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Photographer Paul Laib ©Witt Library Courtauld Institute of Art London.
1- The plastic dimension of voice

My practice is built upon a long-standing exploration of the voice, sung and spoken and its manipulation through digital technology. My interest lies in sculpting vocal sounds as a compositional method with the use of digital carving tools. From my voice I generated audio material, which could not be associated with its origin. In 1976, Joan La Barbara, renown for her exploration of extended vocal techniques defined the voice as “the original instrument”. Voice has a special status. Composer Trevor Wishart underlines the fact that “the human voice is not just another musical instrument” but a “unique and intrinsically multimedia source of sound events”, formed of a variety of expressions “animal expression (laugh, scream, cry)”, range, personality, language and song.

The 20th - and 21st - century technological progress made voice manipulation possible. The accessibility of reproduction - the tape recorder – has allowed the voice to be ‘printed’, thus becoming a tangible material with a second life.

We can correlate the emancipation of recorded voice with the emancipation of sounds under the electroacoustic research led by Pierre Schaeffer first at ‘Club d’Essai’ then at GRM. With musique concrète, sound - and therefore voice - became a malleable, sculptable material: a sound material whose identity could now be technically manipulated, looped and obscured.

In 1951, Schaeffer organised the first musique concrète workshop attended by Pierre Boulez, as well as French composer and musicologist Monique Rollin. The following year Rollin delivered with Étude vocale [Motet] (1952) a surprising short recording of multiple pitched and spliced voices, a naive analogue emulation of what is now achievable with digital effects available such as Beat Repeat in Ableton.

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7 software music sequencer and digital audio workstation.
In the second half of the 20th century, visual artists took an interest in exploring sound. With art and sound colliding, methods and terminology inevitably merged between the two disciplines.

With the digital revolution, new ‘sculpting’ tools emerged such as IRCAM’s AudioSculpt⁸ and the open source SPEAR⁹. AudioSculpt’s name itself comes from the idea of sculpting the sound directly on its graphical representation. Sounds are sculpted with filters: a spectral transformation occurs. Granular Synthesis¹⁰ available for instance through the app Borderlands¹¹ allows an ever-evolving matter to be shaped. In Pro Tools¹², the function ‘elastic properties’ allows the sound material to be stretched and compressed. These softwares have been greatly contributing to expand the plastic dimension of sound thus, voice.

In the 1980s, Trevor Wishart demonstrated his extensive research on sculpting the voice with his notable work VOX cycle (1980-1988). Wishart states that the voice is “more flexible in its sonic capabilities that any contrived instrument”.¹³ Around the same time, electronic music pioneer Laurie Anderson was experimenting with filters, sculpting her voice to speak in a masculine register, ‘The Voice of Authority’¹⁴, thus operating one of the first notable gender manipulations on recordings. 1978 marked the launch of Anderson’s new sculpted voice at The Nova Convention.¹⁵

From pitch to texture sculpting, the new millennium saw the release of the astonishing LP record by Norwegian composer and performer Maja Ratkje¹⁶, Voice (2002), a combination of extended vocal techniques and sculptural sound treatments. In Voice, the material is carved, torn, stretched and expanded.

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¹⁰ sounds are broken into tiny grains which are then redistributed and reorganised to form other sounds.
¹² digital audio workstation developed and released by Avid Technology.
¹³ Wishart, op. cit., p.190.
More recently, electronic artist Holly Herndon whose research also lies in voice manipulation stated:

I construct patches to augment and transform aspects of the voice in an attempt to uncover new perspectives and identities from a familiar source. I play a lot with gender on that record, it is incredibly liberating to be able to manipulate my voice to be two octaves deeper, to sound like a car crash or a rhythm section.\(^\text{17}\)

There is indeed in Herndon’s practice an analogy between sculpting a material - a stone - and sculpting the voice.

