Signification in the Soundscape: Bill Fontana's *River Sounding*

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Symbolisation is one of the fundamental processes of mapping. Recognising that sound can function symbolically—put another way, that symbols need not be exclusively visual—enables us to problematise and push beyond the domination of cartography by the visual.

In this chapter I turn to a close reading of an installation and sound work, *River Sounding*, by Bill Fontana. I investigate the work using the conceptual framework of cartographic abstraction, established through the preceding chapters, but without positing an abstract cartographic viewpoint with which the work engages. Instead, I bring forward this consideration of a sound work as an opportunity to consider the possibilities and limits of engaging with cartographic abstraction in the register of viewing rather than hearing. With this particular analysis, I push beyond the (productive) trope of the viewpoint-as-abstraction and consider some ways in which viewing can be mediated cartographically as well as sonically in an installation work. Where *River Sounding* remains an artwork in which the visual experience of the visitor is highly significant, the soundscape that it stages offers an opportunity to explore the interplay of sonic and visual registers that depict their object in different ways.

The theme of the 'return of the river' is put forward in institutional copy characterising the installation, and I argue that a particular, historied rendering of the River Thames, London, is at stake in *River Sounding*. I argue that the cartographic object of the Thames is re-spatialised in the work and that what is re-spatialised is a particular abstraction based around moments at which the river is engineered, bridged, altered and delimited. What is evoked, in this historical register, is a temporally and spatially delimited abstraction of the Thames, drawn from 'surveying' key locations of mechanical and architectural intervention along the tidal length of the river.

I also argue for reading the sonic register of the installation as continuing an indexical relationship with the source locations of the audio recordings. *River Sounding* presents a 'soundscape' of the Thames, and this soundscape itself has a complex and shifting relationship with the visual register of representation in the work. Through both registers, the visitor is positioned as 'immersed' within a soundscape and a cartographically constructed conceptual space. This is a form of inhabitation that emerges in *River Sounding* that is markedly different from the modes of cartographic viewing from conceptually *above* that have been explored in the previous chapters.

Bill Fontana and *River Sounding*

Bill Fontana (b.1947) is a 'sound sculptor' and composer known for his installation-based works that bring contrasting sounds into particular public or built spaces. He studied with the composer John Cage in the late 1960s at the New School for Social Research in New York and developed an interest in ambient sounds and the combination of sound and sculpture. Fontana describes his method as 'sculptural thinking' and his mission as "the transformation and deconstruction of the visual with the aural" (Fontana in Blackson et al, 2010, p. 15). Other key works involving sound environments include *Sound Island* (Paris, 1994), in which he broadcast sounds from the Normandy beaches at the Arc de Triomphe, and *Speeds of Time* (London, 2005), in which recordings of the internal sounds of Big Ben were played in a gallery.

River Sounding is a site-specific audio-visual installation, prepared for the semi-subterranean light wells and coal holes at Somerset House, London, 15 April–31 May 2010. Audio and visual recordings were made at different locations along the River Thames and

broadcast in the light wells, the adjoining coal holes (small unlit rooms opening off the light wells) and the Dead House (a tunnel running under the courtyard of Somerset House, usually closed to the public). The recordings were made at twelve locations along the tidal length of the Thames using hydrophone, ambient microphone, accelerometer, shotgun microphone and video camera. The locations include Teddington Lock and Richmond Lock; historic steam turbines at Kew Bridge Steam Museum; a live feed of the Somerset House clock; Millennium Bridge; *HMS Belfast*; Tower Bridge; John Harrison's chronometers at the National Maritime Museum; the Thames Barrier; Southend Pier; and a bell buoy and whistle buoy in the Thames Estuary.

