

Light, Sound, Text:
Semiotics of a Technological Sublime

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I. Introduction

On May 24, 1844, Samuel Morse transmitted four words from Washington to Baltimore: “What hath God wrought!”¹ With this verse, spelled out electrically in dots and dashes, the relationship of communication and presence was fundamentally altered. The selection of Numbers 23:23 points to a spiritually charged cultural response to telegraphy and the channels it opened. For many, it was difficult to conceive of a connectivity that spanned such distance so quickly and Morse’s invention seemed to possess a kind of supernatural power. Architecture, engineering, and the emerging field of electromagnetic telecommunications all contributed to an aura of technological sublimity² during the mid-nineteenth century. It is this history that my thesis draws from and builds upon.

Light, Sound, Text: Semiotics of a Technological Sublime is a research-based, site-specific installation that explores language encoding and mysticism through the early history of telecommunications. The project incorporates neon light, synchronized sound, and printed matter within the institutional architecture of New York University. It is here that Samuel Morse, a professor of painting and sculpture, realized his vision for telecommunication. Sensing human presence, the installation conveys messages to visitors in Morse code, which can be received by them as language, sensory experience, or both. The printed piece—a large-format typographic treatment of Numbers 23:23 with a GPS drawing—adds a layer of historical context and references movement across a landscape. Meanwhile, sound is sampled directly from electricity passing through the neon tube, processed, and output in time with the patterns of light. Each of these aspects of the project are intended to operate within the framework of a technological

¹ On the punctuation, there seems to be some confusion as to whether the text ends in an exclamation point or question mark. In its original, biblical context, the exclamation point would be correct. It appears, though, that when transcribed from Morse code the question mark was inserted. In all likelihood, no punctuation was used but that makes the interrogative form all the more conspicuous.

² Nye, 1994

sublime in the way that they convey language, appeal to our sense of the infinite, or create an atmosphere of contemplation.

II. Background

My research process began with an investigation into the history of language invention. I've long been interested in the possibilities and limitations of language and began to wonder about the potential of a conceptual writing system that could represent abstract states of being and experience. This utopian vision was tempered by a survey of like-minded projects dating back to the seventeenth century when René Descartes supposed that if one could “explain correctly what are the simple ideas in the human imagination out of which all human thoughts are compounded . . . I would dare to hope for a universal language very easy to learn, to speak, and to write.”³ John Wilkins tenaciously pursued this ideal with his ambitious 1668 publication, *An Essay Towards a Real Character and a Philosophical Language* which attempts to construct a universal language from a hierarchical taxonomy of all things. Wilkins' thorough treatment is probably the best example of how, in practice, a mathematical language of concepts is highly problematic. Nevertheless, this did not deter many who came after from trying to do the same. In reality, languages are fluid, malleable systems, the ambiguities and inconsistencies of which are assets rather than imperfections to be eradicated. “It is society that creates meaning,” notes Arika Okrent, “and therefore language.”⁴

Surveying the cyclical history of language invention helped me to narrow in on language encoding as central to the approach I would take. Light, Sound, Text is intended to be a platform for the investigation of various forms of language encoding and their relationship to the built environment. I'm particularly interested in how acts of encryption and decryption resonate with

³ Okrent, 2009, p 37

⁴ Ibid., p 262

the semiotics of mysticism. The attribution of a spiritual significance to telecommunications technology first presented itself to me by way of French Jesuit priest and philosopher, Pierre Teilhard de Chardin whose best-known work, *The Phenomenon of Man*, has elicited both inspiration and condemnation. For this phase of research, I've circled back to the beginning of electronic communications technology with the invention of telegraphy. Morse code, which initially seemed too obvious an approach, proved to be most compelling given its primacy in the history of telecommunications and its suitability to the media of sound and light. As the project poses new forms out of historical material, *Light, Sound, Text* effectively draws a line between New York University's Interactive Telecommunications Program and the groundwork laid for it one hundred thirty-five years earlier.