The composers mentioned above have all explored and challenged the plastic dimension of voice through the medium of recording. Author and curator Kersten Glandien states that “artists understood sound as ‘matter’ and sought to mould sound, by giving it a sculptural structure”.\(^\text{18}\)

French sonic researcher and ‘Voice Sculptor’ Gilles Azzaro has been driven by giving sound a sculptural structure. Investigating the invisibility of sound and its materialisation, Azzaro operates a literal plastic conversion of voice into sculpture with *Barack Obama: The Next Industrial Revolution* (2013), a spectrogram of Obama’s voice print expanded into a five-foot sculpture.\(^\text{19}\)

![Figure 1 Gilles Azzaro: Barack Obama: The Next Industrial Revolution, 2013.](image)


2- The spatialisation of voice

From the two-dimensional medium of recording, the voice has since expanded to a three-dimensional spatialisation - a surround environment - as well as being hosted within sound sculptures in large-scale installations. The earliest sound sculptures appear in the 1950s: French inventors François and Bernard Baschet pioneered a new way of combining sound and sculpture resulting in a large collection of original instruments - Les Sculptures Sonores (1952).²⁰

As we examine the interplay between voice and sculpture in installation art, we can perhaps expand the terminology of ‘sound sculpture’ to ‘voice sculpture’ when dealing only with voices as the main audio source. The need to differentiate can be justified because as mentioned before, voice has a ‘special status’, set apart from the other instruments as an outsider in the sound world.

Sound artists Janet Cardiff, Susan Philipsz and Laurie Anderson are linked by a common feature: their background in the expanded field of sculpture and their extensive work with voice in the field of sound art.

Envisaged as a sculptural piece, Cardiff’s installation The Forty Part Motet (2001) is consisting of forty loudspeakers arranged in a circular configuration, playing back a recording of Spem in Alium (1573) by Thomas Tallis. First created in 2001, the piece has since been reinstalled many times across the world.

The loudspeakers are assembled in eight groups and each of these groups are formed of five voices: bass, baritone, alto, tenor and soprano. Each speaker corresponds to a singer. The surround audio set-up allows us to be within the choir, avoiding the traditional frontal position of a live performance. Cardiff emphasises the fact that “our ears are designed for multi-dimensional sound and not stereo mono”. She intended to be able “to climb inside the music, be in it”. Her intention was to be able “to climb inside the music, be in it”.21

Cardiff worked particularly on shifting the position of sound to another so that we - the experiencers understand that we can walk around the speakers. By getting closer to a speaker we can isolate a voice and feel the fragility of the performance. The moving listeners can create their own mix whilst positioning their bodies in the space. Cardiff states that “people are making sculptures as they walk around”.22 Sound art pioneer Bernhard Leitner articulates this notion in his pioneering research as the way we sonically influence the space with our own

body from our movement and position. Leitner underlines the importance of understanding the body as an autonomous acoustic instrument, “an integral acoustic sensorium”, that is “the hollow spaces of the body, the bones, the way the sound is transmitted in the body, how it passes through the skin, and how it is transmitted on.”

Sculpture is the art of making three-dimensional forms, representative or abstract, using shaping techniques. Here, an abstract form is shaped from the techniques of sound diffusion and from the impact of the corporeality of the audience, resulting in a three-dimensional sculptural material. Or as Leitner puts it, a “sound-space” object defined by traveling line of sounds.

Janet Cardiff tells us that she is “sculpting the voice”. In 1968, Bernhard Leitner defined “sound as an architectural and sculptural material”. This applies to voice too: a sculptural material in space defined by traveling lines of sounds amplified by loudspeakers, a space of sculpted voices, a ‘voice-space’.

Examining further the organisation of the voices, it appears that the surround set-up is not determined by the type of voices each singer holds in a classical choir. In each group of loudspeakers, we have five voices next to each other: bass, baritone, alto, tenor and soprano. This would appear difficult in a traditional choral set up as each tessitura is purposely grouped together to facilitate the singer’s performance. In The Forty Part Motet, we have a decomposed choir. Cardiff has taken apart the choir in space and as such the surround set-up reveals at times a complete shift of sound to one side of the room. This abrupt panning of the sound occurs because the choir is not performing as a unit in front of us since it has been displaced and reorganised in an oval configuration. Cardiff with the speakers supplanting the singers can take these liberties. The 20th century technological expansion has given us the ability to dislocate sounds in time as well as in space to create virtual spaces. This is the phenomenon of ‘schizophonia’ a term coined by Raymond Murray Shafer.

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28 a vocal range for a given singer.
states that “we have split the sound from the maker of the sound. Sounds have been torn from their natural sockets and given an amplified and independent existence.”

