Architectures of the Voice

an experiment in a biopolitical genealogy of public address systems

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Abstract

The contemporary urban soundscape is saturated with announcements projected into public spaces in automated pre-recorded messages through a series of loudspeakers. Most public address (PA) systems have recently started using female voices for announcements that are left unquestioned as they reverberate across the city. Unlike other forms of surveillance, loudspeakers remain hidden and form a crucial part of the design and ongoing securitisation of public spaces. How do these voices contribute to or change the way public spaces are structured, governed and regulated?

The focus on sonic methodologies and praxis is severely understudied in the discipline of architectural history & theory, yet it can provide a way to critically approach understanding contemporary urban space as formed through power relations. This thesis aims to trace the development of the PA system by focusing on three historic moments that have defined its widespread use today. I analyse the 'Speaking Statue' presented in the first book on acoustics from the seventeenth century; the first modern version, called the 'Automatic Enunciator', from Chicago in 1911; and the famous London Underground 'Mind the Gap', which was the first automated announcement implemented in 1969. I critically approach them by following a structure inspired by the PA system block diagram itself; starting with the architecture (the space into which the sound is projected), followed by technology and then focusing on the voice.

I draw unique interdisciplinary connections between feminist (Kanngieser 2012, Power 2016, Rendell 2017), and sound studies (LaBelle 2018) with philosophy and psychoanalysis (Cavarero 2005, Dolar 2006) to engage with the structural and societal mechanisms that construct urban soundscapes. To deconstruct power relations that have affected and shaped urban public spaces, I argue for the need for a critical historical genealogy of PA systems that engages with concepts of biopolitics and governmentality (Foucault 1995), fear, desire, and gender to understand how these architectures of the voice shape the everyday urban experience.

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Prologue

Lost in her thoughts she takes the escalator from the platform, up towards the exit of the underground station. Removing her headphones, she wonders whether this is precisely the spot where the fire started when she hears a female voice say:

'If you see something that doesn't look right, speak to staff, or text British Transport Police on 61016. We'll sort it. See it. Say it. Sorted.'

While trying to figure out whether 'sorted' was actually 'sort-it' and thinking about the different accents in English language and whether this qualifies as the glottal stop, she notices a man with a blue heavy-looking bag.

He is standing in a corner, observing people coming up the escalators. She is, after all, on a big international station, so she continues towards the ticket barriers. Engulfed in the sea of high-pitched sounds pulsating all around her, she exits the barriers and takes another escalator towards the exit.

Another voice, also female, this time much softer and more familiar, announces:

'Twenty-four-hour CCTV recording is in operation at this station for the purpose of security and safety management'.

Gently reverberating across the space, its melodic intonation acts as a background music on a crowded station. Noticing the time on train departure boards, she realises it's still early, so she sits on a bench. Soon, another female voice, different than the previous two, proclaims:

'Please do not leave your luggage unattended at this station. Luggage left unattended may be removed without warning or destroyed or damaged by the security services.'

She thinks about the man with a blue heavy-looking bag.

Introduction

Soundscapes of urban public spaces have been changing because of the advancement of technology, particularly for transportation and communication, other social and political changes, as well as the ongoing climate and ecological crises. One of such changes in the contemporary neoliberal city is the acousmatic voice projected through a set of speakers into various public spaces, like the train and underground stations, hospitals, supermarkets, and schools. The acousmatic voice – when the source of the voice is hidden, unknown or removed – is used to address – to guide, warn, suggest, declare, and dictate – citizens in their everyday actions. The loudspeakers, voices, statements, technology, and other processes behind such public address (PA) systems are normally left unquestioned and operate behind a veil. Furthermore, the announcements in London are increasingly using pre-recorded female voices, which is a contrast to the predominant use of male voices even just a few decades ago.[1] How do these voices change the way public spaces are structured, governed and regulated? What can architectural history uncover by studying soundscapes in and of public spaces?

The PA systems are becoming ubiquitous and progressively more embedded into the architectural design of public spaces, yet there is no historical or theoretical overview of their development. I propose to critically approach the rise of PA systems in urban public spaces to reveal the structural and societal mechanisms that construct the contemporary neoliberal city. I define a PA system relative to four criteria, namely that: it is projecting an acousmatic voice; it is relating to the public (people and space); it is fixed and physically embedded in the architecture of the space (like loudspeakers, wires, control panels); and it is used to affect people's behaviour. Contemporary societies increasingly rely on technology to regulate urban public spaces, and London is known to be one of the most heavily surveilled cities in the world. An average citizen, for example, is caught on a CCTV camera more than 300 times a day.[2] While the visibility of surveillance cameras (and security personnel) is meant to contribute to crime prevention, I suggest it is precisely the obscurity of loudspeakers and the

[1] Not only in London, but elsewhere in other Western cities as well. Ian Rawes, 'Women's Voices Call the Shots in Recorded Announcements - Sound and Vision Blog', British Library: Sound and Vision Blog, 25 August 2010, https://blogs.bl.uk/sound-and-vision/2010/08/womens-voices-call-the-shots-in-recorded-announcements.html.

[2] 'Research — Big Brother Watch', Big Brother Watch, accessed 22 July 2022, https://bigbrotherwatch.org.uk/research/.

overall ambiguity of PA systems that increase their effectiveness and promote their widespread use. As authors note in *Spaces Speak, Are You Listening*, 'injecting noise of whatever kind into an acoustic arena is nothing more than the exercise of (sonic) power: social or political, autocratic or democratic, supportive or destructive.'[3] Who holds this power, and who determines how, where, or when is it exercised?

We are caught in the effects of late capitalism, writes Rosi Braidotti, living within multi-ethnic and globalised societies, with relentless advancement of technology and allegedly free borders yet increased inequality, border controls and security measures all around us.[4] This kind of regulation and administration of bodies, and the new relations between politics and life that emerge as a response, is what Michel Foucault called biopolitics. In *The Right of Death and Power over Life* he writes, 'numerous and diverse techniques for achieving the subjugation of bodies and the control of populations [mark] the beginning of an era of "bio-power"'.[5] In order to understand the change in meaning and operation of public address systems, as well as to conceptualise their widespread use today, I engage in a genealogical historical analysis. This allows me to deconstruct 'forms of possible knowledge, normative frameworks of behaviour, and potential modes of existence for possible subjects' concerning PA systems.[6] This kind of Foucauldian genealogy can provide architectural historians with tools to critically approach the contemporary urban public space as formed through power relations. Additionally, to paraphrase Foucault, power relations need to be de-institutionalised and de-functioned to grasp how they are formed, developed, multiplied, connected with each other, and transformed by other processes.

> If we want to avoid the circularity that refers [power relations] from one institution to another, it is by grasping them at the point where they constitute techniques with operative value in multiple processes.[7]

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[3] Barry Blesser and Linda-Ruth Salter, *Spaces Speak, Are You Listening? Experiencing Aural Architecture* (London: MIT Press, 2007).

[4] Rosi Braidotti, *Nomadic Subjects: Embodiment and Sexual Difference in Contemporary Feminist Theory* (New York: Columbia University Press, 2011), 3.

[5]Michel Foucault, 'Right of Death and Power Over Life', in *Biopolitics: A Reader*, ed. Timothy C. Campbell and Adam Sitze (Durham: Duke University Press, 2013), 45.

[6] Michel Foucault, *The Government of Self and Others: Lectures at the Collège de France 1982-1983* (New York: St Martin's Press, 2010), 3.

[7] Michel Foucault, *Security, Territory, Population: Lectures at the Collège de France 1977-78*, ed. Michel Senellart, Lectures at the Collège de France (Basingstoke: Palgrave Macmillan, 2009), 119.

As I demonstrate throughout the thesis, the acousmatic human voice that is transferred and transformed through technology, as well as embedded and projected into architecture, is one such key technique with operative value, constituting a 'technology of power',[8] or rather a technology of biopower. In other terms, the contemporary acousmatic human voice functions as a central asset in the ongoing securitisation and control of public spaces.[9]

Auditory resistance

The securitisation of urban spaces is also part of wider issues around neoliberal and market-oriented redevelopment projects happening throughout London. Private corporations own and maintain public spaces in exchange to build more and bigger than what would otherwise be allowed under local zoning ordinances.[10] This produces areas of privately owned public spaces (POPS) where people's behaviour is subject to ambiguous or hidden rules set by individual corporations. As Brandon LaBelle neatly puts it:

> [W]hat forms might being political take today when the power of people is contorted by operations and systems that are mostly never apparent or exposed, that are safeguarded behind racist and sexist mechanisms, that rely upon vague and volatile market forces, and that actively withdraw into secret arrangements and fluid networks, except in those instances when individuals make transparent, through acts of insurrection, the troubling work of governmental, militaristic or corporate agencies?[11]

In various POPS in London visitors are not allowed to photograph or film, yet there are many CCTV cameras covering every angle of the space. A security guard will reproach you, or instead someone might even address you over the PA system and proclaim this is not

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[8] Foucault, 117.

[9] Nina Power has written about the soft coercion of the recorded female voices in public spaces, but without making any connections to biopolitics or public spaces in which it occurs. I suggest her 'central asset' can be substituted with Foucauldian 'techniques with operative value'. See: Nina Power, 'Soft Coercion, the City and the Recorded Female Voice', MAP Magazine, 2 May 2018, https://mapmagazine.co.uk/soft-coercion-the-city-and-the-recorded-female-voice.

[10] For more on neoliberal restructuring of cities see: Neil Brenner and Nik Theodore, 'Cities and the Geographies of "Actually Existing Neoliberalism"', *Antipode* 34, no. 3 (June 2002): 349–79, https://doi.org/10.1111/1467-8330.00246.

[11] Brandon LaBelle, *Sonic Agency: Sound and Emergent Forms of Resistance*, Sonics (London: Goldsmiths Press, 2018), 11.

allowed. As geographer Michael Gallagher writes, power is generally portrayed as exercised through technologies of visibility, that is 'in the act of observing, exercis[ing] power over those who are observed'.[12] As a response to LaBelle's question, I suggest one form of being political is by focusing on sound in the built environment and conceptualising power as 'fluid and dynamic, even where it appears to be unidirectional or immovable'.[13] Many hidden systems in place can surface through an embodied and situated critical practice of active listening. It is worth noting that I have researched urban soundscapes before, and have since adopted the practice of active listening, thus developing a sonic sensibility toward the sounds around me. I am particularly interested in exploring how gender assumptions are reinforced within the built environment and I argue this can also be heard in the soundscapes of urban public spaces. According to Jane Rendell, the boundaries denoting private and public spaces are never neutral, but culturally constructed contours that change historically and show specific value systems,[14] just like urban soundscapes.

I employ Meaghan Morris's definition of feminism as 'minimally a movement of discontent with "the everyday" and with wide-eyed definitions of the everyday as "the way things are".'[15] Active listening then is a feminist project as it is necessarily embodied, situated, and refusing to accept the everyday (sounds) as simply the way things are. It is also a useful investigative tool for architectural historians and theorists, not only because it can surface new objects of study, but also because it can approach the established ones in a new way. The focus on sonic methodologies and praxis is an inherently interdisciplinary endeavour, as it questions architecture through physics, culture, art, and philosophy. The study of PA systems in urban spaces can provide the academic discourse with an alternative history of public spaces from the perspective of sound. I use Emily Thompson's definition of soundscape as 'simultaneously a physical environment and *a way of perceiving that environment:* [as] both a world and a culture constructed to make sense of that world'.[16] The way we hear today is

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[12] Michael Gallagher, 'Sound, Space and Power in a Primary School', *Social & Cultural Geography* 12, no. 1 (2011): 49, https://doi.org/10.1080/14649365.2011.542481.

[13] Gallagher, 49. He is referring to Foucault's conceptualisation of power.

[14] Jane Rendell, *Art and Architecture: A Place Between* (London: IB Tauris, 2006), 18.

[15] Meghan Morris, 'Things to Do with Shopping Centres', in *Gender Space Architecture: An Interdisciplinary Introduction*, ed. Jane Rendell, Iain Borden, and Barbara Penner, Architext Series (London ; New York: E & FN Spon, 2000), 171.

[16] My italics. Emily Ann Thompson, *The Soundscape of Modernity: Architectural Acoustics and the Culture of Listening in America, 1900-1933* (Cambridge, Mass.: MIT Press, 2002), 2.

different to the way people perceived their environment even only a few decades ago – listening is as much about physics and biology, as it is about culture. In addition to *The Soundscape of Modernity*, Karin Bijsterveld's *Mechanical Noise* and Gascia Ouzounian's *Stereophonica* have been particularly helpful in understanding how practices of listening form historically as a response to new technological inventions and socio-political changes. [17] Mentioned scholars engage with issues of listening and historic perception of sound through primary sources of visual representation, like advertisements, drawings, and photographs, as well as secondary sources like written literary and journalistic accounts or policy meetings. They place them in particular contexts and pay special attention to how something sounded – either to them, or to other writers, scientists, and artists from the past; or perhaps how it should have sounded like – based on the knowledge we have today. This kind of methodology inspired my own and, I will argue, can provide a critical lens, or a way-in, to not merely discuss past soundscapes but also to read them as caused by power relations. This will then allow me to map different relations between public and private spaces, and theorise their contemporary intersections like in the case of POPS. Contemporary resistance to hidden governmental and corporate systems therefore could and perhaps should be auditory – the society that privileges vision is challenged through sound.