III. Samuel F. B. Morse

“Around the walls of the Cabinet at New York University were coiled seventeen hundred feet of wire. With Yankee resourcefulness Morse had built his contrivance with the materials at hand—an old table, a discarded wooden stretcher intended for a painting, and various cogs, ratchets and springs from dismantled clocks.”

– Oliver W. Larkin⁵

Though best known for his invention of the telegraph, Samuel Morse began his career as an artist. Born in 1791 in Charlestown, Massachusetts, Morse graduated from Yale College and went on to study painting at the Royal Academy of Arts in London. Upon his return to the States in 1815 he set up a studio in Boston and began to seek portrait commissions. While his facility in portraiture demonstrably matured over the next eight years, patronage was inconsistent and the reception of his independent work lukewarm. Flush with ambition, Morse set his sights

⁵ Larkin, 1954, p 135–136

on the City of New York where he took up residence in the fall of 1823 in a single room on Broadway. Two years later he was selected for a high-profile commission by the city of a portrait of the Marquis de Lafayette. Morse eagerly began working on the painting in Washington when a letter arrived from his father. His wife, Lucretia, who just a few weeks earlier had given birth to their fourth child, had suddenly died. The distance between them prevented Morse from returning before Lucretia was buried.

The heartbroken Morse carried on with life in New York, buoyed by the community he had established there and yet feeling the need for renewal. This soon led him to cross the Atlantic again, this time to visit Italy and France. While the trip was productive for Morse's painting, the six-week journey home was particularly significant as it occasioned conversation about electromagnetism with Dr. Charles Thomas Jackson, an expert on the topic. Morse, who had taken a keen interest in telegraphy, began to envision a form of communication that would convey electromagnetic impulses through long circuits. He is quoted as remarking then that if "the presence of electricity can be made visible in any desired part of the circuit, I see no reason why intelligence might not be transmitted by electricity to any distance."⁶

Within a month after his return, Morse accepted an appointment as Professor of Painting and Sculpture at the University of the City of New York⁷. The rooms he rented on campus housed him and some of his students with additional space for painting and experimenting with a system for long-distance communication. Morse's vision for a simple, easy-to-use electric telegraph required knowledge and experience well beyond his own. He recruited Dr. Leonard Gale, a colleague at the university; Alfred Vail, an acquaintance of means; and Joseph Henry, a professor of science at Princeton, to take his prototype further. His focus intensified and by 1838 he had given up painting entirely. The United States granted Morse a patent for his invention in

⁶ Larkin, 1954, p 111

⁷ In 1896, the name was officially changed to New York University.

1840 and its major public debut occurred four years later. “What hath God wrought!” was the text selected by Annie Ellsworth, daughter of the Commissioner of Patents, for the opening of the Washington–Baltimore line. It was she who brought Morse news that the Senate had passed the bill funding the line’s construction and he thanked her with the honor. Wonderment spread soon after as the usefulness of the telegraph was demonstrated at political gatherings and elections. The most common description of Morse’s device was that it “annihilated space and time.”⁸

Samuel Morse was an artist-inventor whose fascination with the recently possible altered our very notion of human interaction. Although he never returned to painting, Morse later took up another emerging technology of his time, the daguerreotype, and was instrumental in its introduction in the United States. Like its predecessor the telegraph, the daguerreotype would inscribe a new kind of consciousness into the modern psyche.

IV. Technological Sublime

“We are faced with a harmonized collectivity of consciousnesses equivalent to a sort of super-consciousness. The idea is that of the Earth not only becoming covered by myriads of grains of thought, but becoming enclosed in a single thinking envelope so as to form, functionally, no more than a single vast grain of thought on the sidereal scale, the plurality of individual reflections grouping themselves together and reinforcing one another in the act of a single unanimous reflection.”