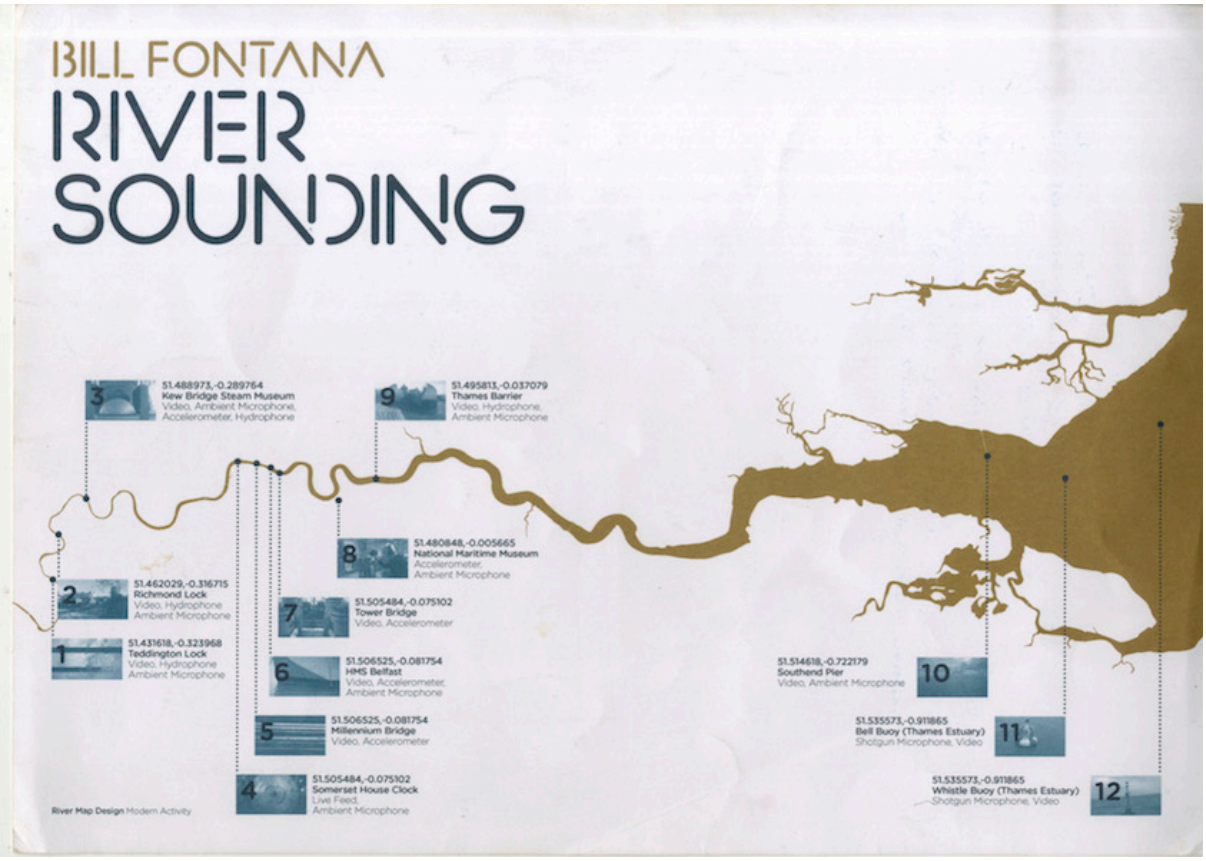

Figure 4.1 Handout map—'The River Sounding Journey'—side 1

Source: Map by Modern Activity

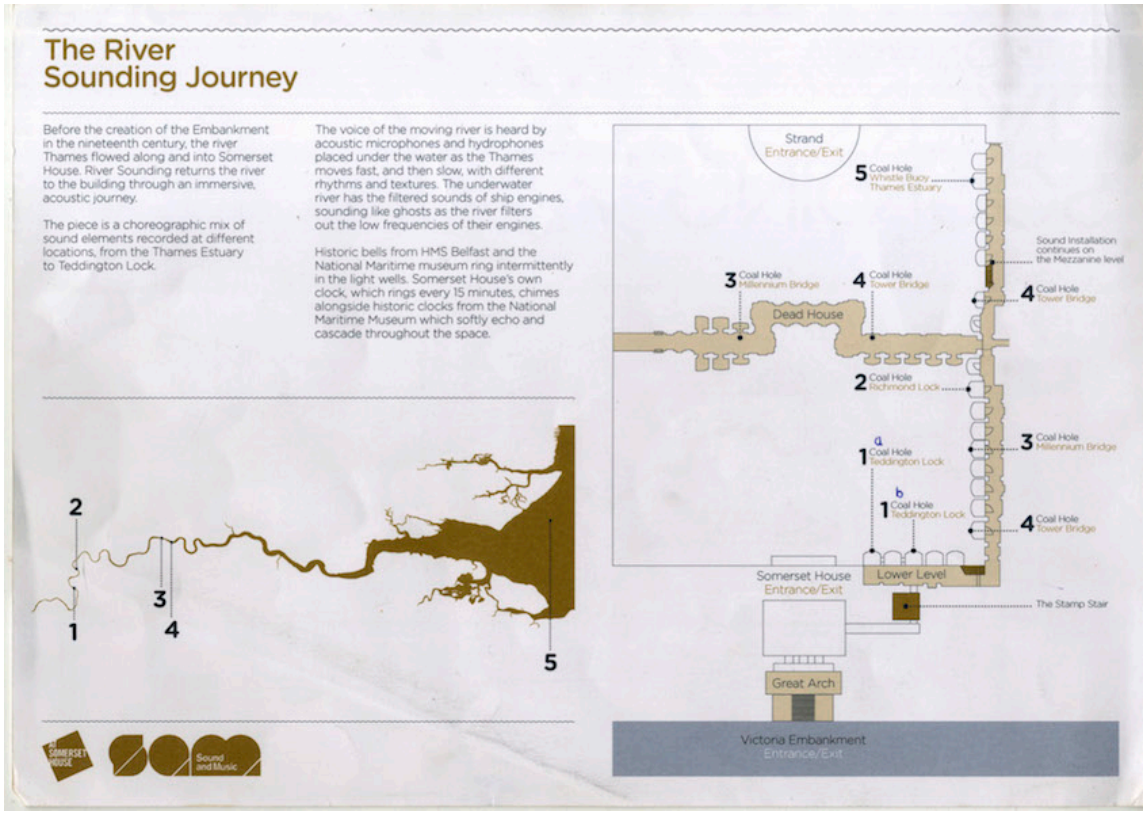

Figure 4.2 Handout map, side 2

Source: Map by Modern Activity

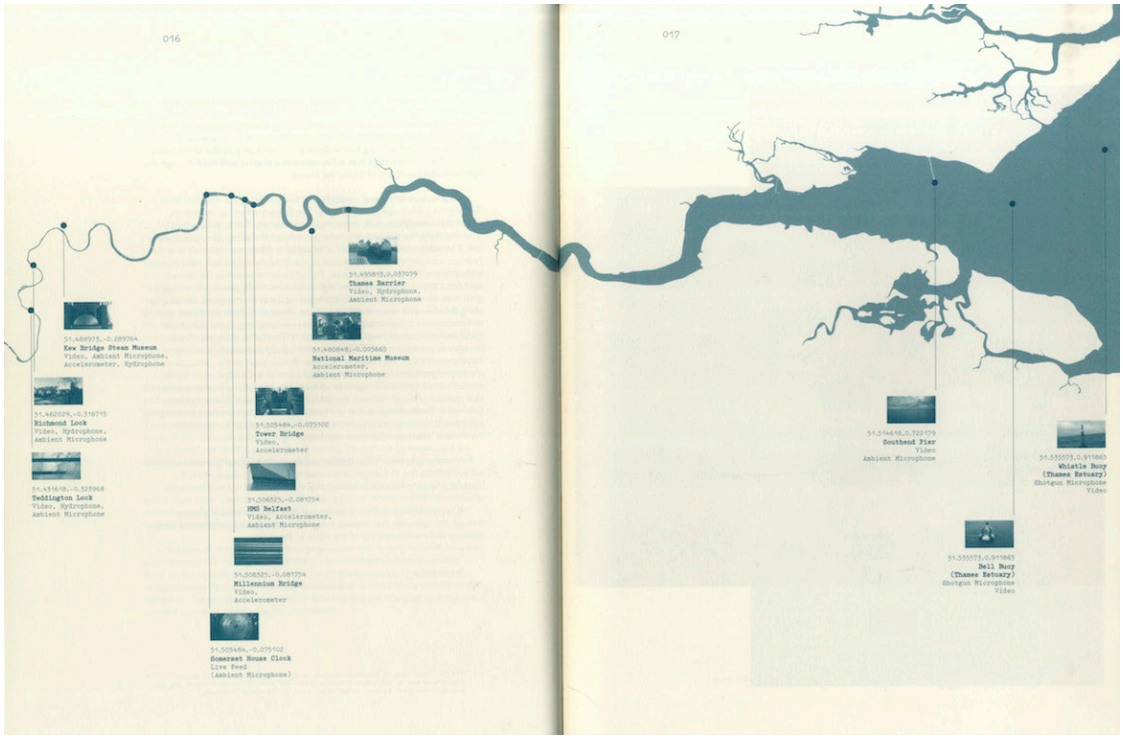

Figure 4.3 Map of recording locations in *River Sounding* exhibition catalogue[1]

Source: Map by Modern Activity

Sounds of water, ticking and chiming are heard throughout the installation, sometimes accompanied by video projections in the coal holes and Dead House. The sounds overlap to such an extent that they are sometimes heard in conjunction with their visual referent in the form of a video projection, though many other sounds are always present.[2] The video projections include the wires of Millennium Bridge; water seen through the gap in Tower Bridge; pedestrians and vehicles passing on Tower Bridge; and the Thames Estuary bell and whistle buoys and falling water at Teddington Lock.

The viewer-listener enters into the 'soundscape' at two possible points, either at the Great Arch entrance or at the courtyard entrance. The Great Arch forms the Embankment entrance to Somerset House, nearest the river, and gives directly onto the pavement beside the busy road. Audio recordings, exhibition signage and an underground video projection mark the opening of the reimagined riverine space of Somerset House at this threshold. Somewhat divided from the main spaces of the installation by the interior spaces, the Great Arch marks the point at which the Thames formerly occupied the underfoot space of the contemporary viewer-listener.

Figure 4.4 View from mezzanine level of part of the system of speakers, Somerset House light wells

Source: Bill Fontana, photo by Claire Reddleman

The courtyard entrance offers the viewer-listener the opportunity to descend the stone steps 'into' the imagined former space of the Thames. This descent mirrors points of access to the contemporary river in the form of sets of steps descending to the river (or the shore at low tide). In this way, the viewer-listener is ushered into or admitted into a space that is designated as the physical space of the light wells and lower levels of Somerset House and the metaphorical space of the earlier form of the river.

Within the space of *River Sounding*, the viewer-listener is free to choose their own course among the light wells, the coal holes and the Dead House, the rooms and corridors running underneath the Fountain Court. Using the handout map as a guide (see Figures 4.1 and 4.2), the visitor begins near the coal holes marked '1' (having either descended from the courtyard

or entered from the Great Arch). The coal holes are small, dark rooms, with rough walls and floor, housing video projections and accommodating audio playback of recordings of Teddington Lock. The video projections give abstract views of water behind a structure of horizontal elements, perhaps bars or a metal grille. Rather than a view giving the wider visual context of the water—for example, the river with surrounding land and buildings or the lock itself—the view is enigmatic and offers the viewer scope to interpret it in the context of the place name ‘Teddington Lock’ that is associated with the mapped spaces of the installation in the handout map. I interpret the projected video as depicting part of the lock, but without further familiarity with its structure, the image signifies for me the concept of ‘Teddington Lock’ as a whole.

Leaving the ‘Teddington Lock’ coal holes, the visitor turns the corner to the left. Viewing a long subterranean corridor, open to the sky, three further coal holes open into the left-hand wall (see Figures 4.5, 4.6 and 4.7).

Figure 4.5 Photograph of coal hole 3, showing video projection of cables on Millennium Bridge onto brick wall and pipe

Source: Bill Fontana, photo by Claire Reddleman

Figure 4.6 Photograph of video projection on stone slabs

Source: Bill Fontana, photo by Claire Reddleman

Figure 4.7 View into coal hole, with projection of turbines at Kew Bridge Steam Museum[3]

Source: Bill Fontana, photo by Claire Reddleman

Although each coal hole is labelled with a geographic referent—a place name—on the handout map—4 Tower Bridge, 3 Millennium Bridge and 2 Richmond Lock—the video projections offer almost no opportunity for visual recognition of the named locations. This labelling of the spaces of the installation takes place only in the map image and not in the installation itself (directional signage is included in the installation but interpretative signage is not); therefore the visitor may choose whether to encounter the installation in connection with its map or (and) not.

