may at some time, however distant the day, be raised upon the earth."

Today there are over 7,000 languages spoken on the planet. In Bell's time, there were undoubtedly more; according to the Endangered Language Alliance, over 639 languages are known or thought to have gone extinct throughout history (many of these are recent: over 200 languages became extinct after the 1960s). Globalism, migration, and the prevalence of English as a lingua franca has rendered many endangered or extinct. Languages, and dialects — the variants of those languages, intelligible among smaller, more specific groups — are formed collectively, over thousands of years of evolution. Language is irrevocably tied to location, even when the voice carries it far from its geographical origins. Dialect, vernacular, accent, all signal that the sounds are *of a place* and of a people. The loss of a language feels like the loss of identity.

The most compelling aspect of Visible Speech is its ability to translate the placeness of verbal speech to writing. With the bulbous, vibrating, tick-marked symbols, all of the "undefined 'airy nothings' of human speech received each 'A local habitation and a name.'" The incredible scope of the alphabet, however, was born of a much more limiting invention, though it would go on to be one of Bell's more lasting discoveries in the field of phonetics. His initial vowel sound classification system — including 22 varieties and based on the triple scale of three classes: Lingual, Labio-Lingual, and Labial — only represented the sounds found in the English language. Around 1862, Bell classified a whole new category of vowels — vowel sounds that were formed on the back, front, and mixed back-front positions on the tongue. Bell divided the tongue on lines of "latitude and longitude," and plotted along it nine points that could be used to accurately locate the precise place of any vowel sound within the mouth. "The framework of the scale was … larger than the number of known sounds could fill," Bell wrote, "but the gaps which remained here and there showed the exact places of other varieties." The system included sounds that aren't articulated in the English language, sounds Bell himself had never uttered or even heard. All of the "indefinite and fluctuating" sounds of dialects, all the peculiarities of speech, could be accounted for in this new, flexible framework.

The easiest explanation for how Visible Speech works is the one Bell gave his deaf pupils: on a blackboard, he would draw the profile of a face,

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including the "insides of the mouth," then erase all but the lower lip, the point, front, and back of the tongue, and the glottis, that slender orifice to the larynx (our voice box). The curved lines that remained constitute the Visible Speech symbols for "back," "front," "point," and "voice," the basic foundation of the alphabet. From those, Bell created 12 radical symbols which can then be modified with markers for both breath and voice, to represent all possible sounds. These radical symbols range from Aspirate O, which represents the throat completely open, to a Whisper 𝟎, where the throat is contracted. The symbol for Soft Palate ∫ depicts when the nasal valve open. The symbols denoting Voice ("the throat is sounding")—I and Ŧ—make up the stem of all vowels. Those that depict that part of the mouth is contracted C or divided Ɔ make up the stem of all consonants.

Modifications to the vowels and consonants make up all the varieties of speech-sounds. For example, the sound formed by the letters "c, k, q" as in "kind," is depicted by the symbol Ⴓ, which combines the "c" shaped symbol for consonant—turned in such a way that represents "back of the tongue"—with the vertical line that denotes that both the oral and nasal passages are shut. To articulate a "k," the tongue rises from the back to meet the soft palate at the roof of the mouth, the breath from the nose and mouth cuts for a brief second, and out comes the percussive quality of the consonant. Collision. Conclusion. Cluck.

The alphabet doesn't stop at the sounds of speech; it also encompasses "inarticulate expressiveness," like that of a yawn:

$$O \text{\textturnv} < \quad O \mathbf{0} \dagger O$$

Or a drowsy murmur:

$$I \int$$

When Χ, the symbol denoting the conjoined edges of the glottis, is followed by the symbol for "holder" ⱶ, it is read as an interval of silence, a brief suspension of speech. When a sound-symbol is embellished with a prolonged rising inflection, denoted by an accent aigu, it expresses self-interrogation or prospective musing I ⱶ ´. In Ellis's recollection of the experiment he witnessed, Bell's sons captured the accent, cadence, and exact pronunciation of his purposefully unusual utterances. But they very well may have also impersonated the nasal quality of Ellis's speech, the sharp catch of a cough, a tone of smug triumph, of incredulity, or even the brief hold of silence that often accompanies awe.

O I ∫ⱶ	weariness
O I ∫	annoyance
O I Χ·	discovery

The system can even account for the position of your organs of speech when impersonating sounds that require no organs at all:

Cʃʃ< Cʃʃ'Cʃ< C ʃ'Cʃʃ< Cʃʃ'Oʃ< OOʃΩ˙ the sound
of sawing wood.

. . .

