The First Time the Heart (A Portrait of Life 1854-1913)

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From the first time one human placed her or his ear to another's chest, the mysteries of the heartbeat and pulse have shaped much of the human imagination around life, death, individuality, love, and salvation, to name a few. To this day, even with the rise of the brain sciences as the central investigation of the internal self, the conception of the heart as the embodiment of one's deepest intimacies holds as an unbreakable metaphor in how we relate to each other. There is a reason we have centuries worth of poetry about the actions of the heart and not the kidneys, liver, or lungs. When we "give" our hearts to each other, "wear" them on our sleeves, or "listen" to them as if they possess another, more authentic "you," we are enacting complex interpretations and behaviors of the heart with deep-rooted, cross-cultural entanglements of religious, mystical, emotional, and medical knowledge. In this way, our hearts truly do connect us over time.

This mysteriousness of the heart had much to do with our inaccessibility to observe its direct movements; for most of medical history, it was too technically challenging and culturally taboo to probe into a living human heart. For this reason, we have traditionally looked to the arts, myth, and religion to give shape and interpretation to the inscrutable actions of our hearts, which were understood as inherently ephemeral, divinely ordered, and forever beyond the domain of scientific understanding. Perhaps this ancient desire to understand our hearts found its most essential form, though, through the scientific invention of an image we often take for granted, and which for the first time in history gave us visual access to the living heart: the pulse wave.

To visualize this fundamental movement of life is to suggest the possibility of visualizing its opposite: the stillness of death. As revolutionary as it was to invent a new image of life through a simple rhythmic curve, that same curve, stretched long and taut, has produced no less an iconic image of our existence: the flatline.

But where are the first pulse wave and flatline ever recorded? For that matter, where are the first recordings of the heart under all of life's conditions: love, fear, anticipation, desire, eating, sleeping, and laughing? Whose hearts were the first to offer their form, their remnants of a lived, emotionally complex life embedded in the oscillations of a wavy line? What technology needed to be invented to record the long-thought inaccessible heart?

Like the earliest tracing of a hand on an ancient cave wall, these milestones in the history of images should be remembered, honored and empathized with because of their ability to universally convey something essential about us over long periods of time. The portfolio of prints *The First Time, the Heart (A Portrait of Life 1854–1913)* brings together the first successful scientific attempts to image and document the various experiences of a living heart, which would change the way we understand and communicate our bodies.

It has primarily been the domain of art and religion to ponder and interpret the meaning and purpose of the heart, producing a rich legacy of objects, images, and thought. However, by 1853, science could now contribute to investigating the mysteries of the living heart when the German physiologist Karl von Vierordt (1818–1884) produced the first visual tracings of the human pulse. The now near-universally familiar images of the wavelike pulse lines as they appear on a heart monitor were at the time groundbreaking images that scientists hoped would reveal a "natural language" of life. These hieroglyphics of the heart only needed to be deciphered once the pulse and heartbeat were made into a visual form.

Vierordt's device, an exquisite machine of sensitivity for the nineteenth century, was called a sphygmograph, or "pulse writer." The device was designed to absorb the movement of a pulsing artery into a membrane or spring that would then make an attached stylus pulse in unison. After many attempts searching for the most sensitive material for the stylus, a balance between rigidity and suppleness, he settled on a short strand of human hair. The stylus would then trace out the white curvilinear forms on a piece of soot-covered paper on a rotating drum. Although it was simply a material practicality of the time, it is no less a poetic moment of astounding fragility to know the first pulse ever scientifically recorded was traced by a single human hair in the residue of candle flames that burned and extinguished over 160 years ago.

Almost two decades later, in 1870, the French physiologist Paul Lorain recorded the last fleeting signals of a dying heart as the body succumbed to the ravages of stomach cancer. The line, almost entirely rigid except for a few subtle ripples—the last quivers of a determined heart—is perhaps the most succinct portrait of death ever created.

Consider for a moment the invisible history of the images before us: for millions of years, billions of hearts have been pulsing these patterns, each representing the waves of our internal oceans, carrying both energy and emotional knowledge through the body. Yet, it was only a little over a century and a half ago that we could scientifically record, observe, and preserve, through an undulating line, the past actions of our always forward-moving hearts. Like ancient starlight absorbed by youthful telescopes—always there, waiting to be seen—images of our pulses and heartbeats came into view, oscillating through the wind-sensitive residue of candle flames on paper. However, these lines were not only medical but also poetic and philosophical in the long arc of human self-reflection. Humans are beautifully creative in the ways we hope meaning—an *essence*—is literally in the lines, images, or objects we create to hold them. The first pulse and heart waves should be remembered as part of that history.

Looking through the earliest heart and pulse tracings from the nineteenth and early twentieth centuries, one quickly realizes the sense of excitement early investigators must have felt about the possibilities that opened with the ability to record and visualize the heart's movements. With these new tools of observation, the modern scientific heart was brought into focus and previously suspected and newly discovered diseases and malfunctions of the heart were dutifully cataloged, producing a novel type of compendium—how our hearts can fail us. And although recording sick hearts for diagnostic reasons remained the early priority behind the research, something else fascinating started to emerge, an accidental by-product of the more extensive study of disease: a poetic portrait of everyday life.