Methodology & Structure

The thesis engages with three historic sites that I have defined as key moments in the evolution of a contemporary public address system, particularly paying attention to buildings designed for, equipped with, or changed through the architectures of the voice. This is a concept I developed to theorise PA systems together with everything that surrounds them – historical, political, technological, and architectural factors. The architectures of the voice occur when the acousmatic voice travels through different types of technology, which forms and trans-forms it, and is then projected into a public space. Consequently, architectures of the voice are what Foucault called technologies of biopower, but with a particular focus on sound and their embeddedness in the built environment. Simultaneously also a call for an interdisciplinary methodology, the architectures of the voice can provide researchers with a new way to conceptualise various public spaces, historically, through sound.

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[17] Karin Bijsterveld, *Mechanical Sound: Technology, Culture, and Public Problems of Noise in the Twentieth Century*, Inside Technology (Cambridge, Mass: MIT Press, 2008); Gascia Ouzounian, *Stereophonica: Sound and Space in Science, Technology, and the Arts* (Cambridge: MIT Press, 2021).

The structure of the thesis is inspired by the PA system block diagram; starting with *architecture* (space into or out of which the sound is projected), followed by *technology* and then focusing on the *voice*.[18] These individual blocks provide a slight shift in focus and allow me to unpack the different techniques that constitute the technology of biopower at different levels. Each chapter begins with a visual representation of the site, which starts the analysis by situating the reader in a specific historic context. After an overview of the period, the chapter focuses on architectural aspects or techniques, followed by a gradual zooming-in through technology, and finally ending with the voice; allowing the archival material of each site to lead the analysis. This structure provides a way to engage with each site in an interdisciplinary way, by cutting across, what Andrea Kahn describes as, 'a collection of scales, programmes, actors and ecologies that include past imprints as well as future changes.'[19]

In order to attune to the architectures of the voice materially, conceptually, and historically, I adopt a form of free association, presented by Sigmund Freud as the basis for psychoanalytical practice. I situate myself and the reader in different parts of the representation, placing importance on various techniques, agents and subjects involved in the exercise of power through practices of speaking and listening. I 'listen' to scholars who intertwine sound studies with history or socio-political questions, like LaBelle, Jacques Attali, Anne Karpf, Nina Power, Leigh Schmidt and feminist philosophy like Anja Kanngieser, Dominic Pettman, Kaja Silverman and Tina Tallon. I adopt their approach to make arguments directly, as well as indirectly through association and implication, borrowing from Rendell's site-writing.[20] I engage with the chosen sites through two canonical texts on vocal expression by feminist philosopher Adriana Cavarero and psychoanalyst Mladen Dolar,[21] and apply them to the scale of the built environment.

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[18] See Fig. X in the appendix for the PA system block diagram.

[19] Andrea Kahn, 'Overlooking: A Look at How We Look at Site or ... Site as Discrete Object of Desire', in *Desiring Practices: Architecture, Gender, and the Interdisciplinary*, ed. Katerina Rüedi, Sarah Wigglesworth, and Duncan McCorquodale (London: Black Dog Pub, 1996), 176.

[20] Jane Rendell, *Site Writing: The Architecture of Art Criticism* (London: I. B. Tauris, 2010), 2.

[21] Interestingly, Cavarero is Italian and Dolar Slovenian – I come from a small town Izola, which is a bilingual area in Slovenia, close to the border with Italy. Adriana Cavarero, *For More than One Voice: Toward a Philosophy of Vocal Expression* (Stanford, Calif.: Stanford University Press, 2005); Mladen Dolar, *A Voice and Nothing More*, Short Circuits (Cambridge: The MIT Press, 2006).

The thesis examines what it means for a voice to be (or become) disembodied, what it means for a subject to listen or to have a voice, to be heard and to speak publicly. The conclusion presents a contemporary example of an architecture of the voice, as well as reflects on the process and method of the thesis. I question how PA systems are used to govern public spaces by employing gender assumptions and aspects of fear and desire to produce different kinds of control.

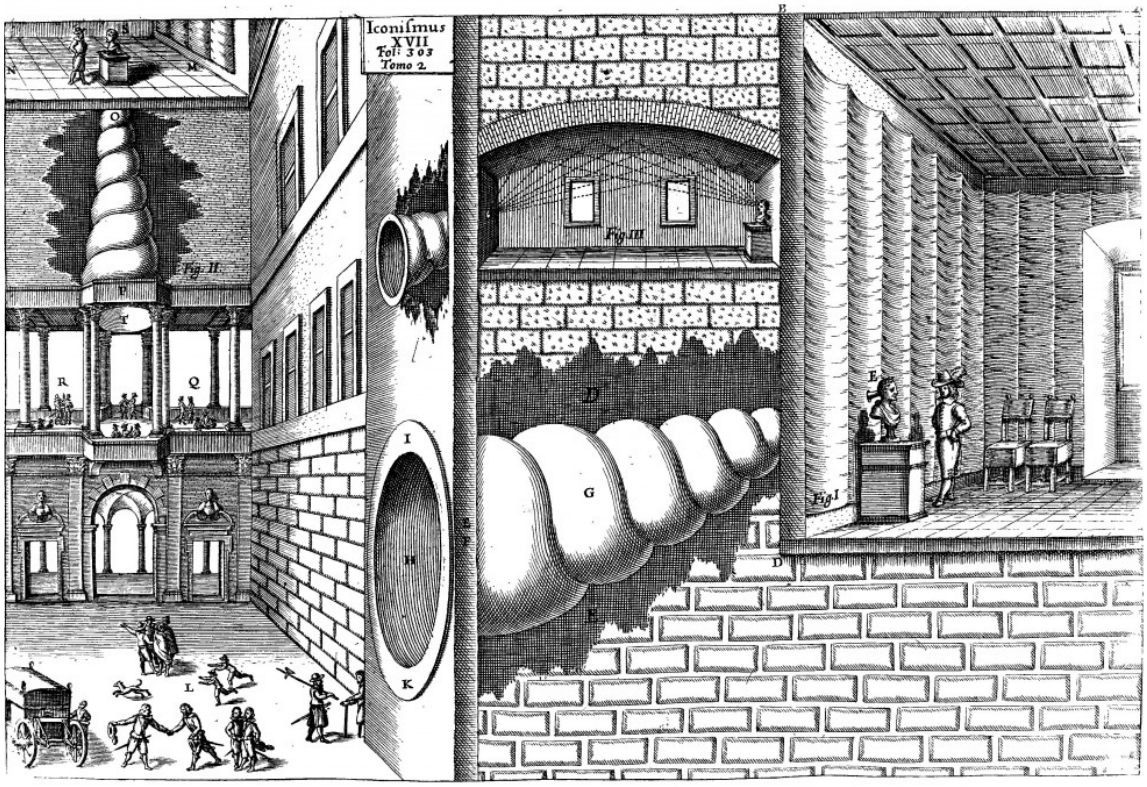

Fig. 1 Athanasius Kircher's drawing from *Phonurgia Nova*, published in 1673. Note different parts of the drawing marked as Fig. I, Fig. II, and Fig. III.

Chapter I

The Speaking Statue (1673)

In the seventeenth century, during the early modern period in Europe, many new developments and discoveries marked the beginning of modern science and sparked new interest in physics, biology, mathematics, and astronomy. One of them, though relatively unknown at the time, was Athanasius Kircher's *Phonurgia Nova* written in 1673 in Latin,[22] considered to be the first book dedicated entirely to the science of acoustics. *Phonurgia* is a neologism from *phono* or *phōnē* that stands for sound, particularly relating to human voice or speech, and together with *nova* translates to a 'new modality of sound production'.[23]

Kircher, a German Jesuit scholar and a Renaissance polymath, was interested in medicine, geology, and religion. His research into human body and sound propagation led him to invent the first speaking trumpet, the predecessor of a modern-day megaphone, which served as an early technology to amplify sound – particularly human voice – and project it further into space. In *Hearing Things,* Schmidt writes, many of these 'rational amusements' or inventions served both as scientific experiments and entertainment, as 'performative distillations for exploring much wider Enlightenment frameworks of knowledge about sound, voices, and hearing'.[24] He suggests Kircher's work can therefore be understood as a bridge between natural magic of the Renaissance and the rationality of Enlightenment.

In addition to the speaking trumpet, Kircher explored tubes of various shapes and sizes embedded into the architecture, connecting spaces and caves, propagating sounds in different directions. What is crucial for this thesis is his interest in listening to 'other people's conversations while remaining in a concealed room with the aid of tubes and hidden devices, and how to exchange coded messages by the use of special trumpets'.[25]

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[22] Athanasius Kircher, *Phonurgia Nova: conjugium mechanico-phyficum artis & naturae*, 1st ed. (Campidonae: Rudolphum Dreherr, 1673), https://monoskop.org/images/8/8d/Kircher_Athanasius_Phonurgia_nova.pdf.

[23] As translated from the original book in Latin. See: Lamberto Tronchin, 'The "Phonurgia Nova" of Athanasius Kircher: The Marvellous Sound World of 17th Century' (155th Meeting Acoustical Society of America, Paris, France, 2008), 2.

[24] Leigh Eric Schmidt, 'Oracles of Reason', in *Hearing Things*, Religion, Illusion, and the American Enlightenment (Harvard University Press, 2000), 81.

[25] As translated from original book in Latin. See: Tronchin, 'The "Phonurgia Nova" of Athanasius Kircher', 3.

In this chapter I focus on his invention called the Speaking Statue, which I identify as one of the first examples of sound technology for propagation of acousmatic human voice that is embedded into the architecture and projected into (or out of) a public space. As will become apparent throughout the chapter, the Speaking Statue is also an early example of a public surveillance technology, which had always been inherently intertwined with the power of speaking and listening.

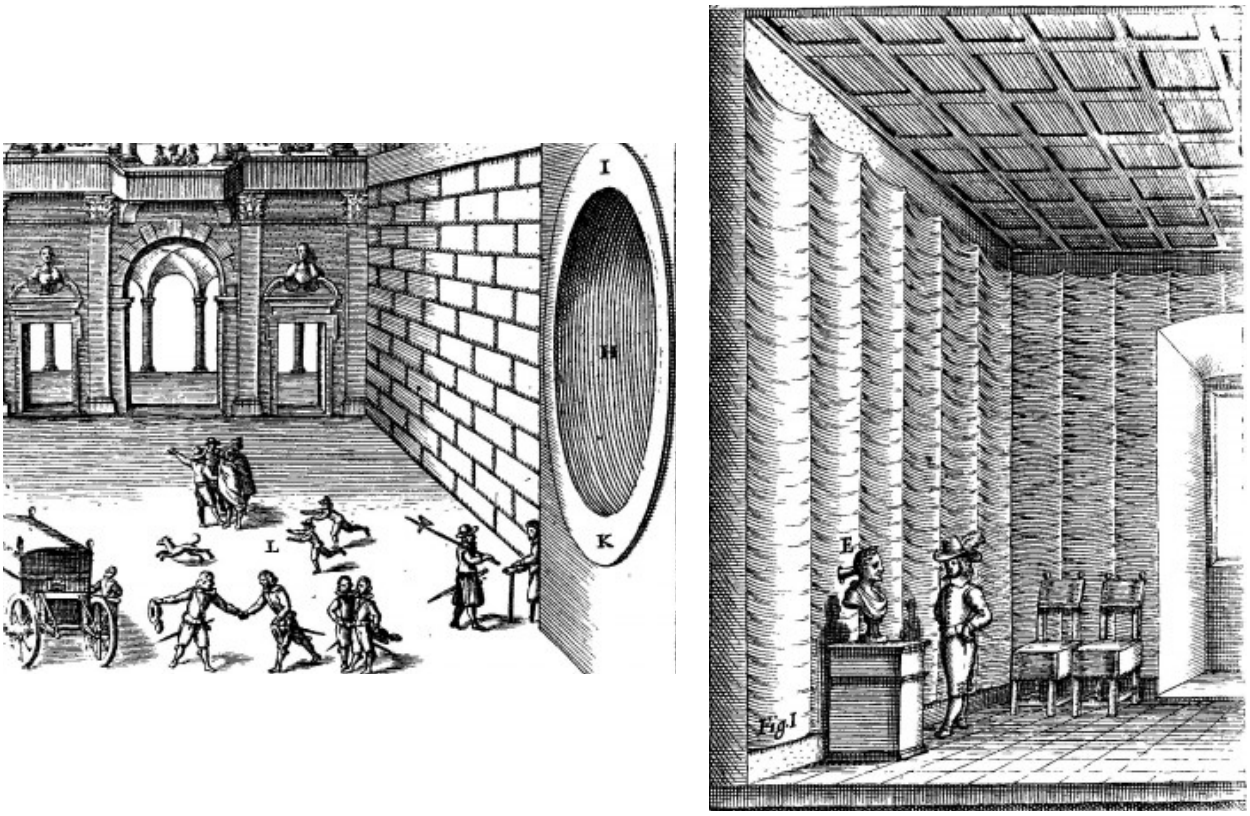

Fig. 2 Magnified parts of Fig. 1, showing the public square (left) and the Speaking Statue facing the nobleman (right).