I experienced The Forty Part Motet at Fondation Louis Vuitton in 2018 for Being Modern: MoMA in Paris. Cardiff’s work had a strong impact on me. Once the composition had been diffused, we could distinguish in the recording the post-performance environment: children talking, a singer coughing, others getting ready to perform...This soundscape subtly blended with the sounds generated by the audience’s own footsteps and small talks. In fact, once the music ended, the audience wondered if the piece was over or not, but it was not since the playback was continuing - the recording had not been stopped. Then another cycle of the Thomas Tallis piece began.

Janet Cardiff felt that an intermission was necessary as it made “the people into real people”. This intermission humanises the acousmatic voices - the speakers themselves - with the aim of making the singers’ presence alive in the room. First the humans were removed, then the technology was humanised.

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In Lowlands (2010), Susan Philipsz’s voice is recorded and diffused through loudspeakers, which we cannot see: an acousmatic voice “in search of an origin, a body”\textsuperscript{32}.

Philipsz states that her songs are “sound sculptures”.\textsuperscript{33}\\textsuperscript{34} It is the discipline of sculpture which informs her work in sound, combined with the exploration of her own voice as a material. Philipsz’s voice remains untrained as she leaves in breaths and imperfections purposely to maintain its fragility.

In Lowlands, a recording of Philipsz singing a 16\textsuperscript{th} century lament is diffused over a series of bridges over the Clyde in Glasgow. Philipsz discovered that there were three different versions of this Scottish sailor lament so she recorded the three versions and had them play simultaneously under each of the three bridges.

How can a 16\textsuperscript{th} century song be a “sound sculpture”? Susan Philipsz’s approach is not about sculpting the voice in a surround configuration as seen in Janet Cardiff’s installation. Neither is she experimenting with the plastic dimension of voice as she has chosen to maintain it as natural as possible, untreated. Rather than exploring the sonic aspect of the voice, her interest lies, she states, in “exploring the meaning and emotion of voice”.\textsuperscript{35} The voice in Lowlands is decontextualised and unexpectedly urbanised. Here the voice expands from the architecture itself along the emerging structure-borne sounds\textsuperscript{36} reverberating in space, forming a multidimensional figure.

\textsuperscript{36} sounds carried through walls and floors as well as through the air.
Laurie Anderson recently revealed in an interview that early on in her career she realised she “wanted to make singing sculptures”.\textsuperscript{37} Again, the two disciplines voice and sculpture are here interweaved. Describing her move to New York, Anderson remembers her idealistic beginning as an artist in the 1970s, making street art, opera and sculpture.\textsuperscript{38} Her background informs her approach to the voice, as a plastic dimension to play with, applying pitch-shifting and time-stretching with voice filters – vocoder.

In Anderson’s installations, the sculptural three-dimensional representation often takes the form of projections. The Wire journalist Emily Bick tells us that Anderson began using the technique of projection in the 1970s, “projecting versions of herself telling stories onto doll-sized sculptures that you needed to lean in to listen to”\textsuperscript{39} - her first series of ‘talking statues’. Combining projection technique and storytelling, Anderson pursued that direction throughout the years with works using telepresence: Dal Vivo (1998) featured a series of tiny speaking statues combining projections of images of Anderson’s body with the silent live projection of detainee Santino Stefanini.\textsuperscript{40}

Recently with Habeas Corpus (2015), the projected image of former Guantanamo Bay prisoner, Mohammed El Gharani, was transmitted via the Internet and expanded into space. El Gharani’s size and presence was amplified like a monumental ‘talking statue’ - “a sixteen-foot-high sculpture of a seated human form”.\textsuperscript{41} Laurie Anderson provided a ‘voice-space’ for El Gharani to share with the audience his detention experience as one of the youngest prisoners.\textsuperscript{42}

\textsuperscript{38} ibid., p.224-225.
Discussing the ‘elasticity’ of the term sculpture, art theorist Rosalind Krauss states that “the logic of sculpture is inseparable from the logic of the monument”. With its large-scale projection, *Habeas Corpus* acts as a commemorative representation to communally acknowledge and document the Guantanamo tragedy.