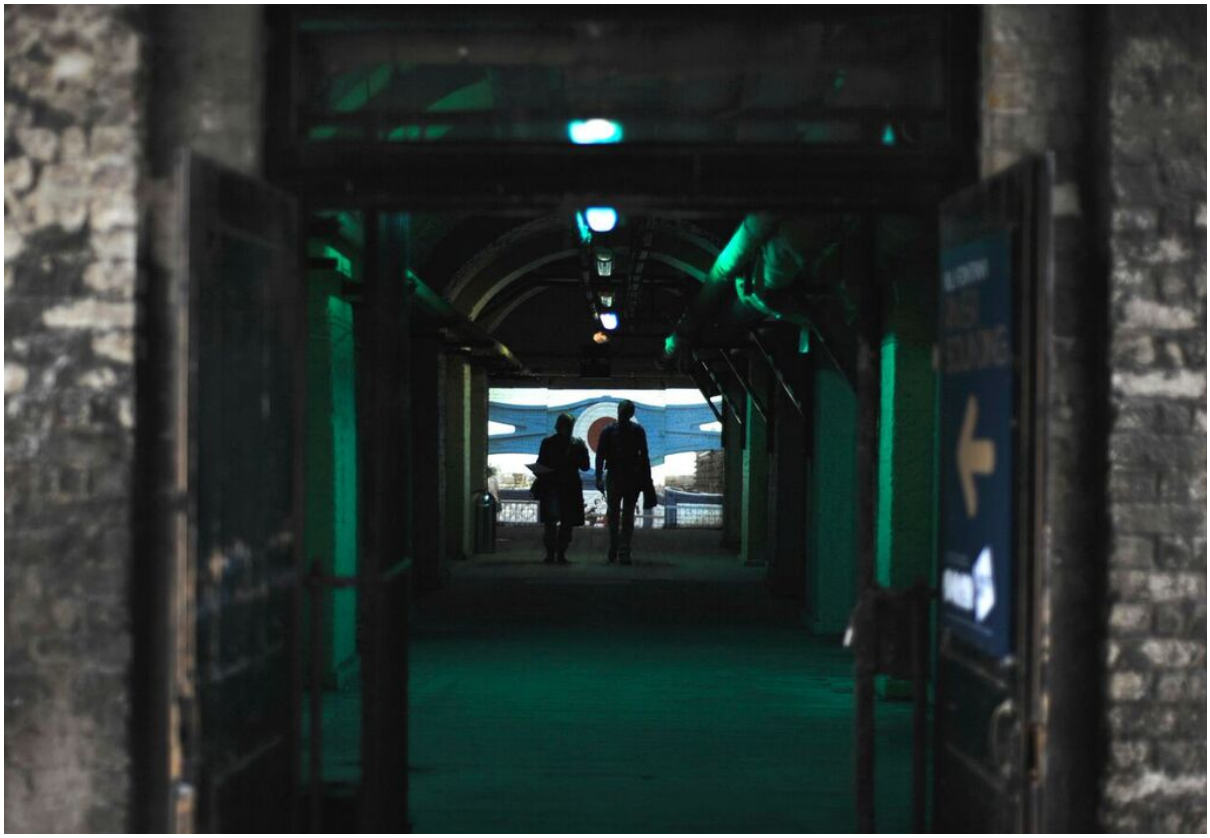

Figure 4.8 View into the Dead House, towards video projection of Tower Bridge

Source: Bill Fontana, photo by Claire Reddleman

Turning down the corridor into the Dead House, projected video of Tower Bridge is visible on the far end wall (see Figure 4.8). The green-lit corridors, with small side rooms and vestibules, accommodates projections of Tower Bridge and Millennium Bridge, and the sound recordings continue to be heard as the visitor retraces their steps to leave the Dead House and emerge again into the daylight of the light wells. The farthest section of the installation comprises a further coal hole projection of Tower Bridge, with access via steep stone steps to the mezzanine level and a last coal hole housing a video projection of the Thames Estuary whistle buoy (Figure 4.9).

Figure 4.9 Photograph of coal hole video projection (marked ‘’5’ on handout map) showing Thames Estuary whistle buoy

Source: Bill Fontana, photo by Claire Reddleman

In my experience of the installation, the whistle buoy coal hole seemed to be a culmination of the experience of walking through the installation. As the last coal hole to be discovered, at the farthest point of the installation, it gave me the sense of having reached the end of the spaces available to explore. It also ‘resolved’ the low, mournful, lowing sound I could hear throughout *River Sounding* as the sound of this particular buoy as the sound came into synchronicity with the video projection.

Leaving the installation requires the visitor to retrace at least some of their steps to one of the two entrance and exit points of the installation space, either the Great Arch or up the steps to the Fountain Court. Leaving the installation involves leaving the metaphorical space of the ‘river’, or the river as ‘returned’ to Somerset House by *River Sounding*. The visitor either emerges from the light wells, ascending the steps into the open space of the Fountain Court, or crossing the threshold of Somerset House, through the Great Arch, onto the pavement of the Victoria Embankment and the noise of the A3211. This is the space in which the Thames used to flow, prior to the construction of the Embankment in 1865–70.

Some important themes emerge from the foregoing discussion of *River Sounding*, which I discuss in more detail in this section. The deployment, or activation, of ‘history’ as an interpretative context for the work emerged in discussing the work’s premise of reinstantiating a past form of the River Thames. This past form—an abstraction—of the Thames, was also instantiated through the selection of the sites for audio recordings to be made, which I discuss further in what follows. The question of the installation’s layout is of particular interest in terms of the relationship between the artwork and its object, the Thames itself, rendered through audio and visual recordings, but also through cartographic abstraction.

A mode of symbolism is in play between the visual and the aural registers of *River Sounding* and their relationship to the viewer-listener’s conceptualisation of the river as the subject of the artwork. I interpret this mode of symbolism in cartographic terms in order to elaborate an

analysis of the cartographic positioning of the viewer in relation to the Thames in *River Sounding*. In this chapter, I seek to understand the formation of a 'viewpoint' of the visitor within this work in terms of cartographic abstraction in its construction of a mode of viewing that is 'immersive' as opposed to synoptic. I discuss this mode of viewing in more detail towards the end of this chapter.

Return of the River: Deploying History

River Sounding's institutional presentation, in its handout map (Figures 4.1 and 4.2), published catalogue (Blackson et al, 2010) and website,[4] branded the artwork with the phrase 'returns the river to the building'. The phrase was echoed across all branded promotional copy, still echoes through Bill Fontana's own website, through reviews,[5] and re-appears—though interestingly with less prominence and repetition—in the archived web presence of the installation as stewarded by Somerset House. This phrase centres the work's professed self-understanding for me as both a past viewer and as a researcher who has latterly carried out more research into the work than I would have chosen to do had I remained as 'viewer' only. The idea of 'return' foregrounds the building itself, as the physical embodiment of the institution and brand known as 'Somerset House', as more than a gallery setting for this installation; it is positioned as a co-constitutor of the work's meaning due to its claim to being the privileged site of a material history that is uniquely relevant to the concerns of the artwork.

The Thames did indeed previously 'inhabit' Somerset House in a limited way; when it was built in 1776–1801[6] it was designed to provide a splendid home for a number of government departments, particularly the Board of Admiralty (responsible for running the Navy) and the King's Bargemaster (an office of the royal household responsible for royal transport on the river). Access to the river was required for the King's Bargemaster, meaning the building was required to open directly on to the river. This arrangement persisted until the building of the Embankment in 1865–70 to provide for a new road directly beside the Thames, as well as sewers and an underground line. As Somerset House's account notes,

> the introduction of the Embankment had the effect of distancing the river from the buildings along its north bank, particularly significant for Somerset House, which had been designed to rise directly from the water. The new embankment truncated the elevation of Chambers' masterpiece; the Aberdeen granite base of the Embankment Building was concealed by the substructure for the road, the two Watergates were demoted to being entrances from the new raised carriageway, and the Great Arch with its two adjacent barge-houses became landlocked.[7]

The sense evoked here—'distancing', 'demoted', 'landlocked'—is negative and regretful at the change in the building and its character.[8]

The idea of 'return' in the institutional rhetoric of *River Sounding* functions both to justify the validity of the installation and to evoke a sense, if not of nostalgia, of a notion of belonging. The appeal to a historical justification functions to make the artistic proposition 'safe'; what I was presented with as a visitor was not flood, destruction, damage, a catastrophic incursion of the river into a protected and important space, potentially making connections to climate change and an attendant politics of the future, all of which might be concepts that I would otherwise have associated with the idea of a river's presence in the lower level of a building. Not catastrophe, then, nor future, but history was foregrounded as the appropriate interpretative context for the work.