Architecture

The drawing is composed of three scenes that show the insides of different rooms. Marked as Fig. I, Fig. II and Fig. III, each scene depicts a potential use of the Speaking Statue and its belonging trumpet embedded into the architecture. The Speaking Statue is best seen on Fig. I, on the right-hand side of the drawing, facing a nobleman who appears to be listening, as if engaged in a conversation. There is a trumpet coming out of the statue's head, which connects into the wall and continues in a spiral shape, opening up into an open public square or courtyard. Kircher imagined sounds from the square travelling up, through the spiral trumpet, into the head of the statue and – if the room was sufficiently insulated – projecting through the mouth of the statue. The nobleman would consequently know what is happening on the square, without being noticed (assuming the public wouldn't mind a big opening in the wall of a building). In the corresponding text Kircher writes:

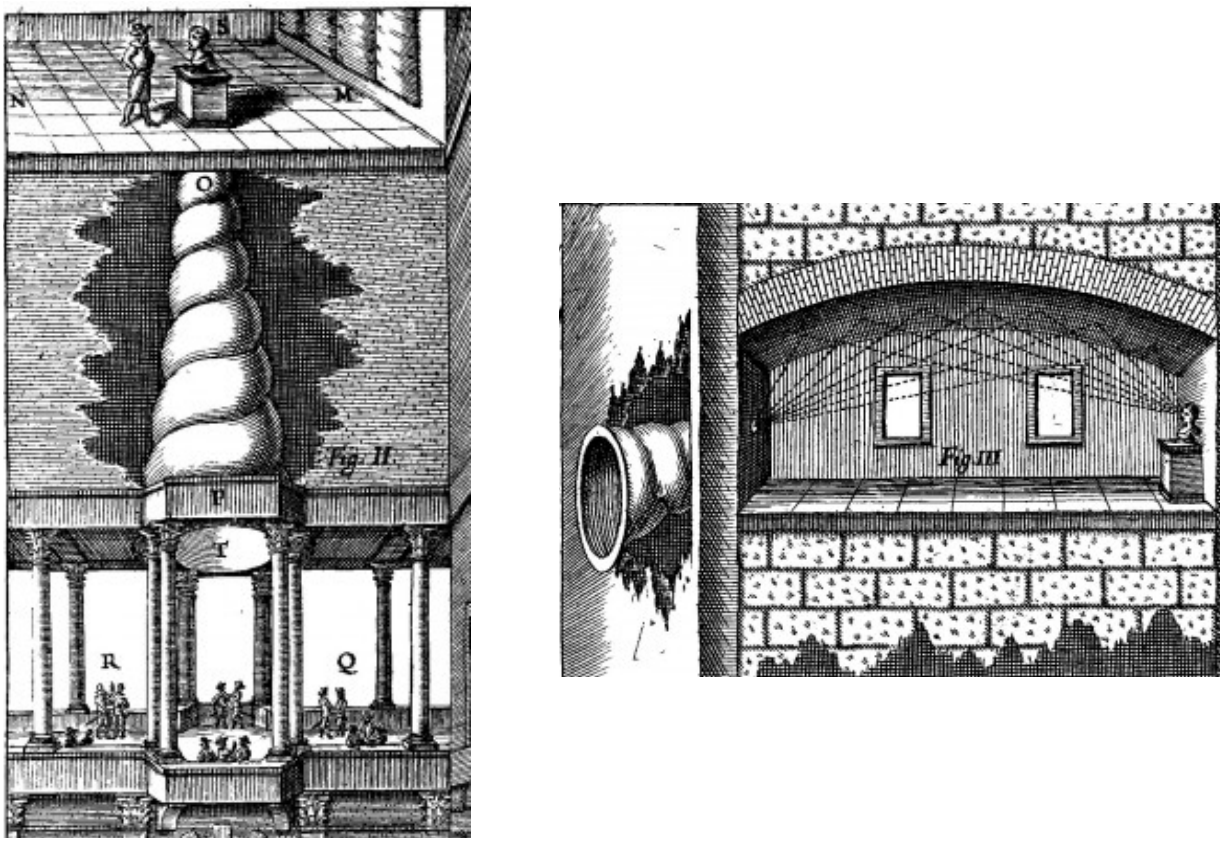

Fig. 3 Magnified parts of Kircher's drawing, showing Fig. II (left) depicting a vertical spiral-shaped trumpet. Note how the R and Q areas on the drawing are not directly located under the trumpet. Architecturally secluded area in the centre, which would arguably invite more people to pause and talk, serves as bait for the kind of private conversations the nobleman wishes to listen-in on. Fig. III (right) depicts the Speaking Statue listening to the voices from the square, ready to report to the nobleman upon his return. Kircher also explored different concave surfaces and their sound propagating properties, which can be seen on the ceiling.

> If the opening of the spiral-shaped tube is located in correspondence to an open public space, all human words pronounced, focused in the conduit, would be replayed through the mouth of the statue […].[26]

This kind of acoustic voyeurism relies on the spiral-shaped trumpet, namely its length, curvature, and polished inner surface, as well as the architecture of the castle itself – spatial relationship and organisation of rooms in relation to the square, minimal furniture, absence of carpets, curved wall elements reflecting sounds towards the listener, as well as closed windows and doors to keep the sound and activity concealed within the room. The Speaking Statue on Fig. I is designed to carry voices from the square to the room, whereas the one on Fig. II is placed directly above a reception veranda's seemingly intimate speaking area – both examples unidirectionally connect the public space to the private realm. Kircher's audience were 'worthy nobles' who could actually implement these inventions in their castles.[27]

Afraid of resurgence, the nobleman is able to monitor the activity on the square by listening-in on his subjects. He is using sound to exercise and reinstate his power. In *Noise*, Jacques Attali claims that:

> any theory of power today must include a theory of the localization of noise and its endowment with form. […] And since noise is the source of power, power has always listened to it with fascination.[28]

The nobleman's fear of resurgence manifests itself architecturally. It is materialised as a form of a spiral-shaped trumpet, allowing him to listen for the first whispers of rebellion. The male bust of the Speaking Statue facing the nobleman appears to be the only trustworthy confidant, an omniscient friend able to deliver the messages from the square. On Fig. III it even seems the Statue is gathering information from the square on his own, preparing to inform the nobleman upon his return.

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[26] Translated from Latin. Tronchin, 4.

[27] Ibid., 6.

[28] Jacques Attali, *Noise: The Political Economy of Music*, Theory and History of Literature, v. 16 (Minneapolis: University of Minnesota Press, 1985), 6.

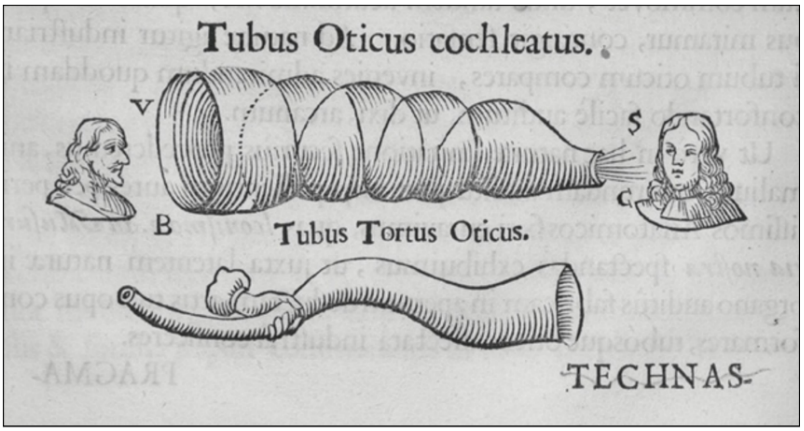

Fig. 4 Ear trumpets as illustrated in Kircher's *Phonurgia Nova* (p.160), showing his interest in sound propagation and curved or spiral-shaped cones.

Technology

The spiral-shaped trumpet embedded into the architecture is what Kircher named *cono cochleato,* or snail shaped cone. Because of his interest in medicine and human anatomy the spiral-shaped trumpet designed as part of the castle resembles the human cochlea, a spiral cavity in the inner ear. The way we hear is subject to the size and shape of our outer and inner ear, as well as the shape of our head and distance between our ears. Different frequencies reach their peak at different positions along the tube of the inner ear, which allows the cochlea to distinguish them better, acting as a megaphone for the everyday sounds that surround us. Human ear is optimised to hear human voices, as it 'resonates at the same frequencies as the vocal tract'.[29] The trumpet is therefore designed precisely to distinguish human voices.

I suggest Kircher's Speaking Statue can be figured as an early surveillance technology, even a proto-panopticon, a predecessor of Jeremy Bentham's eighteenth-century idea of an institutional building where people are kept under supervision and control (e.g. school, mental hospital, and most famously prison). Popularised by Foucault, panopticon is an 'architectural apparatus' or 'a machine for creating and sustaining a power relation'.[30] Unlike Bentham's panopticon, where the prison guard could watch without being seen, the nobleman in Kircher's drawing can listen without being heard. He hears the acousmatic voices from the

[29] Anne Karpf, *The Human Voice: A Story of Remarkable Talent* (London: Bloomsbury, 2007).

[30] Michel Foucault, *Discipline and Punish: The Birth of the Prison*, 2nd Vintage Books ed (New York: Vintage Books, 1995), 201.

square without simultaneously seeing them or in turn being seen by them. The term acousmatic comes from Ancient Greek philosopher Pythagoras, who had his students listen to him hidden behind a curtain or veil, 'proffering his teaching from there without being seen'.[31] The advantage of this mechanism, writes Dolar, is that the students were 'confined to "their Master's voice," not distracted by his looks or quirks of behaviour, by visual forms, the spectacle of presentation, the theatrical effects which always pertain to lecturing'.[32] Listening to someone speak without being able to see them causes the listeners to pay special attention to what is said and how it's said. This kind of heightened attention to the voice causes it to gain a different meaning, it either becomes the Master's voice or in turn becomes objectified through this vocal disembodiment.

I suggest considering the difference between the consensual acousmatic listening in the case of Pythagoras' students, performed in the private realm of the classroom, as opposed to the enforced acoustic voyeurism, a listening-in that the nobleman is secretly enacting upon the public. For the people on the square, not knowing or seeing that the nobleman is eavesdropping produces 'a more diffuse and uncertain spaces of surveillance,' according to Gallagher.[33] You can see someone looking, but you can't hear someone listening. Additionally, for the nobleman this secretive practice of listening, designed for his entertainment, can in turn inspire his imagination. For Dolar, the acousmatic voice is constantly 'in search of a body',[34] so what kind of a body is the nobleman imagining?

In *Sonic Intimacy* Pettman writes: 'the ear is arguably the most underrated and underexplored erotic organ, connecting directly to the imagination – the phantasmic centre of the libido'.[35] What happens when this intimacy performs publicly? If I continue with Pettman's terminology, the nobleman's practice of listening can then be understood as 'the auditory equivalent of the male gaze, which actively seeks out a sonic form of ego reinforcement'.[36]

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[31] Mladen Dolar, *A Voice and Nothing More*, Short Circuits (Cambridge: The MIT Press, 2006), 61.

[32] Dolar, 61.

[33] Gallagher, 'Sound, Space and Power in a Primary School', 51.

[34] Dolar, *A Voice and Nothing More*, 61.

[35] Dominic Pettman, *Sonic Intimacy: Voice, Species, Technics (or, How to Listen to the World)* (Stanford, California: Stanford University Press, 2017), 11.

[36] Note that Pettman actually writes about the potentials of ASMR and aural sex (phornography perhaps?). I suggest instead the explorations of sonic intimacy in the public realm can provide a fruitful ground for figuring critical feminist architecture and soundscape studies. Pettman, 21.

Fig. 5 An anatomical dissection of the human ear, comparing the anatomy of the ears of (from left to right) humans, cows, horses, dogs, leopard, cat, sheep, goose, rat and pig from Kircher's earlier work *Musurgia Universalis* from 1650, that focused predominantly on music and the natural world.

Voice

Our ears are programmed to hear the intricacies of, and establish an intimate connection with, a human voice. According to Karpf, the pitch and timbre of the voice can give clues about the size, weight, physique, sex, age, and even occupation of the speaker; whereas characteristics like speed, rhythm or volume can help 'detect social class, race, and education'.[37] Additionally, Kanngieser argues for a more affective politics of speaking and listening. In contrary to common linguistic (or other scientific) propositions, Kanngieser suggests the listener is not merely a passive receptor of speech, but someone who actively contributes to 'the spaces that utterances compel, emphasising the performative nature of speaking and listening'.[38]

> Voices and their linguistic articulations are produced by, and productive of, relations, geographies, and subjectivities. These are tied to *projections* and positions of class, race, education, culture, social value, sexuality and so forth.[39]

The voice has consequently played a crucial role in psychoanalysis, as a tool to decode and a medium into the unconscious. Listening then, is not (merely) focusing on what is said, but instead noticing the small signs or seeming irrelevances which might suggest a hidden story (coming from the unconscious).[40] Listening to an acousmatic voice in particular is actually the first sound people experience in the womb, according to Silverman, where the maternal voice acts as 'the acoustic mirror in which the child first hears itself'.[41] We establish our own subjectivity through the hearing sense.[42] Because sound is actually a vibration, the fetus in fact hears as well as feels the mother's voice, which has big psychological implications, and

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[37] Note that most of the studies Karpf references have been published before 2000s, and the book itself is from 2007, which can be viewed as outdated, especially in light of technological development and AI speech recognition devices. Karpf, *The Human Voice: A Story of Remarkable Talent*.

[38] Anja Kanngieser, 'A Sonic Geography of Voice: Towards an Affective Politics', *Progress in Human Geography* 36, no. 3 (2012): 337.

[39] My italics. Kanngieser, 337.

[40] Alice Lagaay, 'Between Sound and Silence: Voice in the History of Psychoanalysis' 1 (2008): 55.

[41] The voice of the person carrying the fetus, and whatever term they may prefer to use. Kaja Silverman, *The Acoustic Mirror: The Female Voice in Psychoanalysis and Cinema*, Theories of Representation and Difference (Bloomington: Indiana University Press, 1988).