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Another artist whose practice exists at the intersection of creation and documentation is Susan Hiller. Hiller displays in *Witness* (2000) a voice ensemble of over 350 speakers suspended from the ceiling. Installed at Tate Britain, *Witness* combines voices within a sculptural set-up resulting in a polyphonic vocal composition – a ‘voice sculpture’.

![Figure 4 Susan Hiller: Witness, Tate Britain, 2000.](image)

Nurtured by her background in anthropology, Susan Hiller often investigates the overlooked everyday real-life phenomena. With *Witness*, she deals with UFO sightings, having collected one hundred stories of people sharing their singular encounter. Hiller chose this multidimensional display to transmit these multiple stories simultaneously, mirroring the way she experiences the world, with “a multitude of conversations” surrounding her and “so many conflicting stories”.44

From the cluster of spoken voices, each speaker can act as a ‘headphone’, which can be pulled to the ear to isolate a voice and single out a story. The type of speaker used - piezo - is particularly responsive to voice frequencies.

Language is central to Hiller’s work. Other works with voices include *Channels* (2013) an ensemble of televisions diffusing voices of multiple languages and *Clinic* (2004). Both audio installations deal with people who have experienced death and returned to tell the tale.

I was not able to experience Witness; my sources are from my research. However, I did experience Channels at the exhibition Everything at Once (2018), which led me to pursue my research on Susan Hiller.\footnote{45 cf. Everything at Once, London, http://everythingatonce.com, (accessed 15 November 2018).}

Hiller states that “her work is an archaeological investigation, uncovering something to make a distinct of it.”\footnote{46 ‘Susan Hiller: Talking Art’, [online video], op. cit.} In the sculptural set up of Witness, the experiencer can recover sound facts, excavate a story and build a singular narrative through the action of placing a speaker close to the ear. For Hiller, “sound gives you an intimate connection with the source, it sets up a close relationship with people who are speaking.”\footnote{47 ‘Susan Hiller: Talking Art’, [online video], op. cit.} Witness relies on the willingness of the audience to participate. For the work to be complete, the experiencer must wander through the ‘voice sculpture’ and place a speaker close to the ear - as opposed to a more passive state of viewing a painting in a museum.

Throughout the second half of the century, the idea of art changed. Kersten Glandien states that “art as a social practice developed itself, the audience became a performer and a co-creator”.\footnote{48 K. Glandien, ‘Sound and Interactivity’ in Theory and History of Sound Art, Digital Music and Sound Art, University of Brighton, UK, 18 April 2018.} Witness is an ‘open work’,\footnote{49 U. Eco, ‘The Poetics of the Open Work (1959)’ in Audio Culture Readings in Modern Music, eds. C. Cox & D. Warner, Continuum, New York and London, 2004, p.167.} for the audience to experience and complete. The temporal element makes the piece and its sound variable subjected to the behaviour of ‘the experiencer’. Whereas in Janet Cardiff’s piece, The Forty Part Motet, the duration and content of the audio remains stable, on a loop.

In Witness, the multidimensional array of speakers evokes a gigantic spider web. Hiller’s set-up is allowing the audience to browse audio content physically whilst navigating the structure and its cloud of voices. The cloud here is one speaker away as opposed to one click away. We have in Witness an anticipation of the digital navigation of the Internet. Hiller’s piece provides a multiple user interface to access in a physical environment large documentation data and witness reports.

In 1951, French documentarist Suzanne Briet wrote that the documentary techniques demonstrate two distinct trends: the first one pushing for a further abstract, algorithmic mode
of archiving documentary elements whilst the second trend pushing towards a massive extension of substitutes for lived experiences, through films, television, recordings and photos.\textsuperscript{50} Briet was anticipating how close creation knowledge and documentation would become in Art, a close relationship at the centre of Hiller’s practice.

Other examples of ‘voice sculpture’ using a similar principle of suspended speakers are \textit{Days} (2009) by American artist Bruce Nauman and \textit{Respire} (2008) by Canadian sound and radio artist Anna Friz.

Both artists’ work explores voice and language. Created for the Venice Biennale, \textit{Days} consists of a continuous stream of seven voices randomly reciting the days of the week. The set-up is composed of fourteen suspended speakers, which are “installed in two rows, with one voice emanating from each pair of speakers as the visitor passes between them”.\textsuperscript{51}

\textbf{Figure 5} Bruce Nauman: \textit{Days}, Philadelphia Museum of Art, 2009.