I read the rhetoric of returning the river to the building in connection with the installation's construction of an abstraction of the River Thames. Its history is deployed here in a context of promoting Somerset House as a cultural hub. This 'activation' of a discourse of history contributes to concretising and stabilising the abstract category 'Thames' as one coherent entity that has demonstrable continuity through time and social and political life in the city—particularly through its geography.[9] I read this call on history, both in the rhetoric and in the

work itself, as calling on an earlier instantiation of the specific abstract category 'Thames'. The moment of the construction of the Embankment marks the point at which the river and building were divided, and the prior moment to which *River Sounding* 'returns', then, is a loose period 'before' the Embankment, which is not specified by the installation or its commentaries.

Therefore, as I experienced *River Sounding* it was with this loose periodising factor in mind; some time before the construction of the Embankment, the river took a different form in which it flowed into Somerset House. However, Fontana and the exhibition materials are also explicit that it is not the complete Thames that is being invoked by *River Sounding* but only its tidal extent, which ends at Teddington Lock in Ham in the suburbs of west London.[10]

The first lock at Teddington was constructed in 1810 and open in 1811, and in the present day the name 'Teddington Lock' denotes an arrangement of three locks, each constructed at different times, a second in 1857 and a third in 1904.[11] At the time of the Embankment's construction, then, a lock had been in existence at Teddington for just over fifty years and two locks there for seven years. Therefore, we may periodise the abstraction at hand, and state that the Thames in its present-day state of mediation through engineering, with the reach of its tides stopped at Teddington, has existed since 1810.

What is being addressed by the artwork is therefore not an all-encompassing, unhistoried idea of 'the Thames' but a particularised Thames, specified both spatially and temporally. It extends from Teddington in the west to the Estuary and the North Sea in the east spatially and from 1810 to the instantiation of *River Sounding* in 2010 temporally. The deployment, or activation, of 'history' as an interpretative context for the work therefore emerges from the work's premise of reinstantiating a past form of the River Thames.

Sonic Mapping, Spatial Sound and Signification in *River Sounding*

As we saw, a second critical theme of signification emerges from the foregoing consideration of *River Sounding*. I argue that a mode of signification is in play, connecting the visual and the aural registers of *River Sounding* and mediating the viewer-listener's conceptualisation of the river as the object of the artwork. More than a simplistic 'restorative' or counter-hegemonic move is performed in *River Sounding*'s acoustic approach to instantiating the Thames within the installation spaces of Somerset House. The aural register does not supplant the visual register but rather supplements it. The 'soundscape' of *River Sounding* is integral to its spatial and visual modes of signification. Through all three, sound, space and visuality, the river is re-spatialised within the new context of the installation space. As Denis Wood has argued,

> [m]aps are about relationships. In other words, they are about how one landscape—a landscape of roads, rivers, cities, government, sustenance, poison, the good life, [. . .]—is positioned in relation to another. The map synthesizes these diverse landscapes, projecting them onto and into one another.
>
> (Wood, 2010, p. 98)

This projective and active capacity of cartographic depiction may also be seen in *River Sounding*'s more literal projection of aural and visual recordings into the installation space. Through both aural and visual registers, the river is rendered in the form of projected images and sounds, which come to stand for the abstraction of the river. Here I interpret this mode of signification in cartographic terms, because the re-spatialisation of the Thames is carried out in part through the cartographic positioning of the viewer in relation to the geography of the Thames.

Bill Fontana has proposed that *River Sounding* presents a form of sonic mapping,[12] in which sounds take on the symbolic role that cartography typically assigns to visual marks appearing in the map image. While I agree with the notion that a form of sonic mapping is in play in the artwork, I disagree with Fontana's suggestion that this mapping is of the lightwells themselves. Instead, I will argue that the artist carries out a process of sound recording that may be read as analogous to cartographic processes of surveying. The resulting sounds are re-presented

in the installation space as a soundscape that, I will show, enacts a dual particularising and de-particularising tendency in terms of the relationships between sounds and some of their visual referents in the video projections. While sound functions cartographically in *River Sounding*, I see this functioning as engaging processes of cartographic abstraction while not producing something that can be understood as a map. To draw out this argument I turn to Denis Wood and John Fels's exemplary close reading of the depiction of nature in print maps, later in this chapter. First, I consider the artwork's official rhetoric of the 'return of the river', discussed earlier, in connection with *River Sounding*'s 'return' of the aural dimension to the cartographic abstraction of the Thames as it is figured in Fontana's work. I therefore consider how this aural dimension, or soundscape, is produced both through recording practices and through published commentary on those practices.

Constituting the Soundscape

The sounds that constitute the aural dimension of the installation were themselves made through a range of technological mediations orchestrated by the artist (and his team). Using video, hydrophones, ambient microphone (including live feed in some cases), shotgun microphone and accelerometer, sounds were recorded at Teddington Lock, Richmond Lock, Kew Bridge Steam Museum, Somerset House, Millennium Bridge, HMS Belfast, Tower Bridge, the National Maritime Museum, the Thames Barrier, Southend Pier and two locations of buoys in the Thames Estuary (Blackson et al, 2010, pp. 16–17). The processes involved in producing the sounds that form part of the installation are characterised by more than one writer in the artwork's catalogue essays as having been neutral means of 'transferring' sounds from their source location to the location of *River Sounding*. Sounds were 'collected', 'heard', 'offered up', 'harvested' (ibid, p. 36), 'assembled' (ibid, p. 3) yet also 'captured', and the Kew Bridge Steam Museum and National Maritime Museum are figured as having the potential to 'yield' interesting sounds.

The process of recording using accelerometers is also characterised as one of revelation rather than construction, of revealing something already in existence: "In *River Sounding* [accelerometers] have been used to listen in to and record the sounds *hidden* within architectural structures" (Whitelaw in Blackson et al, 2010, p. 36, emphasis added). This vocabulary is echoed in the promotional poster for *River Sounding* (Figure 4.10), which describes the experience available within the installation as a "journey through the *hidden* sound worlds of the River Thames" (emphasis mine).

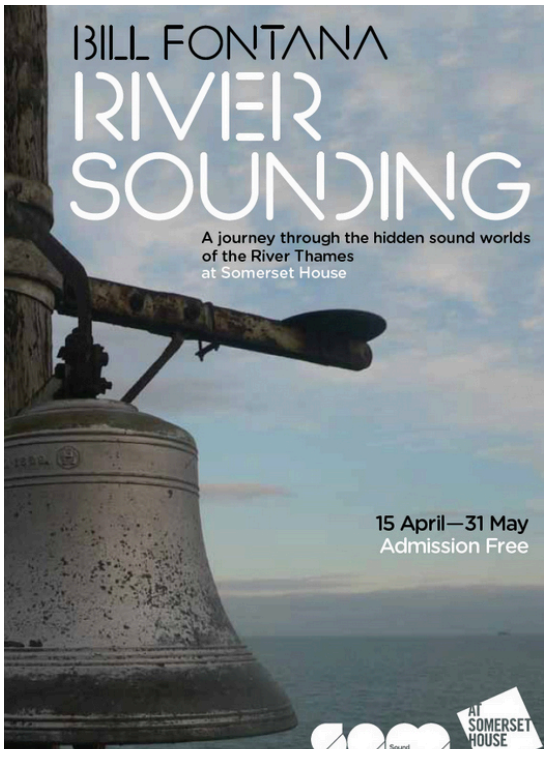

Figure 4.10 Promotional poster for *River Sounding*

Source: Bill Fontana & Artworklove

I note these linguistic choices as they offer a suggestive comparison between the practice of the surveyor and the practice of the sound artist accompanied by technicians. The sounds that are chosen for examination by the artist are figured in the artwork's discourse as pre-existing their neutral representation through technological means that merely make available to the interested viewer-listener sounds of which they were previously insensible.

As with the dual process of (non-critical, or conventional) cartography, first surveying then subsequently 'representing', the artist here proposes a comparable dual process of surveying (recording) and subsequently representing the data (presenting the recordings in the installation in a finished form). The step in this procedure that critical cartography has emphatically pointed out is the selection made by the 'cartographer'. Here 'cartographer' indicates not necessarily a lone, artistic individual who may be understood as analogous to the 'author' or the 'artist' but the larger constellation of persons, institutions, practices and entities that, in combination, produce the map object.