Occasionally, a breakthrough in science will so alter our mental landscape that, in a sense, everything is new again. Mystery reclaims the banal; revelation is possible once more, embedded in the ordinary. The sphygmograph, cardiograph, EKG, and other technologies of visualizing the once invisible inner workings of the heart had this power. They were a unique mixture of science in its grandest efforts at profundity—for what was more profound than attempting to decipher the unknown language of the human heart—but also, more unexpectedly and unintentionally, they became tools to unlock the poetics of the everyday.

Underway across laboratories and hospitals in Europe and the US, there was a grand effort at recording life from the beginning again. "Life from the beginning" in the sense that every experience, no matter how routine, could now be recorded, visualized, and interpreted by science through this most complex of vessels. The inner workings of the heart and pulse in a state of disease, stress, or malfunction were one thing, but what of the other multitude of daily moments that give life its deeper texture—fear, dreaming, eating chocolate, drinking wine, hiccupping, or hearing a whistle? What could science say about our hearts simply *living life*? Like seismic sensors to the heart's purposeful mundanities, these recording devices dutifully output their flowing lines, allowing a new type of confirmation and connection through time. Just like our hearts, these century-old ones beat a little faster when blushing, a little slower when sleeping, irregularly when anxious, and wildly when excited.

As these past hearts are held forward in time, another interesting phenomenon appears. From the mid-nineteenth century forward, miles and miles of heart waves start to fill countless books and research papers, all notated with the new, rhythmic language of heart disease: angina pectoris, atrial fibrillation, tachycardia, endocarditis, myocardial infarction. With this language of disease, though, came the newly heart-charged language of life. By merely stating the experience being recorded with the matter-of-factness science excels at, a type of strange, beautiful, and accidental poetry takes form: “pulse of man 6 feet tall,” “ear lightly touched with feather while sleeping,” “sadness from listening to a sung melody,” “threatening a little girl, 10, to go to the dentist, “before and after a draught of hot milk,” “mail carrier with amputated arm,” “smelling lavender.”

Although there was much science to learn about how the heart and circulatory system responded to the effects of height, touch, exertion, or listening, in these combinations of image and text we are reminded of the heart’s unique ability to give an urgent lens to view all aspects of life. There is “sadness from listening to a sung melody,” and there is the *first time an individual’s heart was recorded while feeling sadness from listening to a sung melody*—an experience as rich with artistic contemplation as scientific. It was certainly not the first time that a human heart felt such emotion as a response to music. But like literature, sculpture, dance, or the invention of any expressive genre, with the pulse wave, we had a new method to represent that experience—only this time it literally came directly from the heart.

Whether through writing, drawing, photography, or sound, the act of recording changes our relationship to time and place. With each method, there is always an opportunity to expand empathy, communication, and shared purpose through time. Like the excitement of discovering a decaying, unopened crate of early wax cylinder recordings documenting long-assumed lost languages and songs, these pulse images and texts, taken as a whole, constitute an untapped documentary recording of the daily and emotional lives of another time and place as registered through their hearts.

Researched and gathered from many different libraries and archives, the fifty pulse waves in this portfolio were chosen to document a life, from birth to death. In each instance, it is likely the first time the heart was recorded under that experience—a locus point in time for all hearts to follow. Although each pulse wave is from a different person, (representing many years, ages, locations, genders, nationalities, races, and religions), together, they complete a familiar life. From an eight-months-pregnant woman, a fetal heartbeat at birth, riding a bike, to early senility and heart failure, as we watch these former hearts ripple by, we can enact our gift of empathy across time.

As exciting as the possibility of opening a new sensory path to the past is, because of the way these images were originally documented, this act of empathy will always have a gap. As we all have experienced, the complex gestures we have invented to give each other our hearts matters so deeply to us because of the specifics of *whose* heart and *why* it is being given. But the images of pulse and heart waves this portfolio gathers cannot do this, secluding them into a strange, emotionally complex zone between intimacy and anonymity. So many of the individuals who left memories of their hearts in countless books and manuscripts were not documented by name by the scientists or doctors conducting the research. It was not uncommon for the experimenters to freely test new devices or procedures on the constant influx of new patients moving through hospitals, and they were often merely identified by their gender, age, and medical condition. The paradox is that we can now share an intimacy with thousands and thousands of former lives by glimpsing into fleeting moments of their hearts—moments of birth, laughter, anticipation, suicide, and death—without ever knowing anything more about them. But because it is their heart they gave, we should feel compelled to ask: Whose birth? Was it a boy or a girl? What did they become? What made them fearful? Who did they love? Where are they buried? Their names and bodies may be gone, their souls ghosted to the ones they once loved, but they do not need to remain memories with no witnesses. In these few pulse waves, now freed from the decay of their host heart, they are still material and alive, ready to be seen, remembered, felt, and held in sync with ours.