\textsuperscript{50} S. Briet, \textit{Qu’est ce que la documentation?}, Éditions documentaires, industrielles et techniques, Paris, 1951, p.30.

Anna Friz’s installation *Respire* is based from the sounds of breathing and other bodily exclamations embedded in “a multi-channel array of radio receivers suspended above visitor’s heads”.  

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*Figure 6 Anna Friz: Respire, RadiaLX, Lisbon, 2008.*

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3- The extended voice in performing art

Throughout the late 1950s and early 1960s, many theatrical events - happenings\(^{53}\) - were created by artists. The early 1960s mark the development of ‘concept art’ - a term coined by Henry Flint\(^{54}\) - when the idea in the work takes precedence over aesthetic concerns.

Yoko Ono, one of the most prolific artists of that time, produces her first instructional piece, *Painting to See the Room* (1961)\(^{55}\) – an artwork meant for others to create following her instructions - thus pushing visual art further towards conceptualism.

Ono also explores sound and voice with another instructional piece, *Voice Piece for Soprano* (1961), initially performed when Ono became a member of the Fluxus group\(^{56}\). The piece was recently revisited at MoMA as a participatory work.\(^{57}\) Museum visitors were invited to take a microphone and follow Ono’s instructions, posted on the wall: “Scream. 1. against the wind; 2. against the wall; 3. against the sky.”

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\(^{53}\) term coined by artist Allan Kaprow in the 1950s.


\(^{56}\) an international avant-garde collective or network of artists and composers founded in the 1960s.

Amplified throughout the gallery, the voice reveals itself as a sonic element for its capacity of forces and pressures, reaching momentum, similarly to the vocal techniques displayed in Opera. In physics, the momentum is the product of mass and velocity, referring to the quantity of motion that an object has - here the voice. From the physics of sound to the politics of sound, Ono identifies these screams in motion as a "protest song". What happens to the voice when we scream? The voice organ is “an instrument consisting of a power supply (the lungs), an oscillator (the vocal folds) and a resonator (the larynx, pharynx and mouth.)”. We would need to add that the body itself is the structural foundation from which the voice draws to generate such power. Ono’s voice, powered and projected acts as a noise device similar to the noise effect of a heavy truck passing by at 1 m, 90 dB (decibel), which is considered very loud and certainly capable of shifting vast masses of air. Sound waves, which are created by a disturbance - here the scream – propagate through the air. Ono’s voice is piercing through form, ‘sculpting’ the air whose particles transmit the sound: a ‘pierced form’ emerges - British sculptor Barbara Hepworth was the first one to pierce through the material with Pierced Form carved in 1931.

Invisible at first, the voice carried here by the air is seemingly forming a dense sonic matter, which deploys itself in space. Our brain processes the audio data, rendering a sound picture, which appears to us multidimensional: a sculpture of air from voice. Sound-sculptor Lukas Kühne states that his favourite material to sculpt is the air. Didn’t designer Harry Bertoia state of his famous diamond chair that it was "mainly made of air, like sculpture"?

Long-standing voice explorer, artist Mikhail Karikis has been investigating the voice as a physical and sculptural material. Karikis states that he stretches his voice to extreme, manipulating it using his throat.\textsuperscript{64}

In the two-channel video, *Promise Me* (2012), he is seen bending his face attempting to project the sound. A photographic series, *Sculpting Voice* (2010) was also produced to investigate “the material and plastic properties of breath and the voice”.\textsuperscript{65}
There is a long-line of vocalists who have explored the voice, applying extreme bending and carving to it. Belgian avant-garde vocalist Catherine Jauniaux is using her shaping techniques in the tradition of Cathy Berberian to carve, manipulate and project her voice. ‘The Institute for Living Voice’, founded by David Moss in 2001, has had for guests voice experimenters such as Jaap Blonk, Diamanda Galas, Shelley Hirsch, Joan La Barbara. These vocalists are sculpting their own matter in a complete appropriation of their own body. Barbara Hepworth defined sculpture as “a three-dimensional projection of primitive feeling: touch, texture, size and scale, hardness and warmth, evocation and compulsion to move, live and love”. There is something exhilarating and indeed primitive in working directly with who we are, carving from our own corporeality, carving our voice. Similarly, Laurie Anderson, Yoko Ono and Susan Philipsz have been working in sound art with their own voice material.