In this broader sense, then, the selection made by the artist-cartographer is not a free choice made by a self-determining subject but an interested choice made by a combination of parties to the endeavour. The form in which the commission was offered to Fontana in this case may be read as the initial moment in *River Sounding*'s process of selection; Fontana was specifically directed to attend to the historical relationship between Somerset House and the Thames. The artist, like the cartographer or surveyor, has a particular interest or agenda. I argue that in the selection process, Fontana (or the Fontana-led artist-constellation perhaps) has constituted a personal 'Thames' through attending to a careful selection of means by which the form and use of the river has been altered through mechanical or structural intervention.

A brief review of the recording locations of *River Sounding* makes clear the human-made character of Fontana's selections. This is particularly relevant as the viewer's attention is explicitly drawn to the map of recorded locations incorporated in the handout map (Figures 4.1 and 4.2) as well as the exhibition catalogue. These emphasise each location as specifically the technological mediation that is present there rather than the location or geographical form being prior and the form of mediation being incidentally at the same location.

The information about recording locations is provided to the viewer as part of the experience of *River Sounding* and informs the interpretation that may be made of the sounds as they are heard, sounds that, in themselves, will not signify their specific location or nature to most viewer-listeners. I return to this in what follows; but first note some of the significances of the recorded locations. Teddington Lock delimits the tidal extent of the Thames, marking a significant division of the river that coincides with its location in the western suburbs of London; the lock itself enhances the navigability of the river, marking off 'London's' river as against the 'Home Counties' river as it continues westward. The London Museum of Water & Steam (formerly Kew Bridge Steam Museum) houses a collection of historic steam turbines that furnished Fontana with "amazing mechanical rhythms and textures" (Blackson et al 2010, p. 15); this museum forwards a situated history of the use of the river as a source of water for the population of London and its industry, beginning from the construction of the original pumping station in 1820.

The Somerset House clock is heard in *River Sounding* by means of a live feed and connects to the recordings of the Harrison chronometers made at the National Maritime Museum. Both recordings cite a history of the Thames as a central location in the development of cartography and the expansion of global capital through the functioning of the Board of Admiralty, referenced by the Somerset House clock, and the state-sponsored project to create the means of finding longitude at sea (achieved by John Harrison's marine chronometers), which was so fundamental to the development of maritime navigation in the latter part of the nineteenth century.

Millennium Bridge and Tower Bridge afford 'navigation' in a further sense, of persons and land-going traffic, and their selection as locations again draws a particular history into the artwork, with Tower Bridge having been constructed from 1844[13] largely in response to the needs of capital in the form of the London docks and Millennium Bridge developed from the late 1990s in response to more 'cultural' needs.[14]

Recordings made at *HMS Belfast* further cite the naval history of the Thames, referring to the Second World War and associated discourses of Britain as a naval power lasting into the twentieth century.[15] The Thames Barrier at Woolwich Reach has been operational since 1982, and recordings made in the service tunnel of the structure cite further histories of flood management and the needs of commercial capital to be protected from the dangers of the very hydrological system that formed one of the conditions of possibility of the city itself—the River Thames.[16]

Recordings made at Southend Pier invoke a history of the Thames as a site of tourism, particularly for nineteenth-century Londoners for whom Southend was a resort destination; the pier both forms and marks this history, with its first instantiation in wood open from 1830 and its latter form in iron open from 1887,[17] this being the form encountered by Fontana.

Lastly, recordings of the bell buoy and whistle buoy call upon a history of navigating in the Thames and the North Sea, largely for commercial and industrial purposes, and all 'navigational aids' in the Thames are managed by Trinity House, established in 1514 by Royal Charter, having been petitioned for by the shipping industry.[18] Each recording location, then, is the location of a particular form of technological mediation of the physical river, and the form of mediation engaged with at each location registers particular histories of the uses of the river and particular ways in which the river has been rendered as a useful and a knowable entity.

I have indicated these larger histories and narratives that are referred to by the recordings and the maps deployed as part of *River Sounding* to sketch the larger problem of *what* may be understood as being signified by these sounds. I argue that the sounds available to the viewer-listener continue to function in their indexical relation to their original sources; that is, the sound of a whistle that I heard and followed through the light wells of Somerset House continues to be an index of the sound made by the whistle buoy at 51.535573, 0.911865[19] on the particular day in February 2010 on which Fontana, sound engineer Scott George and producer Richard Whitelaw stepped aboard the Trinity House ship *T.H.V. Alert* at Harwich, Essex, to search for sounding buoys in the Thames Estuary. As Whitelaw describes,

> on a foggy day we travelled out on a maintenance vessel and after some hours we came across these beautiful and lonely sounds. Here, at the most remote location visited, the calling and rhythm of the buoys rose and fell with the waves. The rich breathy quality of their tones was made more poignant by their isolation and continuous unanswered beckoning into the grey void.
>
> (Fontana in Blackson et al 2010, p. 40)

Prior to having read this account by Whitelaw, I too felt myself to be drawn onward through the light wells to reach the 'source' of this mournful sound. The place at which I felt myself to have 'arrived' at this source, mentioned earlier, is indicated on the handout map as "5 Coal Hole/Whistle Buoy/Thames Estuary" (Figure 4.2). In this light well was housed the video projection of the recording made of the whistle buoy (Figure 4.9), and so at that moment of viewing, the sonic index of the whistle buoy was brought into and encountered in the same spatial location as its photographic index.

As Brandon LaBelle has noted, sounds may become symbolic when "divorced from their geographic particulars and corporeal referents" (2006, p. 231), and this process of dislocation is part of the complex of significatory processes at work in *River Sounding*. Throughout the installation, the "sonic choreography" (Fontana in Blackson et al, 2010, p. 14) is fluid, with sounds heard throughout all parts of the light wells, coal holes and Dead House, usually without the presence of their visual referent in the form of video projections. At particular moments of experience in the installation, the visual and the sonic coincided.

Soundscape and Cartographic Signification

I want to show that the formation of the soundscape in *River Sounding* follows a process of cartographic abstraction that may be productively analysed through comparison with the visual

process of cartographic signification put forward by Denis Wood and John Fels. It is their investigation of how symbolism and signification function in cartographic depiction that I draw on here and relate to *River Sounding*'s constitution of its cartographic object—the tidal, engineered Thames. Wood and Fels argue that

> The map is a highly complex supersign, a sign composed of lesser signs, or, more accurately, a synthesis of signs; and these are supersigns in their own right, systems of signs of more specific or individual function. It's not that the map conveys meanings so much as unfolds them through a cycle of interpretation in which it is continually torn down and rebuilt; [. . .] this is not really the map's work but that of its user, who creates a wealth of meaning by selecting and subdividing, combining and recombining its terms in an effort to comprehend.
>
> (Wood and Fels, 1992, p. 132)

Wood and Fels articulate a theory of cartographic signification[20] that attempts to accommodate and explain how cartographic meaning is generated at both the level of the individual who reads and interprets the map and the level of the conventional and social construction of cartographic signs. In order to develop this account, four constitutive levels of intermediate signification are identified, embracing the most 'basic' level through to the most complex. As Wood and Fels write,

> If we intend to explain how the map generates and structures the signing processes by virtue of which it is a map, then we need at least four strata or levels of signification: the *elemental*, the *systemic*, the *synthetic*, and the *presentational*.
>
> (1992, p. 133, emphasis in original)

The elemental level of the cartographic sign is the level of the simplest complete sign, which denotes a 'distinct geographic entity' (ibid). Wood and Fels offer the problematic suggestion that we may understand distinct geographic entities to be 'features', whether they are concrete or abstract. He does acknowledge that a firm identification of 'features' presents some difficulty: "this criterion is easily confused [. . .] The elemental map sign operates at the lower bound of the map's content taxonomy, and below this bound reside connotation and characteristic but nothing that can be construed as feature" (ibid, p. 134). What comes to be designated as 'feature' depends on social assent and convention: "*features only exist when we recognize them as such*" (ibid, p. 137, emphasis in original). Wood and Fels caution that attempting to find a strict compatibility with linguistic theories of signification can be problematic when dealing with the ways in which graphic elements are able to signify in the map, and this is an ambiguity that I return to later in relation to *River Sounding*. The 'feature' is specified more clearly in *The Natures of Maps* (2008), whereby "[a]t the *elemental* level, individual graphic marks within the map denote specific instances or occurrences of preformed conceptual types: a road or highway, river or stream" (2008, pp. 172–173, emphasis in original).