– Pierre Teilhard de Chardin⁹

As the telegraphic medium spread, it seemed poised to unify the human race in a utopian interconnectedness. “The sublimity,” writes David Nye, “lay in realizing that man had directly

⁸ Silverman, 2003, p 240

⁹ Teilhard de Chardin, 1959, p 251

‘subjugated’ matter, and this realization was a collective experience.”¹⁰ Comprehending this new media condition required a shift in the conceptual framework with which people understood communication—linked, up until then, with notions of travel.¹¹ Alongside of this new understanding emerged a belief in the ability to channel spirits of the dead. The practice of Modern Spiritualism featured prominently across America from the 1840s to the 1920s. A series of events surrounding the family of John and Margaret Fox in upstate New York in 1848 illustrate how telegraphic and spiritual media began to overlap in popular culture.¹² After a string of sleepless nights punctuated by unidentifiable sounds of knocking and rapping, the youngest daughter, Kate, engaged the source of the disturbance in a form of communication. This involved consistent knocking patterns such as counting and rapping once for “yes” and twice for “no.” News of these occurrences, which were repeatable, coupled with demonstrations at the Fox house lead many to believe that Kate had “opened a ‘telegraph line’ to another world.”¹³ Regardless of the legitimacy of these claims, it appears that the cultural response to telegraphy was enmeshed with notions of presence previously only attributed to the realm of the spirit. “American Spiritualism presented an early and most explicit intersection of technology and spirituality, of media and ‘mediums,’” writes Jeffrey Sconce. This perspective is echoed in the parallel invention of spirit photography, an attempt to capture spirits and ghosts in the photographic image. Sconce goes on to assert that “many of our contemporary narratives concerning the ‘powers’ of electronic telecommunications have, if not their origin, then their first significant cultural synthesis in the doctrines of Spiritualism.”¹⁴

¹⁰ Nye, 1994, p 62

¹¹ The semaphore, a system of sending signals across distances that could be received visually, was the closest anyone had come to transcending space and time in the way the electromagnetic telegraph did.

¹² Sconce, 2000, p 22

¹³ *Ibid.*, p 22

¹⁴ *Ibid.*, p 25

V. Light, Sound, and Text as Media

“With the computer, and brought together in the telematic embrace, we can hope to glimpse the unseeable, to grasp the ineffable chaos of becoming, the secret order of disorder. And as we come to see more, we shall see the computer less and less. It will become invisible in its immanence, but its presence will be palpable to the artist engaged telematically in the world process of autopoeisis, and planetary self-creation.”

– Roy Ascott

My initial inspiration for the the use of industrial lighting as sculptural form came from the work of American Minimalist artist, Dan Flavin, whose arrangement of fluorescent tubes transforms them from the common to the majestic. I began to investigate the viability of fluorescent lighting for Light, Sound, Text and soon realized two things. First, fluorescent lights do not turn on instantly and, second, frequently switching them on and off will quickly burn them out. This roadblock proved beneficial as it was at this point that my attention turned to neon. What people typically refer to as “neon” covers a range of colors, many of which do not make use of the chemical element at all. Only certain oranges and reds use neon while most others, including the piece fabricated for my thesis, use argon and a small amount of mercury.¹⁵ In both cases, however, the manufacturing process is similar: the element is extracted from air in a process known as fractional distillation, concentrated in glass tubing, and charged with electricity to produce a distinctive glow.

On a conceptual level, the idea that neon and argon are all around us in the air and only need to be isolated and electrified to manifest themselves connects rather well to the dynamic of hiddenness and ethereality in my project. The pale blue I selected for fabrication is the purest

¹⁵ <http://www.litebriteneon.com/tecnolux/>

form of argon-based neon and is enclosed in fully transparent glass. On a functional level, neon light is well-suited to the patterns and rate of activation necessary for the transmission of coded text. Figuring out how to do this was a technical challenge that presented me with the opportunity to learn about relays. For *Light, Sound, Text*, I'm sending signals from dataflow programming software via serial communication to an Arduino microcontroller. The Arduino controls a transistor which drives a solid state relay spliced into the neon's power cord. Solid state relays are preferable for this application because of their optical isolation, durability, and silent operation.