[42] New studies have shown this is true even for people with impaired hearing. See: Brenda Jo Brueggemann, *Deaf Subjects: Between Identities and Places* (NYU Press, 2009); Sofia Nery Lieber and Regina Maria Ayres de Camargo Freire, 'The Subjective Constitution Process of a Deaf Child: A Case Report', *Revista CEFAC* 21, no. 2 (2019).

might explain 'the intimate connection between maternal voice and secure attachment'.[43] In a patriarchal society, I suggest this early connection between hearing and touch partially explains why the ear functions as the phantasmic centre of the libido. The nobleman's secretive listening to his subordinates or the subjects of his governance, consequently, allows the emergence of 'the affective architectonics of desire and longing in the absence of the physical or visual dimension'.[44] His longing for security can be traced back to his very first acousmatic listening within the womb. His fear of resurgence is consoled through acousmatic listening which activates his imagination and fantasy together with an affirmation of his governance.

In his 8 February 1978 lecture, Foucault discusses the origin of the word 'to govern' (*gouverner* in French), which initially covered a number of different material, physical and spatial meanings.[45] Before it gained its contemporary political role, governing someone also meant 'conversing with him', or keeping someone in conversation, and even having a sexual relationship. 'It refers to the control one may exercise over oneself and others, over someone's body, soul, and behaviours.'[46] Governmentality then is about people's actions, it is leading them on a path, as Foucault writes, like shepherds lead the sheep – it is the regulation of behaviour (conduct of conduct). Kircher's Speaking Statue is thus an example of an architecture of the voice, where such regulation of behaviour is exercised through sound. The Speaking Statue functions first and foremost as a proto-surveillance technology, used to listen-in and spy on the public, but also as a means to reinstate the nobleman's power over his subjects. Through this process of listening to the acousmatic voices from the square, I suggest the nobleman is reinforcing his ego and establishing his patriarchal dominance while entertaining himself. This kind of control is inherently tied to an interplay between fear and desire, something I return to later in the thesis.

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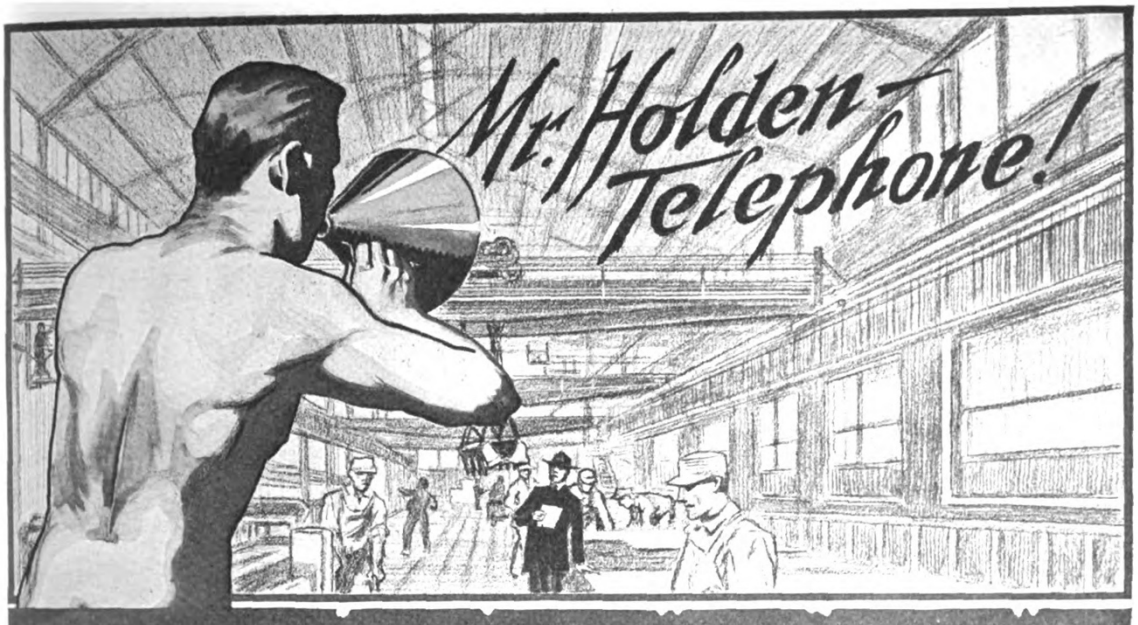
[43] More on this in the next chapters. Karpf, *The Human Voice: A Story of Remarkable Talent*.

[44] Pettman, *Sonic Intimacy*, 27.

[45] To govern is, amongst other things, to follow or put on a path, to support (or provide means of subsistence) – Foucault gives an excellent example of 'a wife of excessive government', meaning a wife who consumes too much and is difficult to support. Foucault, *Security, Territory, Population*, 121–22.

[46] Foucault, 122.



The "Big Boss" and the "Big Voice"

THERE is a break in the routine production of the plant. A department has to shut down for emergency repairs. In a moment materials will begin to pile up, congestion occur, confusion and disorder result.

But quicker still are the "Big Boss" and the "Big Voice."

"Department 38 is down for an hour. Departments 35, 36 and 37, cease operations. Department 34, send product to reserve stock rooms." The orders are heard by all, those concerned obey.

The mind of the Chief "saw" the plant as a whole, and knew instantly what was to be done. The words of the Chief, carried by the "Big Voice," literally tell every man how to do it.

But just as the Chief at his desk can talk directly to the whole shop at once, so when duty takes him into the plant, he is never beyond instant call from the office. An important telephone message comes in for him. There is no hurrying hither and thither to find him. No vexations, perhaps disastrous delays. The switchboard girl speaks the words and instantly, wherever he may be, he hears—

"Mr. Holden. Telephone!"

The "Big Voice," multiplying and amplifying sound to meet any requirement, flags his attention. There are no codes to remember, no chance to confuse signals. His *name*, called clearly and impellingly, cuts through the din of machines and the armor of his preoccupation.

Economical and easy to install, simple and practically costless to maintain, flexible in its uses and service, the "Big Voice"—the Automatic Enunciator—is fitting into the needs of hundreds of large industrial organizations all over the country.

The "Big Voice" saves money and time, it permits more rapid and efficient production methods, and in emergencies, justifies itself over and over again.

Your plant can use the "Big Voice" with equal advantage. A postcard from you will enable us to explain in detail. Write today to

AUTOMATIC ELECTRIC COMPANY
ENUNCIATOR DEPARTMENT
1001 W. Van Buren St. **Chicago, Ill.**

Fig. 6 Advertisement for the Automatic Enunciator from the Factory magazine.

(Factory Magazine. 'The "Big Boss" and the "Big Voice"'. Chicago: System Co., January 1918.)

Chapter II

The Automatic Enunciator (1911)

The first industrial-capitalist example of a public address system comes from Chicago at the beginning of twentieth century, which was a period of industrial growth and business expansion in the United States of America.[47] The era is marked by many social and political changes, like employment of women, as well as fight for equal rights before and after World War I. Chicago became the centre of one of the most industrialised regions in the world. It was the leading manufacturer of foundry and machine-shop products, clothing and apparel, as well as iron and steel.[48] Women predominantly worked in the garment industry and in 1910 many participated in one of the largest strikes, the Chicago Garment Workers' strike, which was started and led by women. It united workers across ethnic boundaries in response to low wages, unrealistic production demands, and poor working conditions. In 1911, a few months after the strike ended, the Automatic Electric Company of Chicago announced it had developed a loudspeaker system called the Automatic Enunciator, intended to be used in factories. I analyse advertisements presented in the *Factory magazine* in 1918, which were aimed at factory managers and business owners. Most of the archival material was published between January and June 1918 and is now accessible digitally as part of HathiTrust collection, a non-profit organisation for academic and research libraries.[49] I contrast the *Factory magazine* with *The Modern Hospital Yearbook* to talk about gendered labour practices as developed in parallel to technology for voice amplification.

Architecture

The first advertisement published in 1918 is titled the 'Big Boss' and the 'Big Voice', published in a January edition of the *Factory magazine*.[50] At the top of the page is an illustration of a naked muscular man, who appears to be using an acoustic megaphone (a speaking trumpet or simply a cone), to attract Mr. Holden's attention as the latter is being

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[47] 'Progressive Era to New Era, 1900-1929', web page, Library of Congress, Washington, D.C. 20540 USA, accessed 14 August 2022, https://www.loc.gov/classroom-materials/united-states-history-primary-source-timeline/progressive-era-to-new-era-1900-1929/.

[48] Peter A. Coclanis, 'Business of Chicago', Encyclopedia of Chicago, accessed 21 July 2022, http://www.encyclopedia.chicagohistory.org/pages/198.html.

[49] Please see all of the adverts in full in the appendix, as I am only attaching the drawings in this chapter.

[50] 'How the Big Voice Will Serve You', *Factory Magazine* (Chicago: System Co., May 1918).

called on the telephone. The space into which the naked man is shouting is drawn as a single-span structure, which was already the most common type of factory buildings. Workers don't seem to mind him, the only person who appears to be intrigued by the naked man's announcement is – most likely – the addressed Mr. Holden, wearing a black suit with a hat, holding a piece of paper, which all symbolise his superior status. The naked man, or the Big Voice as the advertisement presents him, is drawn slightly out of frame, with darker and more emphasised lines. I suggest this is because he is merely a symbol of this new technology for voice propagation, and not an actual worker whose clothes mysteriously disappeared upon promotion (or demotion) to the position of an address system. Yet, why is he portrayed as fully naked?[51] And what part of the system is he meant to represent – the loudspeakers placed around the factory; the wires running on the walls between them; or the addresser himself, i.e., the Big Boss? (Is he actually just calling himself?)

The text accompanying the drawing describes different situations where the use of the Big Voice – the Automatic Enunciator – could help prevent 'confusion and disorder' in the factory. After a close read, it becomes apparent that the running of the whole factory does not depend on the machines or the workers, but on 'the *mind* of the Chief', which *sees* 'the plant as a whole' and thus *knows* 'instantly what is to be done'. The words of the Chief are then able to 'literally tell every man how to do it', and 'those concerned obey'. The omnipresent mind or eye of the Big Boss is now accompanied by the 'multiplying and amplifying sound' of the Big Voice.

The rest of the adverts published in the same year all depict a similar naked muscular man, talking or shouting into a cone from the left side of the illustration, addressing a factory in the background – either from a nearby hill, overlooking the factory building, or simply depicted as being part of the sky above an industrial zone. One of the illustrations (Fig. 7) also shows a man dressed in a suit with a hat and a walking cane, this time in white, who seems to be the addressee Dr. Grey. Each of the illustrations also uses a different stylised font to depict the voice spoken through the cone, or in fact the Automatic Enunciator PA system.

[51] The shading on the Big Voice's back seems to indicate he is lacking trousers and underwear as well, yet his haircut appears to be stylised.

Fig. 7 Cropped advertisements showing illustrations from the Factory magazine (top to bottom) from May, April and June 1918. Note the man in white on the bottom illustration.

Technology

The advertisements had a particular audience in mind, namely the Chiefs or the managers and business owners of the factories, as they address their readers in second person, such as 'your plant', 'your workers', 'your time', and so on. The workers are not addressed on any of the pages, only referred to as part of the plant, which shows that they were not considered as the audience. Furthermore, it is also important to note that by 1918 the USA was no longer neutral and had already joined World War I. The language in these ads is emphasising the 'duty' of the Chief, with phrases like 'armour of his preoccupation' and preventing 'disastrous delays', which all imply additional level of pressure.

What is particularly interesting is the situation described in small font. When duty takes the Chief into the plant, away from his desk, an important telephone message comes and by using the Big Voice, 'the switchboard *girl'* is able to call for him – 'Mr. Holden. Telephone!' The text continues and describes how the Chief's name is called 'clearly and impellingly', as it 'cuts through the din of machines'. The naked man is suddenly transformed into a switchboard girl. According to American Experience online archive, the first telephone operators were boys, 'who soon earned a reputation for being rude and abusive to each other as well as to the customers'.[52] The young women or girls who replaced them were considered to be faster and more civil (unlike the boys, they didn't swear), and by 1910 they were the primary labour force. Another article that promotes the use of the Automatic Enunciator and describes the technology behind it is from *The Modern Hospital Yearbook* – a buyer's reference book of supplies and equipment for hospitals and allied institutions.[53] It was published annually, first edition in 1919, for the information of 'Superintendents and other Hospital Officials, Architects and Members of Building and Equipment Committees'.[54] The article is titled The Automatic Enunciator: the *Quiet* Voice, and the illustration (Fig. 8) depicts a woman, decently dressed, seated behind a switchboard, wearing headphones, and speaking into a microphone.

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[52] Karen Goodman and Kirk Simon, 'The Telephone', WGBH Educational Foundation Archive, American Experience, 1997, https://www.pbs.org/wgbh/americanexperience/films/telephone/.

[53] *The Modern Hospital Yearbook*, 1st ed. (Chicago: The Modern Hospital Publishing Company, Inc., 1919), https://catalog.hathitrust.org/Record/000543928.

[54] *The Modern Hospital Yearbook*, 4.

Fig. 8 Advertisement for the Automatic Enunciator or the Quiet Voice from the first edition of The Modern Hospital Year Book from 1919. First part of a two-page spread. Note the wire circling the cross section.

The rest of the illustration shows a cross-section of different levels or parts of a hospital, with an arrow pointing at Dr. Jones, who's receiving 'an urgent telephone call from his office'. The corridors are connected by a wire originating from the transmitter (the black box next to the decent woman), circling the drawing and connecting the horn-like loudspeakers that have the words 'Dr. Jones! Telephone!' projecting out of them. The Automatic Enunciator, as seen in all of the advertisements, is the technology for contracting space and time by projecting the acousmatic voice into multiple spaces simultaneously. In one of the advertisements (Fig.7), the text underneath says 'it gives your order to everyone in your plant instantly, putting space and time at your command. *This power should be yours.'* (See appendix.) An information, or an order, is squeezed and sent into various rooms and 'those concerned obey'.