Bell's symbols are unearthly, poetic; but they are also economical and concrete. They wear their meaning and the philosophy behind them directly on the face. Through Visible Speech, this Utopian vision got a set of symbols that felt and looked transcendent, spiritual even, but in essence they were practical instruments, condensing all of the richness, the diversity, the idiosyncrasies and peculiarities, the musicality and specificity of human speech into a system of circles and curves, capped lines, and uniform diacritical marks.

Yet it is also an alphabet that prizes sensation over meaning, and sound over all else. "The most important affection of simple voice is modulation, or change of pitch," writes Bell. "Even articulate speech is interpreted by tone; and in all cases where sentiment rather than the communication of ideas is concerned, the modulations which accompany utterance are more expressive than words." In many ways, Bell's Visible Speech was most successful at capturing the emotive, inarticulate aspects of speech, through tone, timbre, cadence, silence, the rise and fall of inflection, the innate inertia of language.

In literature, these patterns of sound are often what makes a poem or piece of writing playful, seductive, deceptive, sorrowful, and beautiful. Without Bell's promise of a truly sonic written alphabet, authors like Zora Neale Hurston, Mark Twain, Fran Ross, Eudora Welty, Michelle Cliff, Irvine Welsh, and many more have still fared well in capturing the cadence of regional vernacular in their novels, harmonizing sounds with words and grammar patterns, and reproducing oral affect within the neutralizing strictures of written form. But even in well done, dialect-heavy literature, there is still quite a bit of interpretation left up to the reader; from page to ear, translating the sounds of speech is still mostly left up to the imagination. In Ross's 1974 satirical novel *Oreo*, the narrator issues a disclaimer warning that the writing will sometimes fail to capture the hybrid southern speech of a character named Louise:

to do full justice to her speech would require a ladder of footnotes and glossaries, a tic of apostrophes (aphaeresis, hyphaeresis, apocope), and a Louise-ese/English dictionary of phonetic spellings ... substitution of an apostrophe for very dropped g, missing r, and absent t would be tantamount to tic douloureux of movable type.

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For Ross to do full justice to Louise, she had to attempt to translate that part of her identity — her speech — onto the pages of the novel. Bell attempted to do the same justice to all of human speech, with a system that held the potential for the purest, most direct, and most specific type of communication among nations. Even without funding from the British government, Bell attempted to disseminate his alphabet, starting first with teachers of the deaf. In some cases, he gave the course of instruction himself, then left it to his pupils — teachers, mostly women, who ran schools for the deaf — to teach their colleagues.

One woman, Mabel Ellery Adams, a teacher at the Horace Mann School for the Deaf and Hard of Hearing in Boston, recalls learning the alphabet from her principal, who was taught by Bell himself in a Lowell course in the 1880s. Later Bell visited Horace Mann to address the teachers on the subject. "With his dynamic enthusiasm he had converted everybody," she writes. "When I was appointed the experiment was in full swing." Bell published his instructional book on Visible Speech himself, though he was insistent that "the living voice would be needed to communicate the sounds symbolized."

Yet Bell's ambitions for preserving the sonic quality of speech, and thus the placeness and sense of self that comes with it, was complicated by other envisioned uses of Visible Speech, which included swiftly standardizing a country's native language and, crucially, the "speedy diffusion of the language of a mother country throughout the most widely separated colonies." For all his musings on the honoring of differences in speech and democratizing all sounds in a neutral alphabet that gave credence to all languages and priority to none, Bell also tried to sell the British government on the new system by angling it as an aid to colonialism. The imagined use of the system that got the most play in the press was one of a missionary able to spread the word of the gospel by speaking perfectly in the native tongue of the people he was helping to colonize. "[Imagine the scripture] read by a missionary with perfect intelligibility to his audience, even while he himself was unacquainted with a word of Chinese or Hindostani, could read the Scriptures to the Chinese and Hindoos in their own vernacular," pondered the *Glasgow Herald*.

One of the obvious shortcomings of Visible Speech as a universal alphabet is that it is really just a *step toward* a universal alphabet — a neutral foundation upon which all nations could meet with their blueprints and build the architecture of a truly universal system, one that paved the "linguistic highways" with both meaning and sound. For his part, Bell blamed the failure of Visible Speech on the British government's refusal for support, which stopped his plan for dissemination dead in its tracks. Ellis invoked the very defense department that Bell assumed had usurped

his funding, writing, "would the best book in military manoeuvres, thrown on the world, make men mass together and march and countermarch with precision and certainty?" The perceived uses of the universal alphabet were philanthropic, humanistic, but they were also far-flung and contradictory. Visible Speech had too many faces and could fork off into too many directions. In the end, it had nowhere to go.

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