The term ‘sculpture’ as we have seen has been appropriated by Janet Cardiff, Susan Philipsz and others to define their sound work. Sculpture is the art of making three-dimensional forms, representative or abstract, it is to make a form by one of “four basic processes: carving, modelling, casting, constructing” therefore, to a certain extent, we can speak of a ‘sculpted voice’ in the context of Yoko Ono and the voice-experimenters mentioned above.

In ‘Sculpture in the Expanded Field’ (1979), Rosalind Krauss states that categories like sculpture and painting “have been stretched and twisted in an extraordinary demonstration of elasticity”. She argues that over the last ten years rather surprising things have come to be called sculpture. Sculpture, a “historically bounded” category has been unbound.

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70 Krauss, op. cit., p.33.
4- Reclaiming the voice

Why is the voice often shunned by artists?

Susan Hiller admits that the use of the voice in art has been abandoned. Hiller states:

The use of voice is fascinating for artists because voice is body. In the 1990s when the critical discourse was all around the body, the work with voice was left out as though body meant representing the body, yet the notion of voice was never dealt with.  

Voice is often perceived as too concrete. Since the second half of the 20th century art practitioners oriented themselves towards a process and an experience rather than towards a message or self-expression. Voice found itself at the centre of this shift as language is inevitably linked to the message. From realism to abstraction, art repositioned itself and so did the medium of the voice. Pierre Schaeffer was in favour of “defamiliarising the sound” by cutting the attack and delay, the sound could no longer be associated to its origin. When applying a similar principle to the voice, the vocal sound could be dissociated from the human voice. The reduction of language to sound was explored by many artists - mainly male artists - as early as 1913 in the form of sound poetry with Dada and the Futurists. In the interwar period, Kurt Schwitters, with his sonata Ursonate, explored the voice as texture, as a projected material. Throughout the second half of the century, Henri Chopin performed his audio-poems, a ‘musique concrète’ of voices. Kersten Glandien underlines “the sonic dimension of the human voice and in particular the relation between the speech and sound”. To step away from realism, the performance art voice took shape as a phoneme, abstracted of its meaning. The technological progress made voice manipulation possible: the semantic could be spliced, pitched away, voice could exist as a sonic texture in its plastic abstraction.

74 Ursonate, a sonata in primordial sounds, 1922-1932.
75 Smallest unit of sound within a spoken word, from Greek ‘phonema’ which means sound.
However, when untreated the voice retains a familiarity, revealing intimacy. One could say the voice appears perhaps then too human.

From this research, we can outline that the voice now appears to be investigated much more by female sound artists. In the second half of the 20th century, women brought their identity into art to discuss feminist issues. They dealt with the body and so they embraced voices. Susan Hiller believes that one of her commitments to working with language was strengthened by the women’s movement and her understanding of herself as a female.76

We could draw a parallel between the emancipation of voice through technology and the emancipation of women through the appropriation of these newly democratised tools, making the voice heard through sound and art: voice as a feminist strategy for self-representation. The re-appropriation of the voice goes even further as we have seen many female artists choose to work directly from their own vocal matter. They are reclaiming their own voices, a voice whose sound has been much criticised. Canadian poet and classicist Anne Carson is demonstrating in ‘The Gender of Sound’ how much the sound itself of women’s voices has been rejected over the centuries since the Greek classics. Carson states that “putting a door on the female mouth has been an important project of patriarchal culture from antiquity to the present day”.77

The voice remains a vast territory of exploration and hopefully beyond gender categorisation. Multidisciplinary artist Amy Cunningham who uses the singing voice in her practice founded the research network The Voice Laboratory in 2009 to explore further the role of voice in contemporary art.78 Artists have challenged the plastic dimension of voice through various mediums, recording, sound art installation and performance. Voice - the original instrument - is a timeless and flexible instrument, which will always have its relevance, as long as humanity exists, voice will be explored and challenged.

76 ‘Susan Hiller: Talking Art’, [online video], op. cit.
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