The hospital advertisement describes the operation of loudspeakers, or 'very inconspicuous' 15-inch horns made of metal and enamelled in black. The sound reproducing mechanism is located in the centre, projecting the sound backward into the horn, which then reflects and diffuses it so 'that the message can be heard distinctly but is not too loud'.[55] While I wonder how black 15-inch horns (on white walls) could ever be considered inconspicuous, it is important to note this desired quality. Additionally, I point to the use of words Big and Quiet and their respective representation with a naked man and decently dressed woman. In essence, big and powerful is represented as masculine, and opposed to quiet and private as feminine.

[55] *The Modern Hospital Yearbook*, 257.

for hospitals large & small

easy to Install & Maintain

Sending Station

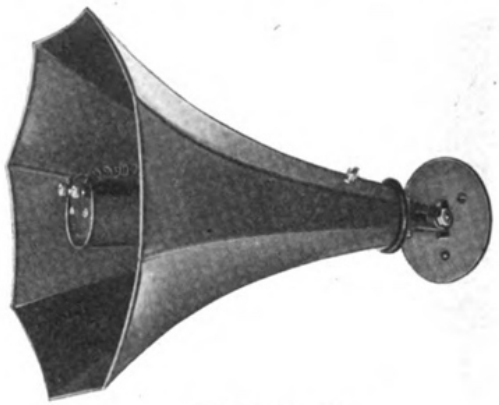
The System

In each separate part of the hospital is located a reproducing station consisting of a special loud-speaking telephone receiver and a horn. Talking into the transmitter at the sending station conveys the identical message to all parts of the building simultaneously, with the same distinctness, the same emphasis, and the same tone of voice.

The number of hospitals in which this equipment has been installed, and reference to any or all of the hospitals listed, will furnish convincing evidence regarding the suitability and necessity of this system to present-day efficient hospital routine.

Let us send you a Trial Outfit for 30 days' installation in your hospital, where you, your staff, and your directors can observe its performance, the saving in time and energy, and the greater efficiency it affords.

You pay out no money. You are placed under no obligations. We pay express charges both ways on the Trial Outfit.



The Reproducing Horn

Single Hand Type Transmitter and 110-Volt D. C. Control Board

This very compact sending equipment occupies a space of only some 6 by 12 inches and is designed primarily for systems serving up to six reproducing horns. The apparatus is usually installed beside the private exchange telephone switchboard and is used chiefly by the operator.

When a message is to be sent out over the AUTOMATIC ENUNCIATOR, it is telephoned to the attendant. Removing the transmitter from the switch hook supplies the system with the required electric current, and by simply talking into the transmitter—as into any ordinary telephone—the message is reproduced clearly and distinctly by every horn on the system. At least one transmitting station of some type is required in every AUTOMATIC ENUNCIATOR installation.

Office Type Reproducing Horn

This horn is designed for use in offices, hospitals and other locations where there is not much noise to drown out the messages sent over the AUTOMATIC ENUNCIATOR System. The horn projects some 15 inches from the wall, is of metal, enameled black, and is very inconspicuous.

The reproducing mechanism (Type A-30) is located in the flare of the horn and projects the sound toward the back. The horn is so shaped as to reflect the sound waves and diffuse them widely so that the message can be heard distinctly but is not too loud.

Some Hospitals now using the

AUTOMATIC ENUNCIATOR

"The Quiet Voice"

American Hospital, Chicago, Ill.
Presbyterian Hospital, Chicago, Ill.
Mercy Hospital, Chicago, Ill.
Chicago College of Dental Surgery, Chicago, Ill.
Post Graduate Hospital, Chicago, Ill.
Hahnemann Hospital, Chicago, Ill.
Lakeside Hospital, Chicago, Ill.
Washington Park Hospital, Chicago, Ill.
Grant Hospital, Chicago, Ill.
Wesley Hospital, Chicago, Ill.

Presbyterian Hospital, New York City
Allegheny General Hospital, Pittsburgh, Pa.
Elizabeth Steel Magee Hospital, Pittsburgh, Pa.
Toledo Hospital, Toleo, Ohio
St. Elizabeth's Hospital, Boston, Mass.
Massachusetts General Hospital, Boston, Mass.
Johns Hopkins Hospital, Baltimore, Md.
St. Louis Children's Hospital, St. Louis, Mo.
Nebraska M. E. Hospital, Omaha, Neb.
Christian Church Hospital, Kansas City, Mo.

Brooklyn Hospital, Brooklyn, N. Y.
Cleveland City Hospital, Cleveland, Ohio
St. Vincent's Charity Hospital, Cleveland, Ohio
Texas Baptist Memorial Sanitarium, Dallas, Texas
Baptist Sanitarium and Hospital, Houston, Texas
University of California Hospital, San Francisco, Cal.
City and County Hospital, San Francisco, Cal.
City and County Hospital, St. Paul, Minn.
Evanston Hospital, Evanston, Ill.
Royal Victoria Hospital, Montreal, Canada

Automatic Electric Company

Enunciator Department **CHICAGO, ILL.**

Fig. 9 Advertisement for the Automatic Enunciator or the Quiet Voice from the first edition of The Modern Hospital Yearbook from 1919. Second part of a two-page spread. Note the 'inconspicuous' black horn.

Voice

The voice is produced by many different body parts that combine into a sequence and together allow us to speak. All vocal organs,[56] out of which none is designed merely for speaking, work together as a mechanism. There are physiological differences between the sexes related to the thickness, length, and tension of vocal folds, as well as shape and size of the mouth or reverberant cavities, which determine the frequency of the voice. Higher frequency means the pitch of the voice is higher, while lower frequency translates to lower pitch, which has historically been attributed to male voices. It is difficult to conclude whose voice was predominantly heard through the din of machines in the factory – whether that of the Big Boss, giving orders to his workers, or that of the switchboard girl, calling for the Big Boss when duty takes him away from his desk. Possibly a combination of both, a masculine order, and a feminine request?

According to Tallon, the design of technology for amplification and transmission of human voices has formed this 'gendered invective since the dawn of the broadcast era: everything from microphones to modes of transmission has been optimized for lower voices'.[57] As mentioned, female voices were preferred for the role of a switchboard operator, but when commercial broadcast radio gained in popularity in the 1920s America, station directors rendered them as 'shrill, nasal and distorted on the radio'.[58] The pitch and timbre weren't the only criticism women had to endure – the personality, authenticity and even the sense of humour were questioned through their voices.

In contrast to losing their (newly acquired) voices on radio and later television broadcasting, women simultaneously gained more political rights and were able to work in different roles

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[56] E.i., the lungs, trachea, larynx and vocal folds, pharynx, nose, jaw, and mouth together with the soft palate, hard palate, teeth, tongue, and lips. Note, the vocal folds or cords, as they are commonly called, are unique size and shape in every human. 'We speak with our body: almost every part of it is called upon to make a voice, including the back. The voice can even be affected by a sprained ankle – changing the posture can hurt the abdominal muscles, which in turn can lead to hoarseness.'Karpf, *The Human Voice: A Story of Remarkable Talent*.

[57] Tina Tallon, 'A Century of "Shrill": How Bias in Technology Has Hurt Women's Voices', *The New Yorker*, 3 September 2019, https://www.newyorker.com/culture/cultural-comment/a-century-of-shrill-how-bias-in-technology-has-hurt-womens-voices.

[58] Station directors, according to Tallon, were interviewed by Radio Broadcast magazine in 1924, where they claimed women's higher voices created technical problems. Tallon, 'A Century of "Shrill".

outside in public spaces as teachers, typists and clerks especially in Chicago.[59] I point to the connection between female voices being amplified into public spaces – literally and figuratively – and roles in communication that are predominantly led or done by females even today.[60] Referring to Arendt's canonical *The Human Condition,* Kanngieser writes, 'speech is a privileged means by which speakers identify themselves as particular political subjects'.[61] Yet speech, namely speed and accepted or expected pitch, has historically changed as a response to different modes of power and governance. A study found that the speed of speech in media is progressing with the advancement of capitalism, comparing communist Soviet Union with newly formed capitalist Russia.

> The pace of speech in 1987 was considerably slower than that in 1993, three syllables per second in the former compared to six syllables per second in the latter. This was found to be the same in China and in the Middle East.[62]

All of these paralinguistic signs of communication promote specific kinds of networks of collaboration, or instead reinforce and (re)establish patterns of domination. We either identify with or disconnect from someone's voice. Is it possible that there was a specific female voice reserved just for the male doctor and The Big Boss? What did workers in the factory, or patients in the hospital, imagine when hearing the masculine order or the feminine request in the case of the Automatic Enunciator?

In a heteronormative society probably a decisive authoritative voice of the father, opposed with the caring nurturing voice of the mother. I suggest the acousmatic voice mediated through technology and reverberating in the factory or a hospital further solidifies the materiality of things surrounding the listener, making them question what or who is speaking. LaBelle calls it a type of psychic labour, which is 'aimed at recovering or retrieving a particular body (the body of the mother, perhaps, which may represent a sense of wholeness

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[59] The biggest amount of women worked on farms and as servants, but these weren't new jobs acquired through the voice. '50 Most Common Jobs Held by Women 100 Years Ago', Stacker, accessed 29 August 2022, https://stacker.com/stories/6511/50-most-common-jobs-held-women-100-years-ago.

[60] There are many articles similar to this one on the internet, together with statistics showing more than 70% PR roles done by women in the US (while many managerial roles still belong to white men). Olga Khazan, 'Why Are There So Many Women in Public Relations?', The Atlantic, 8 August 2014, https://www.theatlantic.com/business/archive/2014/08/why-are-there-so-many-women-in-pr/375693/.

[61] Kanngieser, 'A Sonic Geography of Voice', 339.

[62] Kanngieser, 341.

or security)'.[63] The acousmatic voice performs as a hinge, by placing the lister between the hearing and this psychic labour to imagine what or who is hidden. Each of the voices, that of the father and the mother, brings their own set of associations that also change historically – while one instils fear of authority, the other instead works to consolidate it and provide a sense of security. Both can be used to impress or suppress, but only the female voice can do it in a way that, according to Silverman, gives rise to 'paranoic fantasies of entrapment: [as it is] the voice which was both the first nest and the first cage'.[64] No wonder we use the word s-mothering for a feeling of entrapment, and the word patronising for a voice that clearly establishes an unequal power relation. The Automatic Enunciator, as an industrial capitalist technology of biopower, thus also works at the interplay of fear and desire. On one hand the product of gendered assumptions regarding the sounds of female and male voices, the Enunciator also served to perpetuate them.

[63] LaBelle, *Sonic Agency*, 39.

[64] Silverman, *The Acoustic Mirror*, 101.

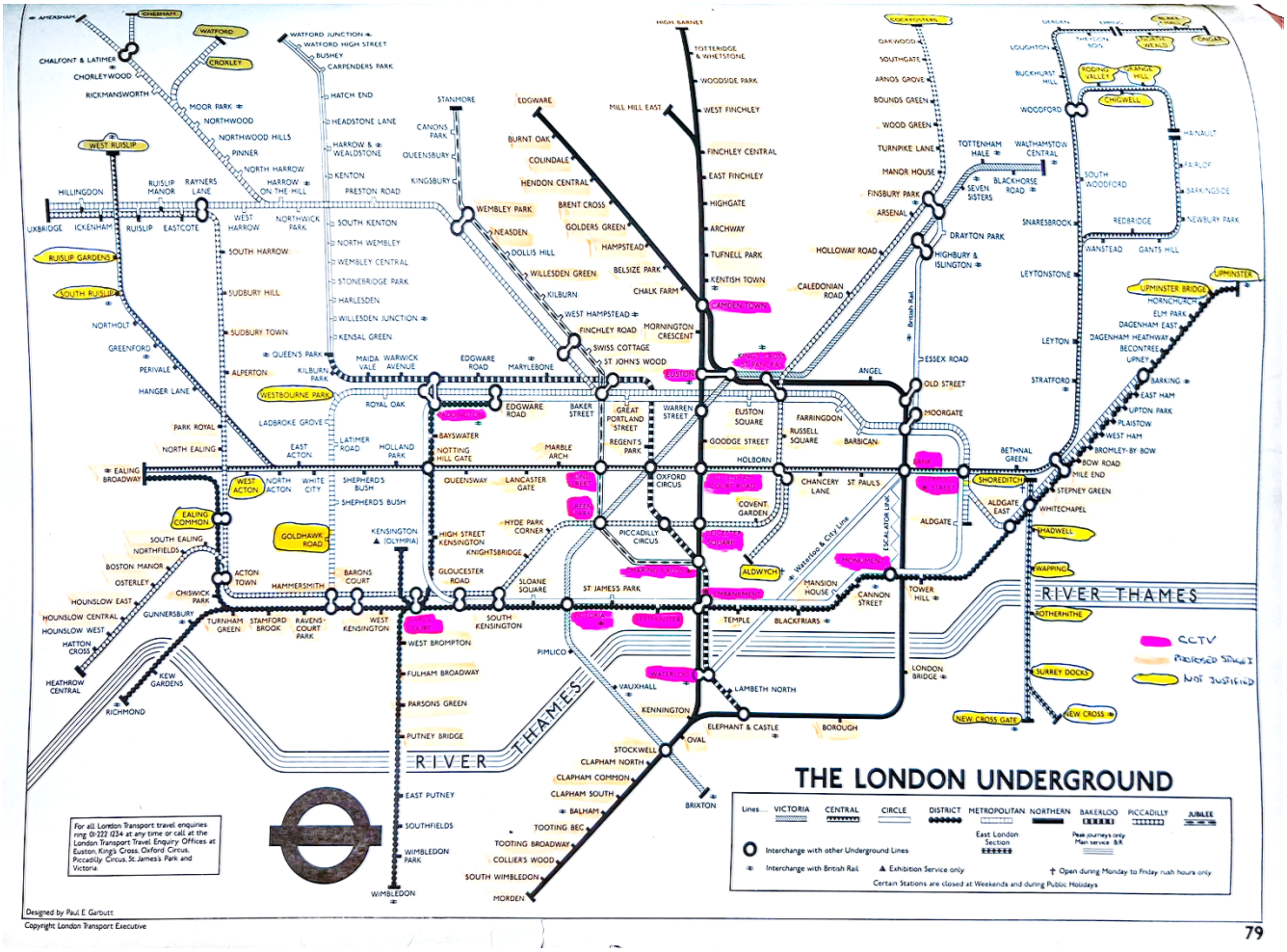

Fig. 10 The London Underground map designed in 1962 by Paul E. Garbutt, part of an appendix to the Memorandum for the Public Address Broadcast System to Link Stations with Line Control Offices from 1979. Pink marker annotating the stations with CCTV and PA systems already in place.