At the systemic level of signification, elemental signs agglomerate into 'supersigns' which are "composed of similar elements, forming systems of features and corresponding systems of marks" (1992, p. 133). For example, a system of isolines that is deployed across the whole map image or a network of city symbols, so that each individual isoline and each individual black dot (for example) need not be decoded individually but read as a class of signs all describing the same category of features.

The synthetic level is the level at which systems of signs interact and form meaning in relation to one another rather than only in relation to their own constituent signs. This is the level at which, for example, a river system is signified in relation to a road system and a

mountain system to form a coherent set of systems that "offer meaning to one another" (ibid, p. 133) in the context of a complete cartographic image.

The presentational level addresses the cartographic image's multiple relationships to its context, whether in terms of contextual images and text on the page of an atlas, on a smartphone screen, "perspex-slabbed shopping center guides [. . .] or place mats for formica diner tables. Presentation is more than placing the map image in the context of other signs; it's placing the map in the context of its audience" (ibid, p. 141). At this level, the map is 'injected into its culture' (ibid, p. 142) and engages in complex social processes of signification and meaning production. It is important to note that Wood and Fels do not position this taxonomy of signification as fixed "stages in a sequential process, which, set in motion, moves inexorably toward a condition of greatest or least integration [. . .] These interpretative levels are *simultaneous states*" (ibid, p. 133). All stages may be accessed and interpreted by the map viewer.

In their discussion of 'Nature as system',[21] Wood and Fels consider how the abstraction 'nature' comes to be posited and constructed through maps. To this end, they give a close reading of three maps dealing with—ostensibly—the same cartographic object, the US state of North Carolina. In this context, Wood and Fels develop the theory of signification, briefly outlined here, into an analytical framework of 'cognitive cartographics' to more fully theorise the capacity of maps to make 'postings', or assertions, in the visual code of the map image. The factual claims made in this way rely on intricate processes of prior categorisation and generalisation that are not made evident in the resulting image.

The North Carolina maps posit the stable category of 'North Carolina' as their object of inquiry, and in the same way, a stable category of 'Thames' is posited in *River Sounding*. Working within this category, a further specification is made in terms of the map's interest; an example from Wood and Fels's analysis is soil types. Reading the 'General Soil Map of North Carolina', a series of coloured areas indicate distinguishable geographic areas of soil types:

> The soil polygons themselves appear in the legend as sixty-six entries, organized by province and accordingly grouped into families of like colours. Each entry represents a 'soil association' [. . .] Within each provincial grouping of soil associations, these are further grouped based on general soil characteristics and topographic setting, with anywhere from one to eighteen in each of these subgroupings.
>
> (2008, p. 170)

In this case, the level of this intricate process of categorisation of soils that finds expression in the cartographic image is primarily the soil association. Such detailed modes of generalisation are fundamental for cartographic depiction.

Further, "maps like the geologic map or soils map illustrate the systematic deconstruction of the natural world into recognizable and identifiable elements that can be spatialized as cartographic postings of relatively certain location and extent" (2008, p. 172). A posting, in Wood's terminology, is a claim, proposition or assertion about what is depicted in the map. "What transforms a proposition into a posting is its expression *in the sign plane of the map*" (Wood et al, 2010, p. 53, emphasis in original). The significance of this idea of 'postings' is that this offers a framework for understanding how the object of the cartographic image finds depiction in the image. The claim of a posting is that an entity, or 'feature', exists in a particular spatial relationship to other features. It is both specifying and delimiting, asserting where the feature is and is not found in the terrain that corresponds to the cartographic image.

The level of detail available in this analysis is useful for my purposes in this chapter, because where Wood and Fels describe a process of cartographic signification, this analysis informs my interpretation of *River Sounding* as producing an altered, spatialised form that engages with cartographic signification.

I argue that the sound and video recordings, then, continue to index their original locations and circumstances, the specificity of what could be recorded on a particular day, in particular

weather, at a particular time. Regardless of the amount of information informing the visitor's interpretation in the installation, these indexical relationships existed but did not form part of my perception and interpretation while experiencing the installation. In the installation the 'sonic choreography' functions to detach the sound-signifiers from their original, particular signifieds and to re-assign them to a broader yet still particular signified, thus coming to symbolise a particular abstraction *of*, or *from*, the Thames; Fontana's selection and construction of a technologically mediated and delimited river. It is in this way that Fontana has performed the cartographer's role of determining the object to be rendered in the map image, as Wood and Fels describe. While understanding 'itself' to be a sonic sculpture rather than primarily a cartographic artwork, *River Sounding* re-performs that modality of cartographic abstraction through which a particular abstraction of place is formed.

In this way, the 'soundscape' of *River Sounding* signifies the particular abstraction of 'the Thames' that finds depiction in the work as a whole. While moments of synchronicity between the visual referent and the recorded sound do occur, considered discretely, the aural register of *River Sounding* presents a de-particularised range of sounds to the visitor. In contrast, the particularity of the locations depicted in the visual register of the work is secured and reiterated through the inclusion of place names in the handout map. The visual register is therefore tied to particularity in a way that the aural register is not.

A mode of symbolism operates between and among the visual and the aural registers of *River Sounding* and their relationship to the viewer-listener's conceptualisation of the river as the subject of the artwork. I seek to interpret this mode of symbolism in cartographic terms in order to elaborate a theorisation of the cartographic positioning of the viewer in relation to the Thames in *River Sounding*. I now turn to consideration of the 'immersive'[22] character of viewing in this work and the role of the soundscape.

Immersive Installation Viewing

In this chapter, I seek to move beyond the trope of the viewpoint and of cartographic *viewing* to explore how sound may be understood to function cartographically. *River Sounding* offers the opportunity to consider this question because of the complex interaction it stages between a visual re-spatialisation (of the river) and a sonic re-spatialisation. With this concern in mind, I read this immersive 'sound sculpture' in cartographic terms, although to do so is to read it somewhat askance or against its genre. *River Sounding* was not explicitly positioned, in its manner of presentation, in terms of mapping or cartographic practices; despite presenting the viewer with a handout map with which to navigate the relevant spaces, a cartographic approach to the representation or evocation of spatial experience was not articulated by the official presentation of the work. However, I have suggested two key ways in which it may be productive to consider the processes at work in *River Sounding* in terms of cartographic abstraction. The first, discussed earlier, is the way in which cartographic signification is performed in the work but through recorded sound rather than graphic depiction. Second, to which I now turn, is the way in which *River Sounding* performs a re-spatialisation of the Thames into the installation space. It carries out a re-spatialising, or a spatial rendering, of the river by creating a 'soundscape' of the Thames within the spaces of the lightwells.

I argue that *River Sounding* instantiates an 'immersive' viewing experience of the abstraction of the Thames. The visitor is positioned metaphorically within the space of the 'returned' river, both aurally and visually. The visitor is also positioned immersively in a cartographic sense; the perceived space of the light wells is mapped for the viewer, and so, simultaneously, is the abstract cartographic space of the Thames (most notably in the use of place names to label the coal holes). The visitor is 'immersed' within the abstraction that, following Brandon LaBelle, I am calling the 'soundscape'.

In the terminology that has developed to analyse and theorise sound art and creative and experimental approaches to sound as a mode of artistic practice,

> 'Soundscape' refers to environmental sound as found in given places and at given times. As Paul Rodaway describes: "The soundscape is the sonic environment which surrounds the sentient. The hearer, or

> listener, is at the center of the soundscape. It is a context, it surrounds and it generally consists of many sounds coming from different directions and of differing characteristics . . . Soundscapes surround and unfold in complex symphonies or cacophonies of sound." [. . .] the soundscape is that which exists and of which we are a part, as noisemakers, as listeners, as participants.
>
> (LaBelle, 2006, p. 201)

I take up this active, participative approach to understanding the sonic environment in the context of *River Sounding*. Here, the continual interplay of listening to the aural register of the installation and moving through it, making choices as to where to look and to move, surrounds the visitor in the particular soundscape of *River Sounding*. LaBelle further characterises the soundscape as "all sounds that flow and get carried along in the full body of the sound spectrum, from above and below audibility" (ibid, p. 202). This approach figures the soundscape as a substantial, physical entity that has existence outwith the human subject. By acknowledging the involvement of sounds not usually audible to the participant, the soundscape is understood as independent of the subject, as possessing a degree of autonomy from the perceptual processes of the listener. LaBelle describes an emphasis on drawing out or extrapolating sounds from their place of origin:

> [w]hat these artists and approaches underscore is the proximate and the local: found sounds mirrored back to their origin, *local sonics amplified through architectural construction*, a listening to what is immediately surrounding, in public and private spaces.
>
> (ibid, p. 197, emphasis added)

In my reading of *River Sounding*, the 'local sonics' that are 'amplified through architectural construction' here describe the sounds that Fontana renders through sound recording techniques. In the context of 'acoustic ecology', "environmental sound, or what acoustic ecology has deemed the 'soundscape'" (ibid, p. 197) offers the opportunity to connect the experiencing subject with the 'world' of sound much more broadly. Indeed, LaBelle argues that attending to sound as energy, in the context of the soundscape, enables the listener to connect their experience with "the earthly whole" (ibid, p. 192). Rather than the—notably cartographic—abstraction of the earth as a whole, I argue that what the listener is 'connected' to is the abstract 'sound world' of the Thames. The sounds experienced by the visitor to *River Sounding* contribute to the constitution of a discrete, abstract entity—the cartographic abstraction of the Thames.