The sonic element of *Light, Sound, Text* is vital for a number of reasons. To begin, sound is an inherently spatial medium and the project is concerned with communication across distance. In the context of an architectural installation, Morse code allows me to make use of multi-sensory forms of communication. I'm also keen to create an environment that can be experienced communally as well as individually. Perhaps most importantly, though, is the atmosphere the sound creates and how this guides an experience of the installation. In my first sketches, I tried sending MIDI notes through a digital audio workstation. The timbres I was using had a meditative, bell-like quality but they were too pleasant, somewhat artificial, and lacked the kind of presence I was seeking to generate. I continued to tinker with digital sounds for some time before deciding to try something more direct. When I initially began working with neon and sound together, I immediately noticed the feedback it produced in speakers. The high current of electricity neon requires turned out to be another resource to draw from. After experimenting with a few different methods of sampling electrical noise from the circuit, I settled on a bare 1/4" mono cable laid across the relay. Processing that signal with a delay pedal produces the kind of atmospheric, electrical cloud I was looking for in the sound component of the piece.

Telegraphy was, at its inception, a print medium. As electrical impulses were received, the arm of the telegraph made indentations on a strip of paper which was then read by an interpreter.

Those fluent in Morse code, however, soon found that they were able to read telegraphic messages by ear and the device crossed media. Light, Sound, Text incorporates a large-format poster as an additional layer of historical context and visual presence. For many, the printed component may be their initial contact with the installation. Only when drawing near will their presence be detected by a passive infrared sensor, triggering messages transmitted through the light and sound. The 36" × 50" poster is a typographic treatment of Numbers 23:23 overlaid with a line drawing of a GPS trace. I've laid out the text in Big Caslon, Matthew Carter's 1994 revival of William Caslon's eighteenth century masterwork. The drawing I logged over the course of a long weekend traveling around New York City and Long Island. The distance covered is roughly the same as the distance between Washington and Baltimore. There has always been a powerful connection between the written word and sacred tradition and the poster seeks to push that dimension in relation to its "new media" counterparts.

VI. A Cloud of Unknowing

"Although the word *mysticism* is fairly recent, created in the seventeenth century and not popular until the nineteenth century, the adjective *mystical* ('hidden' in Greek) has been widely used among Christians since at least the second century CE. Christians used *mystical* to refer to refer to the secret realities of their beliefs, rituals, and practices . . ."

– Bernard McGinn¹⁶

Light, Sound, Text: Semiotics of a Technological Sublime is a project with a high degree of medium-specificity. Still, it requires a text—a score, even—in order for its presence to be felt. As mysticism is concerned with things cloaked in secrecy and waiting to be uncovered, the installation, too, will be programmed with texts selected for participants to decipher as their

¹⁶ McGinn, 2006, p XIV

interest and focus permits. Each iteration of the project will facilitate the start of a dialog to which one may respond consciously or subconsciously. How these signs and symbols are navigated is the axis on which the project turns. It is this paradigm to which Light, Sound, Text appeals: that of the hidden, mysterious form of a mediated presence.

VII. Bibliography

Larkin, Oliver W. 1954. *Samuel F. B. Morse and American Democratic Art*. Boston, Toronto: Little, Brown and Company.

McGinn, Bernard. 2006. *The Essential Writings of Christian Mysticism*. New York: Modern Library.

Morley, Simon. 2010. *The Sublime*. London: Whitechapel Gallery. Cambridge, MA: MIT Press.

Nye, David. 1994. *American Technological Sublime*. Cambridge, MA: MIT Press.

Okrent, Arika. 2009. *In the Land of Invented Languages: Esperanto Rock Stars, Klingon Poets, Loglan Lovers, and the Mad Dreamers Who Tried to Build a Perfect Language*. New York: Spiegel & Grau.

Sconce, Jeffrey. 2000. *Haunted Media: Electronic Presence from Telegraphy to Television*. Durham, NC: Duke University Press.

Silverman, Kenneth. 2003. *Lightning Man: The Accursed Life of Samuel F. B. Morse*. New York: Alfred A. Knopf.

Teilhard de Chardin, Pierre. English translation: Bernard Wall. 1959. *The Phenomenon of Man*. London: Wm. Collins Sons & Co. Ltd. New York: Harper & Brothers.