Chapter III

Mind the Gap (1969)

With the advancement of communication technologies and the increase of urban populations across the world, the use of public address systems had been implemented across different transport networks. The first underground railway in the world opened in London (in 1863), as a way of contracting space and time, and reducing street congestion.[65] This new mode of travelling introduced a different way to interact with, move through, and imagine the city. The Underground provided Londoners a new public space where people from different backgrounds, classes, or genders, could seek to establish freedom of movement within the city. Scholars have written about the ways the Underground is represented in literature, or how these unusual subterranean spaces formed new relations between people and places through everyday lived experiences.[66] I consulted the Transport for London Corporate Archives, where I reviewed documents concerning the implementation of a centralised PA system. While there were many detailed records on CCTV cameras, the documents covering PA systems were very limited. This chapter functions as a collection of evidence from various sources spanning between 1953, with the first letter about training staff members for broadcasting messages over loudspeakers; and 1989, with the considerations on the use of PA systems after the King's Cross Underground Fire.

Arguably the most famous announcement that has become a symbol of London worldwide is 'mind the gap', first introduced in 1969. To the best of my knowledge, it is also the first automated announcement used on a PA system, and it can still be heard today.

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[65] Not unlike the Automatic Enunciator from the previous chapter. 'A Very Short History of the Underground', London Transport Museum, accessed 21 August 2022, https://www.ltmuseum.co.uk/collections/stories/transport/very-short-history-underground.

[66] Some of my previous research on contemporary sound quality and noise level on the London Underground uncovered little to no mention or concern about soundscapes on the network – for the passengers or the staff. I have written about TfL's policy on maximum noise level for their employees, which states that the organisation must provide ear defenders and undertake engineering work to reduce noise, if the daily average exposure goes above 85 dB. The company EAVE created the London Underground Noise Map in April 2019, which revealed that certain sections of the network reach dangerously high levels of noise. Some of the loudest ones are between Bethnal Green and Liverpool Street (>109 dB), and Camden Town and Euston (>108 dB). See: EAVE. 2019. "London Underground Noise Levels Revealed". EAVE. https://www.eave.io/news-and-notes/london-underground-noise-levels-revealed

Architecture

The annotated London Underground map was presented as part of an Appendix to a Memorandum for a PA system from 1979.[67] The proposal of the memorandum was related to stage one of installing linked public address equipment at most stations over the period of 7 years, to improve the quality and scope of information given to passengers. This was a continuation of a previous plan to provide automatic 'mind the gap' announcements at stations with sharply curved platforms, with an additional aim of maximising passenger miles. PA facilities accompanying CCTV equipment were provided at 6 important stations by 1979 – many located on the newly opened Victoria line, which was also the first line where trains were equipped with communication systems, and stations fitted with electronic ticket barriers.[68]

According to the memorandum, existing methods to convey information to passengers involved: written or printed notices that were 'of little value to passengers already on a platform awaiting a train'; oral announcements, 'ie. shouting by staff, [considered] totally unsuited to modern travelling conditions and only serve[d] to detract from the reputation of LT'; portable loudhailers or megaphones 'basically only suitable for announcements at stations which have restricted areas to be covered and light traffic conditions'; and fixed public address equipment. The most effective for busier stations was the latter, which would allow 'the supervisor [to] broadcast information about delays, diversions, interruptions to service, either throughout the stations or to selected areas within a large station'. A public survey from 1984 proved PA to be 'seen as having a major role in providing information, particularly for delay in the train's arrival'.

The underground map (Fig. 10) has a legend for annotations on the right-hand side; a pink marker is used for stations with CCTV already installed, faded orange showing stations

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[67] 'Memorandum for the Executive: Public Address Broadcast System to Link Stations with Line Control Offices', 30 March 1979, LT001315/020, Transport for London Corporate Archives. The map was designed in 1962 by Paul E. Garbutt, who later became involved also in Underground planning; namely the Victoria and Jubilee lines, and the Heathrow extension of the Piccadilly line.

[68] Automatic ticket barriers could have arguably also contributed to the implementation of CCTV cameras, at least in ticket halls. The aim, writes Halliday, was to reduce the number of staff during chronic labour shortage, and to cut down on fare evasion which cost the network more than £10 mil a year. Stephen Halliday, *Underground To Everywhere: London's Underground Railway in the Life of the Capital* (Stroud: The History Press, 2013), 180–85.

forming part of ‘proposed stage one’ as discussed in the memorandum, and the rest of the stations marked as ‘not justified’. The evaluation considered benefits from improved passenger information, as well as better service management. Considerations regarding ‘noise nuisance to occupants of properties surrounding the (surface) stations’ were dismissed because of ‘high quality of the equipment’. Announcements would be ‘clearly audible to passengers’, and the volume level low enough to cause ‘little if any nuisance’ to the neighbouring buildings. Additionally, the visual aspect of loudspeakers was to be considered only at listed stations, such as many designed by the famous London underground architect Charles Holden (who previously worked on hospitals).

Fig. 11 Photograph from London Transport Museum of a CCTV camera being installed on Victoria line on the London Underground in the 70s.

34

LONDON UNDERGROUND LIMITED
PRINCIPAL SIGNAL AND ELECTRICAL ENGINEER'S DEPARTMENT

SPECIFICATION NO SE 884 A
CCTV GROUP IV - STOCKWELL OPERATIONS ROOM
OPERATIONS SPECIFICATION

INTRODUCTION

.1 This specification covers the operational aspects of the modifications to the CCTV and public address installation at Stockwell Operations Room as part of the the Group IV CCTV project. The technical aspects of this work are detailed under specification SE 883.

2 EXISTING EQUIPMENT FACILITIES

2.1 Stockwell Control Room

2.1.1 The existing installation allows the operator to view a number of cameras at the following locations with one monitor provided for each station:-

Brixton	(6 cameras).
Stockwell	(11 cameras).
Clapham North	(3 cameras).
Clapham Common	(3 cameras).
Balham	(6 cameras).
Tooting Broadway	(7 cameras).
South Wimbledon	(7 cameras).

2.1.2 When a camera is selected at any site, the operator can listen-in to an associated microphone or make PA announcements as required.

2.1.3 The operator has the choice of all cameras provided.

2.1.4 An alarm is provided for the Ticket Collector's barrier at each site. When this alarm is operated it sounds a buzzer and operates a visual under the appropriate monitor.

2.1.5 A video recorder is provided which can be switched to record from any site ~~(except Vauxhall)~~.

2.2 Station Sites

2.2.1 Fixed position cameras are used to view platform and ticket hall areas as detailed in 2.1.1.

2.2.2 Public Address facilities are available to platform and ticket hall areas.

Fig. 12 First page of a document from 1986, showing the 'listen-in' facility. More mentions of this have been found throughout various documents concerning implementation of CCTV cameras across the London Underground network.

Technology

One of the most unexpected discoveries during my research on the connection between CCTV cameras and PA systems was the so-called 'listening-in' facility. Each camera was equipped with a microphone that would allow the operator to not only see the platform but listen to it as well. The main function was crowd control, prevention of 'hooliganism' or 'to control vandalism', and safety of staff members in remote parts of the stations. This eavesdropping mechanism could also record sounds, which would then be broadcasted to the British Transport police, similarly to the CCTV cameras' footage. When asked about it even the experienced archivist at Transport for London Archives admitted she didn't know about the remote surveillance or additional listening-in facilities (and whether they are still in operation today).[69]

While many documents provided a financial plan for the centralised PA system, there is no information on the type or frequency of announcements given, except for 'mind the gap'. These famous automatic warning announcements were initially implemented together with CCTV as an aid for the guard (opening and closing the doors), to ease staffing requirements at platforms, and reduce the duration of the stop in the late 60s and the 1970s. First recorded by a sound engineer Peter Lodge, whose microphone test ended up being used for the announcements at the beginning, was later replaced by other professionals, like the actor Oswald Laurence. His voice is the one contemporary commuter can still hear at the Embankment station – a result of a love story much celebrated on the internet. After her husband's death, Dr Margaret McCollum frequently visited the platform at Embankment, where she could still hear Oswald's voice warning the passengers with his prominent, even jarring 'mind the gap'. 'One day in November 2012, she made her regular visit to the platform only to find her husband was no longer there as the PA system had been updated.'[70] After she wrote to the company, Oswald's voice was reinstated, and commuters can still hear his bygone pronunciation, which is a complete opposite to the newer announcements given in a female voice today. (Many of them have throughout the years also gained the word 'please'

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[69] When I requested documents from the Archive, I was looking forward to architectural drawings of King´s Cross underground station between 1986-1999, which would show the communication technology throughout the station. After requesting it, the documents were reviewed and locked for the next 100 years, as it was decided they contain sensitive information and cannot be shared with the public or any researcher.

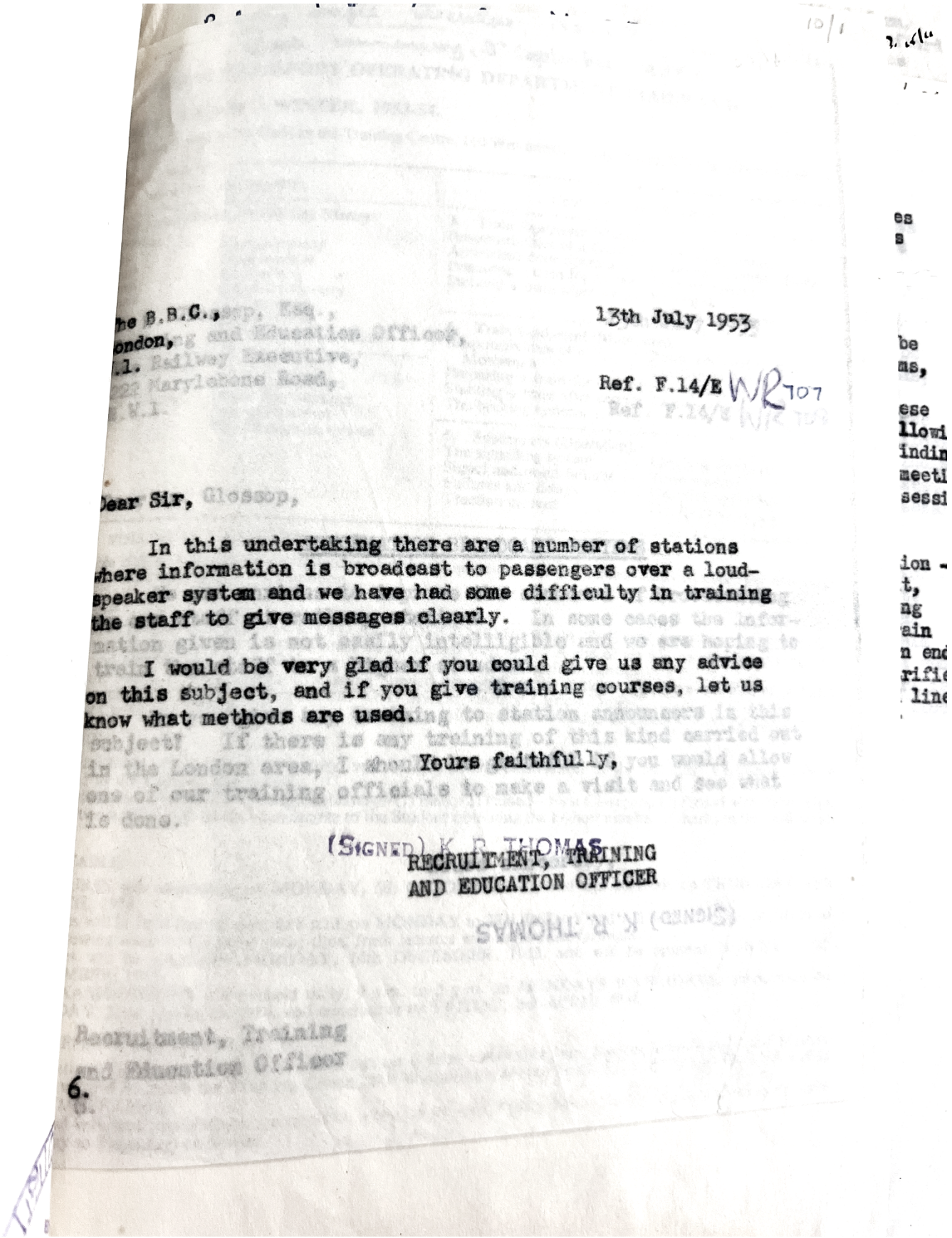
[70] 'Mind the Gap - The Story of Embankment Station's Announcement', London Transport Museum, accessed 28 August 2022, https://www.ltmuseum.co.uk/blog/mind-gap-story-embankment-stations-announcement.

at the end, or a continuation with 'between the train and the platform'.) The role of these announcements changed after the Kings Cross Underground Fire in 1987, which 'placed a new emphasis upon PA as a vital safety system within stations'.[71] A new fire legislation came into force in 1989, which called for 'increased areas of PA cover within stations, zoning systems and improved control methods', to give warning of fire to the public, and advise them what to do or where to go in case of an emergency.[72] As a result, more loudspeakers and CCTV cameras were installed and the nature of announcements, pre-recorded or live, was split between passenger information (related to delays and cancellations) and 'operational control/safety facility'.[73] Previously benevolently strict 'mind the gap', almost courteously suggesting the commuters watch their step, is transformed into a part of a surveillance apparatus that expands across the network. The repetitive 'mind the gap' accompanied with the omnipresent CCTV cameras that are also listening-in, and potentially broadcasting the commuters' response to the British Transport Police, suddenly becomes authoritative and controlling rather than merely helpful.