LaBelle differentiates further between 'installation' and 'acoustic ecology':

> Whereas sound installation [. . .] works with locational sound as a bounded geographic space, acoustic ecology situates local sound in relation to the ecology of the planet, and the presence of a single sound is understood to activate the entire field of sound [. . .] to listen to a sound is to listen to the entire body of the sound world in microdetail.
>
> (ibid, p. 197)

On this description, I would identify *River Sounding* as a sound installation rather than an acoustic ecology or an approach to experiencing acoustic ecology. It works with creating sounds that come to symbolise 'a bounded geographical space', that of the tidal and engineered Thames. Rather than connecting the listener with a concept or experience of the world as a whole, I argue that, as *River Sounding* is an installation, the soundscape of the work involves or immerses the visitor in the cartographic abstraction of the Thames that is at stake in the work itself. This is a much more delimited reading than that suggested by LaBelle's characterisation of acoustic ecology. For LaBelle, acoustic ecology is concerned with

> an aesthetic experience in which listening, environmental awareness, and global relations come into play. Thus, composition becomes a form of research conveying cartographic routes in and through relations to place.
>
> (ibid, p. 198)

In the specific context of *River Sounding*, I suggest that global relations do come into play, though these relations are cartographic and socio-political rather than 'global' in LaBelle's sense of giving access to a world imaginary. We can see this in the work's selection of sites for recording, which favour human interventions in the river as the 'terrain' to be 'surveyed' by means of sound recording technologies. Thus, the immediate environment of Tower Bridge, the Millennium Bridge, Teddington Lock and the whistle buoy in the estuary are what is evoked through the soundscape in *River Sounding*. This delimited soundscape, existing only within the spaces of the installation, is a re-spatialised and miniaturised form of the Thames.

Indeed, as LaBelle argues,

> these sounds [of acoustic ecology's artistic and musical works] are given weight by their continual referral to the actual site of their origin: the streets of Vancouver, the flows of the Hudson River, or the array of bird calls taking place in the deserts of the American Southwest make apparent an artistic practice taking place, out there in the fields and deserts, on the city streets, and in the forests, while being transformed, through the particulars of an artistic practice, into cultural objects.
>
> (ibid, p. 198)

Both the soundscape and the visual register of *River Sounding* are 'transformed', through Fontana's artistic practice, 'into cultural objects'. I therefore affirm LaBelle's understanding of 'place-based sound' as an 'opportunity' "to situate a listener within an intensification of immediate experience that expands beyond a point of focus to an environmental situation" (ibid, p. 197). I differ with his interpretation in seeing the 'environmental situation' that the listener is imbricated with as being a delimited cartographic abstraction rather than a higher-level abstraction of a global whole.

LaBelle's work is helpful in identifying Bill Fontana's oeuvre as an important exploration of 'place-based sound' with a particular emphasis on technological mediation:

> Focussing on the work of Fontana will allow for considering soundscape composition that works with the given interferences of technologies and the dislocation of place-based sound. Fontana harnesses soundscape composition's contradictory tendencies by making complex musical systems that keep place alive even while transposing it onto extremely distant locations.
>
> (ibid, p. 199)

He sees soundscape composition as having 'contradictory tendencies' due to the mediating processes of representation. "The recording of place often leads to contrary results, for to bring place to life one has to contend with the interferences of its very representation, mediation, and ultimate dislocation" (ibid, p. 199). I take issue with this interpretation as to what is happening in Fontana's work, and particularly in *River Sounding*. LaBelle figures place here as both something that one may 'bring to life' and something that is 'kept alive' in Fontana's work, within the same page. Place is incoherently theorised as at once inanimate or dead and living.

My interpretation of *River Sounding* is more in accord with the notion of 'bringing to life', in terms of seeing cartographic abstraction as generative and productive, in contrast to the notion of an essential 'liveness' being preserved and re-presented in the artwork. Far from keeping

the River Thames ‘alive’ while ‘transposing’ it into the alternative location of Somerset House, I argue that in *River Sounding* Fontana creates a further abstraction of the river through the representational registers of sound recording and photography. This abstraction is a new entity rather than a transfer of something that exists innately within the river. The ‘transposing’ involved is a re-spatialisation of the Thames into the built environment of the lightwells, forming a new abstract space in which the viewer is perceptually immersed.

As LaBelle asks, “in what way does sound inform me of my sense of location, as an immediate and distant geography? And how does such relation form the basis for an artistic project?” (ibid, p. 199). I suggest that in *River Sounding*, the visitor is positioned within the ‘immediate geography’ of the light wells, coal holes and Dead House and simultaneously within the ‘distant geography’ of the tidal Thames. In this way, the experience of encountering the artwork involves becoming ‘informed’ of two senses of location at once, in the built environment and the sonic environment.

I have argued, then, for taking up LaBelle’s term ‘soundscape’ to articulate the sound environment that is presented in *River Sounding*. The installation instantiates an immersive viewing experience of the Thames. The visitor is positioned spatially within the abstract ‘returned’ river in terms of both the built and the sonic environment. The visitor is also positioned immersively in a cartographic sense; the perceived space of the light wells is mapped for the viewer and so, simultaneously, is the abstract cartographic space of the Thames (most notably in the use of place names to label the coal holes). The visitor is ‘immersed’ within the abstraction of the ‘soundscape’, which performs a new mapping of the spaces of the Thames *into* the spaces of the installation.

While I have suggested that the trope of the cartographic viewpoint is *not* precisely the way that cartographic abstraction is in play in this artwork, viewing continues to be an important factor, as the visual register of *River Sounding* is experienced simultaneously with the soundscape. The viewer-listener is positioned cartographically in the work but through being positioned *within* the cartographic space rather than viewing from conceptually *above* the cartographic space as we saw with the cartographic modes of viewing discussed in the foregoing chapters. Deploying modes of both visual and sonic symbolism and elaborating a depiction of a delimited geographical object, *River Sounding* positions the viewer within the space of the lightwells and of the cartographic abstraction of the river. I see this positioning as a mode of inhabitation of the cartographic space in contrast to the other forms of cartographic viewing I have considered, which position the viewer outside and conceptually above the viewed space (including, for example, in the case of *Targets* as discussed in Chapter 1).

In terms of the cartographic re-spatialising of the Thames within the installation, I have identified the handout map as a central means through which *River Sounding* proposes itself to be a transposition of a delimited section of the Thames into the representational space of the artwork. In the map, numbers are assigned to recording locations, such that location 3, Millennium Bridge, appears in the main light well as well as the Dead House, as does location 4, Tower Bridge. A loose spatial ordering of the recording locations is evident in the two coal holes labelled ‘1’ corresponding to Teddington Lock and location 5 corresponding to the most easterly recording location, the Thames Estuary whistle buoy. The coal holes and projections evoking Millennium Bridge, Tower Bridge and Richmond Lock are spatially distributed in between these two extremities, though their distribution in relation to one another does not correspond to a linear ordering. Their numbering does, however. Location 2, Richmond Lock, is downstream of Teddington Lock, and location 3, Millennium Bridge, is the next chosen point to the east of Richmond Lock. Tower Bridge follows, and, as mentioned, location 5 is the most easterly geographical location as well as the farthest part of the installation from the coal holes numbered ‘1’.