[71] Network Planning Manager (LUL), 'Centralised Public Address System, Stage II: Further Extension of Life', 4 May 1989, 2, LT000261/444, Transport for London Corporate Archives.

[72] 'The Fire Precautions (Sub-Surface Railway Stations) Regulations 1989' (Queen's Printer of Acts of Parliament), accessed 5 September 2022, https://www.legislation.gov.uk/uksi/1989/1401/made. https://www.legislation.gov.uk/uksi/1989/1401/made

[73] Network Planning Manager (LUL), 'Centralised Public Address System, Stage II: Further Extension of Life'.



he B.B.C.,
ondon,
.1.

13th July 1953

Ref. F.14/E WR707

ear Sir,

In this undertaking there are a number of stations where information is broadcast to passengers over a loud-speaker system and we have had some difficulty in training the staff to give messages clearly.

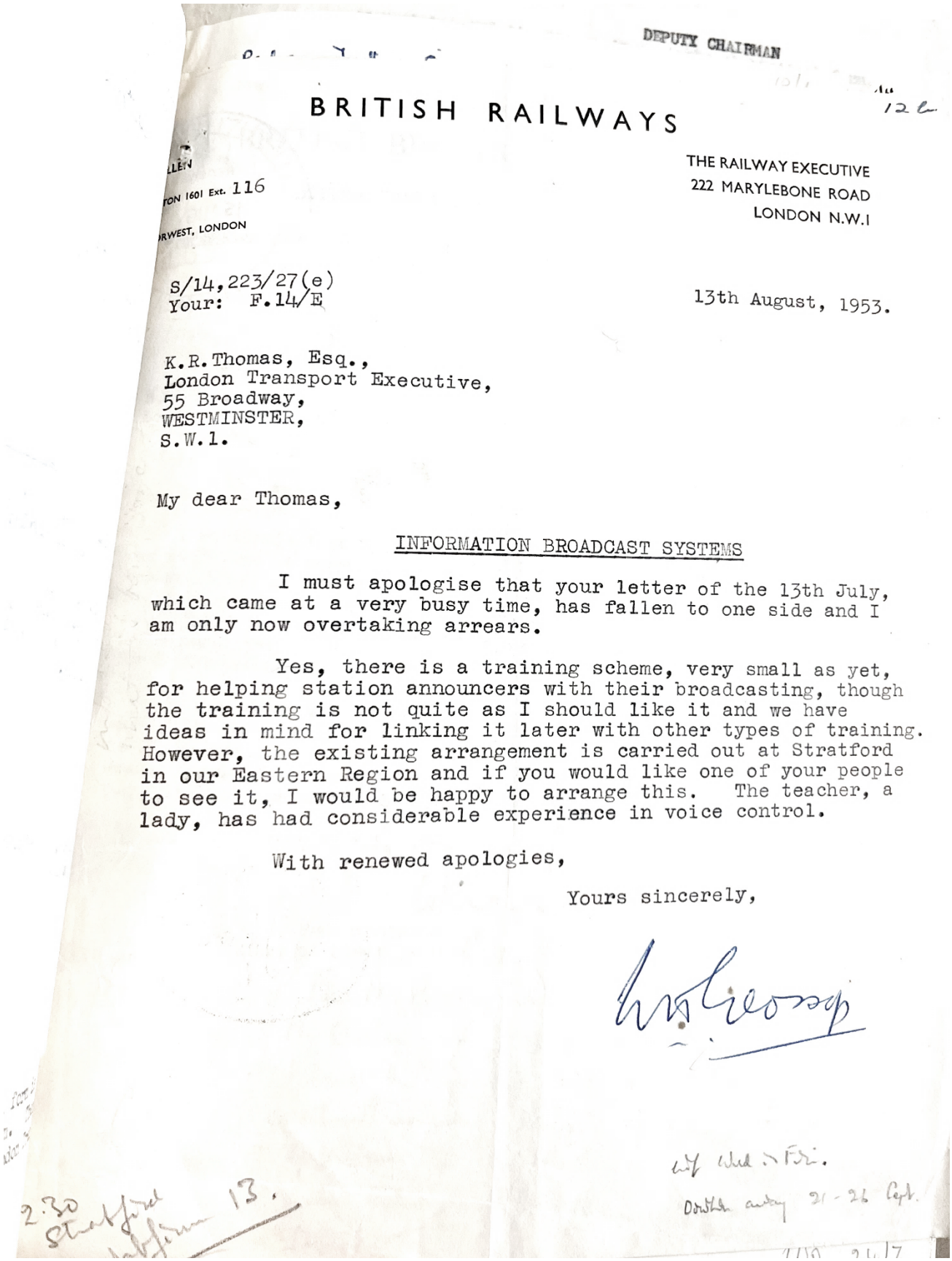
I would be very glad if you could give us any advice on this subject, and if you give training courses, let us know what methods are used.

Yours faithfully,

(SIGNED) K. R. THOMAS.
RECRUITMENT, TRAINING
AND EDUCATION OFFICER

6.

Fig. 13 Letter from the recruitment, training and education officer for the BBC, asking about training courses for broadcasting information to passengers over a loudspeaker system. K. R. Thomas mentions they had ‘difficulty in training the staff to give messages clearly’.



DEPUTY CHAIRMAN

BRITISH RAILWAYS

LLEN
TON 1601 Ext. 116
RWEST, LONDON

THE RAILWAY EXECUTIVE
222 MARYLEBONE ROAD
LONDON N.W.1

S/14,223/27(e)
Your: F.14/E

13th August, 1953.

K.R.Thomas, Esq.,
London Transport Executive,
55 Broadway,
WESTMINSTER,
S.W.1.

My dear Thomas,

INFORMATION BROADCAST SYSTEMS

I must apologise that your letter of the 13th July, which came at a very busy time, has fallen to one side and I am only now overtaking arrears.

Yes, there is a training scheme, very small as yet, for helping station announcers with their broadcasting, though the training is not quite as I should like it and we have ideas in mind for linking it later with other types of training. However, the existing arrangement is carried out at Stratford in our Eastern Region and if you would like one of your people to see it, I would be happy to arrange this. The teacher, a lady, has had considerable experience in voice control.

With renewed apologies,

Yours sincerely,

Fig. 14 Response letter from the BBC to the recruitment officer saying there is a training scheme for broadcasting information provided by a lady. Note: 'The teacher, a lady, has had considerable experience in voice control.'

Voice

While Oswald's story is unique, it provides a fruitful ground to figure the mechanistic and automated voices that sprouted in the following decades. Oswald's wife was able to recognise his voice because she was used to it, and because she expected to hear it. I suggest commuters similarly grow accustomed to the rhythm and pitch of the announcements that structure their experience of time and space.[74] In this way, the amplified recorded voice performs equally as a building material that together with white and blue tiles constitutes the underground environment. 'These machine voices are designed as "ideal" specimens, absent of bodily residue or the necessary signs of existence. They do not gulp, splutter, nor need to breathe'.[75] The mechanical copy of Oswald's recording is a reproduction devoid of its original physical body. The disembodied recording can, unlike the mortal fleshly body, be preserved forever (that is if it gets digitised and saved on a hard drive). These pre-recorded phrases, writes Power:

> are played like notes in a particularly avant-garde piece, where the conductor is a machine and commuters the unwitting audience, rushing from one machine to the other at the behest of incorporeal commandments.[76]

Particularly interesting for this thesis are the difficulties in training the staff to give messages clearly when speaking into a microphone, which then projects the voice into a reverberant underground station. Part of the amplified sound reflects off of the tiles surrounding the platform, and part continues down the tunnel – not to even mention the rumble of the train that completely enwraps it. The letters from 1953 show that some form of PA system was already operating before the automatic 'mind the gap'. They were most likely local announcements by the guard about closing doors and direction of the train. Naturally, the letter was directed to the BBC, which replied they do have a training scheme for helping station announcers with their broadcasting. The teacher, 'a lady' or Miss Payne as we find out in the reply, 'has had considerable experience in voice control', and 'was most helpful and

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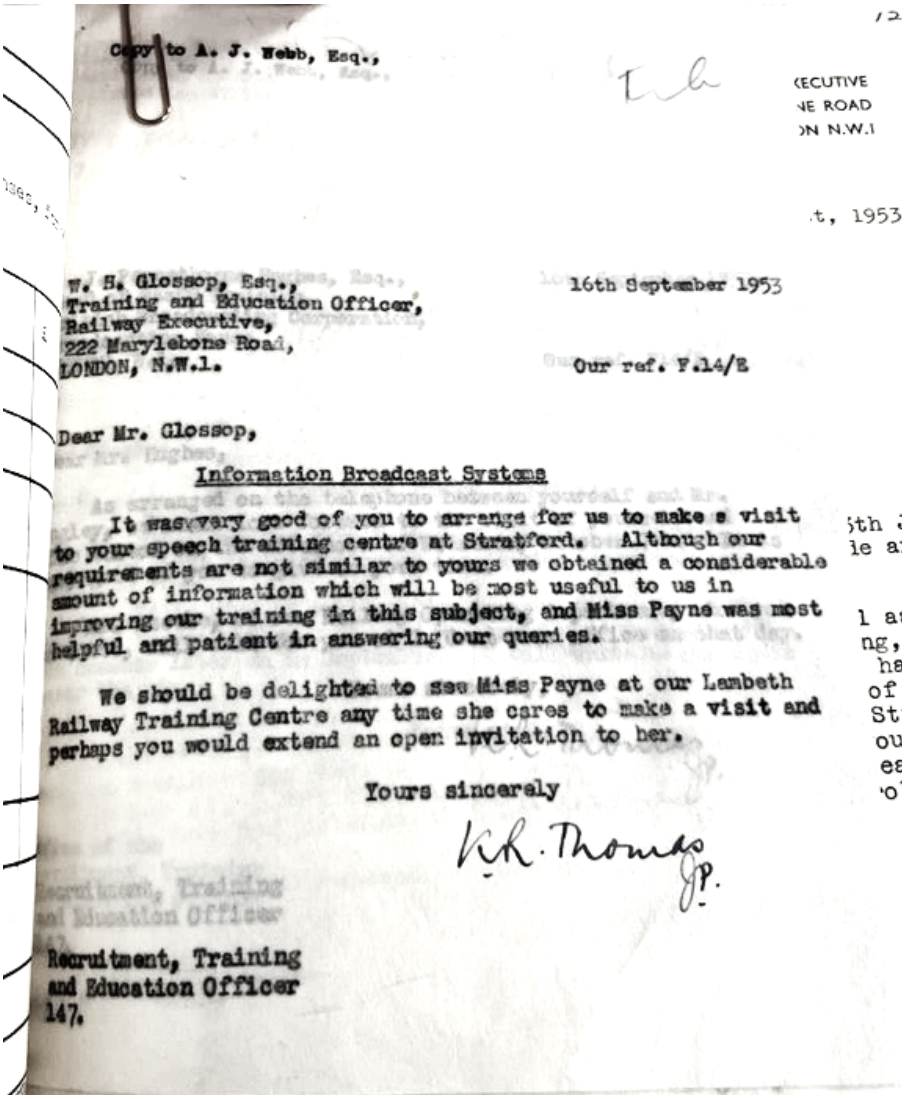
[74] Environmental conditioning through Muzak works in a similar way, through amplification of background music to create a specific atmosphere. Brandon LaBelle, *Acoustic Territories: sound culture and everyday life*, Second edition. (New York: Bloomsbury Publishing, 2019), 168.

[75] Miriama Young, *Singing the Body Electric: The Human Voice and Sound Technology* (Farnham, Surrey: Ashgate, 2015), 77.

[76] Power, 'Soft Coercion, the City and the Recorded Female Voice'.

patient' (Fig. 15). I suggest this letter further points to a history of women in the cultivation of voices and the education of young speakers and singers, as historian Josephine Hoegaerts writes:

> These female experts did not (only) portray themselves as nurturers, whose work consisted of care for the voice, but assigned themselves a role in the development of scientific research and in the support of 'high' culture (such as literature and classical music) through their activities in vocal education.[77]



Copy to A. J. Webb, Esq.,

ECUTIVE
E ROAD
N N.W.1

t, 1953

W. H. Glossop, Esq.,
Training and Education Officer,
Railway Executive,
222 Marylebone Road,
LONDON, N.W.1.

16th September 1953

Our ref. F.14/E

Dear Mr. Glossop,

Information Broadcast Systems

It was very good of you to arrange for us to make a visit to your speech training centre at Stratford. Although our requirements are not similar to yours we obtained a considerable amount of information which will be most useful to us in improving our training in this subject, and Miss Payne was most helpful and patient in answering our queries.

We should be delighted to see Miss Payne at our Lambeth Railway Training Centre any time she cares to make a visit and perhaps you would extend an open invitation to her.

Yours sincerely

K.K. Thomas

Recruitment, Training
and Education Officer
147.

Fig. 15

[77] Josephine Hoegaerts, 'Women's Voices in Educational Manuals. The Gendered Sounds of Speech Therapy, Song and Education in Europe c.1830–1900', *Women's History Review* 29, no. 3 (15 April 2020): 445.

By focusing on the embodied practices of women's vocal education in late nineteenth century, Hoegaerts argues that the formation of their voices contributed to the way women participated in public life and laid claim to specific kinds of knowledge. This background is one possible explanation why Miss Payne was able to help the predominantly male staff at London Underground with her considerable experience in voice control. Her role also points to certain features historically attributed to motherly care expressed through the voice and seen as an important guide 'toward vocal health, but also as a civilizing influence, pointing children toward moral behaviour and good taste'.[78] This kind of guidance, leading on a path, brings us back to Foucault's governmentality – yet in this example it is not the nobleman, or the Big Boss, but a new version of a governess (or a mother) regulating behaviour. But in contrast to the nobleman or the factory chief, her voice does not hold the power because it functions as a carrier. The teachers role was to teach how to speak in the region-less accent of the BBC. In the British context, writes Power, this is the sound of 'a slight nostalgia for the post-war period, of hard work and no nonsense, of pragmatism and benevolent strictness'.[79] It is the sound of Received Pronunciation (RP), echoing the speech of governesses and school masters, or even that of Margaret Thatcher after training with a vocal coach to lower the pitch of her voice and resemble her male colleagues in the parliament.[80] Additionally, the words used in the phrase 'mind the gap' have become a symbol of Britishness (or at least English politeness) around the world, particularly because of the word 'mind' instead of 'watch or see'.[81] Yet RP can also be considered, especially in the early days of BBC, as a way of repressing different ethnic and cultural backgrounds, in order to show appropriate educatedness and class.[82]

'Mind the gap' announcement was born out of necessity to help staff on the Underground, and as a response to the limitations of design. A gap between the curved platform and the entrance of a train carriage could have simply been marked with a yellow line, or by introducing posters on doors of the trains. Why use public address – in an already loud

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[78] Hoegaerts, 448.

[79] Power, 'Soft Coercion, the City and the Recorded Female Voice'.

[80] See chapter The Gender of Sound. Anne Carson, *Glass, Irony, and God* (New York: New Directions Book, 1995), 120.

[81] James C. Samans, *Spontaneous Tourism: The Busy Person's Guide to Travel* (Crystal Orb: 2007), 298. As a Slovenian, I remember practicing saying 'sorry' before visiting London for the first time, especially preparing to use it on the Underground.

[82] Ibid., 311.

environment – to state such an obvious fact? Surely those using the underground every day would know to ‘mind the gap’, and those using it for the first time would notice a poster or writings on the floor. One possible explanation is that an announcement done via public address is much more difficult to ignore, which is why it works well to control people’s behaviour. Unlike a poster, where the commuter is in control of the time spent observing it, the announcement only lasts a few seconds. PA system is much more ambiguous because of its temporality, which prevents the addressee to fully understand it, so they simply respond and mind the gap without questioning it.

Fig. 16 'See it. Say it. Sorted.' poster in the ticket-hall area on the Archway Underground station. This poster is particularly interesting, as it is the most confusing of all of them – let's assume the woman on the left is the suspect, and the man (who is thinking about the catchy phrase) thinks she is doing something suspisious. Is the poster implying the member of the British Transport police is unable to see her suspicious behaviour, even though she is standing right next to him? Or is the man thinking of the campaign to give the officer a made-up suspicion and draw attention to her, so he could commit a crime in peace?

Conclusion

We live in an increasingly interconnected world with multi-ethnic societies and unprecedented climate crisis repercussions, where questions about security, safety, health, and well-being are becoming part of the daily discourse. Many recent events (such as the ongoing Russian invasion of Ukraine that started in February 2022, when Europe and the UK had just embarked on a path of recovery after the Covid-19 pandemic lockdowns), have emphasised the importance of public spaces. Not merely as a part of the city serving to transport, entertain and provide a place for people from different backgrounds, but increasingly more so as spaces where communities can come together in good as well as challenging times. The starting point for this genealogy was my contemporary experience in London, where I could hear the disembodied female voice giving announcements that change as a response to the current socio-political circumstances.

> We participate in debates over healthcare, social security, retirement ages, abortion, and immigration that are so chronic, bitter, and entrenched that in many countries they have led to violence and the breakdown of longstanding political institutions.[83]

The War on Terror or Overseas Contingency Operations, as it is now referred to, was initiated by the United States after the 9/11 attacks in 2001. It had consequences worldwide, especially in big cities like London, such as the normalisation of mass surveillance in public spaces and of electronic devices.[84] A big station like Kings Cross St. Pancras, which functions as a national and international train station as well as one of the busiest underground stations, has a big amount of CCTV cameras used together with security personnel and a PA system.[85] After having moved to London in September 2016, I noticed a new campaign put into action soon after, named 'See it. Say it. Sorted.' Produced by AML, a communications agency that specialises in 'simple ideas for a complicated world',[86] and

[83] Timothy C. Campbell and Adam Sitze, eds., *Biopolitics: A Reader* (Durham: Duke University Press, 2013), 3.

[84] Campbell and Sitze, 3.

[85] King's Cross underground station has the biggest amount of CCTV cameras on the whole network. 'Which London Underground Station Has The Most CCTV Cameras? - AAI Security Systems - News', accessed 31 August 2022, https://www.aaisecurity.co.uk/news/cctv-london-underground/.

[86] Ibid.

under the authority of the Centre for the Protection of National Infrastructure,[87] the campaign seeks to engage members of the public to 'report any unusual items or behaviour they notice' either on stations, trains, or underground carriages.[88] Additionally to the posters put up across the network, the campaign relies on PA systems to deliver messages like: 'If you see something that doesn't look right, speak to staff or text British Transport Police on 61016. We'll sort it. See it. Say it. Sorted.' The illustrations in 'the high-contrast style of the graphic Sin City novels' appeared on over 11,000 posters, and the public address announcements, broadcasted 'across 5,000 stations and 13,000 trains' were designed to enter 'the public consciousness'. According to the ALM, the result of the campaign is that 'texts and calls to British Transport police relating to suspicious circumstances have increased by 365% in the 3 years the campaign has been running'.[89]

Fig. 17 Further posters from the ALM campaign, portraying scenarios where members of the public are encouraged to report suspicious behaviour. Note the second poster, showing an interesting negotiation between a smartphone camera and the CCTV camera – again focusing on the visual aspect of surveillance.

[87] CPNI is a governmental authority, established in 2007, which provides protective security advice to businesses and organisations across the national infrastructure. Interestingly, it operates under the Security Service Act from 1989, which was the same year as previously mentioned Fire Precautions Regulations. As a part of MI5, the CPNI is exempt from the Freedom of Information Act.

[88] 'See It. Say It. Sorted.', AML Group, accessed 4 August 2022, https://aml-group.com/our-work/see-it-say-it/.

[89] There is no information how many of those calls actually resulted in arrests or were actually reporting a crime as opposed to a mere suspicion based on someone's appearance. Ibid.

This kind of regulation of behaviour, secretly originating from an obscure branch of the government, filtered through a commercial agency, and presented as a kind of benevolent or utilitarian use of public space is – to say the very least – problematic. The PA messages are given in a more 'local' sounding accent spoken by a common Londoner which increases the diversity of voices heard on the network. While commuters are more inclined to accept the familiar sounding pronunciation, as opposed to the 'stuck-up' conservative RP, I suggest it functions as a veil, a cover-up for the kind of message it's broadcasting. Asking the public to spy on itself, to listen-in and watch itself, is a way of singling out individual subjectivities and persuade them to turn against each other. The public address system is used to create and increase the distance between individuals and, in turn, establish an intimacy with the corporation or the government, instead. Members of the public, together with their omniscient smart devices, are transformed into an extension of the surveillance apparatus, operating across and between the contours of public and private.

Throughout the thesis, I have shown such an exercise of control through technologies of biopower is not new, but something that has been evolving through centuries. Kircher's drawing of the Speaking Statue from 1673 is an example of an early modern public space surveilled through the practice of listening that relies on the absence of the visual to establish a form of control. According to LaBelle, 'visibility should be understood as a process of continual tension in which the plays of power, desire, collective will, and self-determination are constantly at work'.[90] In the absence of the visual, power is thus a negotiation between those who have a voice and those who are listening – Kircher's 'rational amusement' in particular shows the active contribution and performative nature of listening. As mentioned, the enforced acoustic voyeurism by the nobleman – on one hand because of his fear of resurgence, and on the other because of his desire to control others while entertaining himself – performs as the acoustic equivalent of the male gaze. The vocal disembodiment provokes a kind of sexual objectification, which can still be noticed in contemporary society.

Furthermore, Gallagher reminds us that sound produces spatialities as it demarcates realms of power,[91] yet who holds this power is not always clear. In the case of the Automatic Enunciator from 1911, I have discussed different representations, assumptions, and expectations regarding male and female voices, and focused primarily on gender assumptions that resulted in different roles for women, as well as their voices. This can also be seen today

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[90] LaBelle, *Sonic Agency*, 30.

[91] Gallagher, 'Sound, Space and Power in a Primary School', 50.

with various types of digital personal assistants, like Amazon's Alexa and Apple's Siri, or machine employees, like supermarket self-checkout machines, which are using a female voice to perform household, communications, and retail-related roles generally attributed to women.[92] Part of my previous research has touched upon the fact that 'breathier' sounding voices are considered more attractive by men in particular,[93] and that technology is full of bias – just like the people designing it.[94] It is also important to note that the voice used for the underground and train announcements, like the famous 'mind the gap', was predominantly male, until a few years ago. Women's voices were judged to 'lack in gravitas' for public announcement,[95] yet this might have had more to do with the kind of technology used, as opposed to a general belief. The most uncomfortable aspect of researching about the first automated public address was the additional listening-in facility that accompanied the CCTV cameras on the London Underground network. This fact further emphasised the importance of researching the governance of public spaces and the use of PA systems, as it unexpectedly connected the Speaking Statue with 'mind the gap', proving that the exercise of power lies between the listening and sound-making.

While this thesis functioned as a first experiment in a biopolitical genealogy of PA systems, there is further work to be done, especially in relation to the different kinds of relations established by the architectures of the voice and the multitude of possible ways of engaging with them. This is especially true in order to theorise contemporary examples like 'See it. Say it. Sorted.' campaign, where it is not the mere sound of the voice that suppresses, but the meaning behind it. The gentle, breathy, or local-sounding female voices are used to portray something that does not belong to them (see, for example the Prologue). This ties in to what Cavarero calls the binary economy of metaphysics, which 'not only seeks to subordinate the

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[92] Corinne Purtill, 'Hey, Alexa, Are You Sexist?', *The New York Times*, 12 February 2021, sec. U.S., https://www.nytimes.com/2021/02/12/us/alexa-bots-female-voice.html. Most of them are pre-recorded, some even artificially produced through speech synthesis, as they range from a soft and almost sincerely helpful voice in Lidl, to a more submissive, even tempting one in Sainsbury's.

[93] Cathy Lane, 'Women as Animal, Women as Alien: Relaiming Womens Demonic Voices', in *Grounds for Possible Music: On Gender, Voice, Language, and Identity*, ed. Julia Eckhardt, 2018, 108.

[94] See: Rebecca Heilweil, 'Why Algorithms Can Be Racist and Sexist', Vox, 18 February 2020, https://www.vox.com/recode/2020/2/18/21121286/algorithms-bias-discrimination-facial-recognition-transparency; Yolande Strengers and Jenny Kennedy, *The Smart Wife: Why Siri, Alexa, and Other Smart Home Devices Need a Feminist Reboot* (Cambridge, Massachusetts London, England: The MIT Press, 2020).

[95] Rawes, 'Women's Voices Call the Shots in Recorded Announcements - Sound and Vision Blog'.

voice to the signified and the body to the mind, but above all, it prohibits the voice from making itself heard as the corporeal communication of uniqueness'.[96] The disembodied female voices across the city, belonging to or representing different corporations and governmental organisations, are trying to seduce the customers, consumers, and commuters in their everyday. Public spaces are saturated with their breathy acousmatic voices, regulating the behaviour of anyone close enough to hear it. I argue this subordination of the voice is something that can be traced across Western history, and it can be heard today as playing a crucial role in the continued securitisation of public spaces.

[96] Cavarero, *More than One Voice*, 199.

Epilogue

'She thinks she is working through, but discovers she is acting out;
and despite wishing that her attention were "evenly suspended",
she finds herself "free associating".'[97]

[97] Jane Rendell, *The Architecture of Psychoanalysis: Spaces of Transition*, 1st ed. (London: I.B.Tauris & Co. Ltd, 2017), 226, https://doi.org/10.5040/9781350988453.

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