Therefore, the viewer-listener cannot directly map their own position within the light wells onto the geographical space of the Thames other than at the named and numbered locations marked on the handout map. In this way, areas of the installation are ‘anchored’ to areas of the Thames, while between these specified areas a more de-particularised space of the Thames is in play—for example, in moments of walking away from one video projection and before the next comes into view, yet the soundscape is still fully ‘active’ for the viewer-listener.

The particularity of the viewer-listener's position within the installation shifts from close correspondence to looser correspondence with the geographical space of the river. Moments of close correspondence between the position of the viewer-listener and the location evoked through the combination of map, video projection and soundscape punctuate the visitor's experience. These moments present a convergence between the soundscape and the visual mode of re-spatialisation in *River Sounding*.

I have focussed on the connections between the spatial, visual and sonic registers of the depiction of the River Thames in *River Sounding*, attending to the distinctively cartographic positioning of the viewer in relation to the mapped object, or place, in this artwork.

To sum up then, in this chapter I have advanced an interpretation of how the critical framework of cartographic viewing may be developed in relation to a sound-based artwork. Although *River Sounding* remains an artwork in which the visual experience of the visitor is highly significant, the soundscape that it stages offers an opportunity to explore the interplay of sonic and visual registers that depict their object in different ways. I have argued for interpreting some of these ways as cartographic.

Initially discussing the theme of the 'return of the river' that was put forward in institutional copy characterising the installation, I argued that a particular, historied rendering of the Thames is at stake in *River Sounding.* Before considering the ways in which the cartographic object of the Thames is re-spatialised in the work, I argued that *what* was to be re-spatialised was a particular abstraction based around moments at which the river is engineered, bridged, altered and delimited. We saw this particularly with reference to the work's taking Teddington Lock as the western boundary of the particular 'Thames' in question, as the site of the engineered limits of the Thames's tides. We saw that what is evoked, in this historical register, is a temporally and spatially delimited abstraction of the Thames drawn from 'surveying' key locations of mechanical and architectural intervention along the tidal length of the river.

Second, I argued for reading the sonic register of the installation as continuing an indexical relationship with the source locations of the audio recordings. I offered an interpretation of *River Sounding* in terms of its presentation of a 'soundscape' of the Thames. This soundscape itself has a complex and shifting relationship with the visual register of representation in the work. Through both registers, the visitor is positioned as 'immersed' within a soundscape and within a cartographically constructed conceptual space. I interpret this as a form of inhabitation that emerges in *River Sounding*.

[1] Image captions left to right: 51.431618,-0.323968 / Teddington Lock / Video, Hydrophone, Ambient Microphone; 51.462029,-0.316715 / Richmond Lock / Video, Hydrophone, Ambient Microphone; 51.488973,-0.289764 / Kew Bridge Steam Museum / Video, Ambient Microphone, Accelerometer, Hydrophone; 51.505484,-0.075102 / Somerset House Clock / Live Feed (Ambient Microphone); 51.506525,-0.081754 / Millennium Bridge / Video, Accelerometer; 51.506525,-0.081754 / HMS Belfast / Video, Accelerometer, Ambient Microphone; 51.505484,-0.075102 / Tower Bridge / Video, Accelerometer; 51.480848,-0.005665 / National Maritime Museum / Accelerometer, Ambient Microphone; 51.495813,0.037079 / Thames Barrier / Video, Hydrophone, Ambient Microphone; 51.514618,0.722179 / Southend Pier / Video, Ambient Microphone; 51.535573,0.911865 / Bell Buoy (Thames Estuary) / Shotgun Microphone, Video; 51.535573,0.911865 / Whistle Buoy (Thames Estuary) / Shotgun Microphone, Video.

[2] It is important to note the simultaneity of the sounds of the installation, which are experienced as overlapping and continuous, in contrast to the visual emphasis of cartography on delimiting, defining and bounding spaces in a way that is not possible in relation to sounds.

[3] The Kew Bridge Steam Museum was refurbished and rebranded in 2014 and is now known as the London Museum of Water & Steam.

[4] Available at www.somersethouse.org.uk/about/press/press-releases/bill-fontana-river-sounding, accessed 22 December 2014.

[5] Writing in the exhibition catalogue, Bill Fontana says that *River Sounding* "will return the river Thames into this building by creating an acoustic journey, that becomes an architectural one, in which the river again enters under the Great Arch and flows into areas of Somerset House that are at the same level as the Thames—the light wells" (2010, p. 14). Reviews of the work were generally very positive and accepted the institutional framing of the 'return of the river'. For example, Gramophone review, available at www.gramophone.co.uk/blog/the-gramophone-blog/listening-to-the-thames-bill-fontana%E2%80%99s-river-sounding "Fontana has returned the river to the building" accessed 22 December 2014; Frieze review www.frieze.com/shows/review/bill_fontana/ "The Thames […] returns to the building by means of sound." Accessed 22 December 2014; the curator Robert Blackson, also writing in the exhibition catalogue, suggests that "Fontana brings the Thames back to Somerset House" (2010, p. 26); Whitelaw in the catalogue cites "the reunification of river and building" (2010, p. 40).

[6] The original plan for Somerset House was completed in stages and with changes of architect. For Somerset House's own account of the history of the building see www.somersethouse.org.uk/history/since-the-18th-century, accessed 17 June 2017. The then-Director of the Somerset House Trust, Gwyn Miles, writing in the *River Sounding* exhibition catalogue, uses the dates 1785–1803 (2010, p. 5).

[7] Available at www.somersethouse.org.uk/history/since-the-18th-century, accessed 17 June 2017. Emphasis mine.

[8] Gwyn Miles, then-Director of the Somerset House Trust, writing in the *River Sounding* exhibition catalogue, also echoes the sense of the building of the Embankment as a loss for Somerset House: "Although this radical engineering project improved communications, transport and sanitation for the city, it cut Somerset House off from the river and compromised the waterfront design of the building" (2010, p. 6). This comment is in context with a narrative of Somerset House as a resurgent cultural centre, a narrative that foregrounds and celebrates Somerset House as an "architectural masterpiece" (ibid, p. 5) with a rich history. Miles emphasises the institutional concern with history in the commissioning of *River Sounding*: "We were delighted when Bill Fontana accepted our invitation to create a work in response to Somerset House's historic relationship with the river Thames. We are particularly pleased to be working with Sound and Music [the production company] to bring Bill's vision 'River Sounding' into the building where it belongs" (ibid, p. 6). Richard Whitelaw also characterises the artwork as "recreating a sound environment lost to the building in its orphaning from the river" (ibid, p. 45), a moment of division that he also figures as the 'driving' of a "concrete wedge between the Thames and a building specifically designed to afford direct access to the river" (ibid, p. 40).

[9] In this connection, William Raban's 'Thames Film' (1986) has contributed to the production of the notion of the Thames as a stable entity, able to both incorporate and transcend history. Re-shown as part of the Museum of London Docklands interesting but ultimately incoherent 2013 exhibition 'Estuary', Raban commented, "The appearance of the river has changed dramatically in the intervening twenty-seven years but *essentially the power of the river remains timeless* and will always be a rich source of inspiration for artists" (emphasis mine). Available at: www.museumoflondon.org.uk/corporate/press-media/press-releases/estuary/#sthash.ZDkUMzx7.dpuf accessed 16 May 2015.

[10] See Fontana, "from the Thames estuary to Teddington Lock" (Blackson et al, 2010, p. 14), and "from Teddington Lock down to the Estuary" (ibid, p. 15).

[11] See www.visitthames.co.uk/about-the-river/river-thames-locks/teddington-lock, accessed 17 June 2017.

[12] Fontana in Blackson et al, 2010, p. 14: "*River Sounding* is a hybrid sound sculpture that combines a large-scale *sonic mapping of the light wells* with a series of discrete video installations in various chambers off of these beautiful subterranean passages" (emphasis added). It is also worth considering the meaning of 'sounding' in relation to mapping. As well as meaning the emitting of sound, the term 'sounding' also carries the sense of 'investigating' and of ascertaining the depth of water by means of measuring line and lead, a process that also gives its name to the data obtained through measuring ('soundings') and parts of seas and rivers where it is

possible to reach the bottom using the lead (Onions, C.T. and Friedrichsen, G.W.S. (Eds.) 1978. *The shorter Oxford English dictionary*, 3rd ed. Clarendon Press, Oxford, p. 2056). This process of measurement and recording both depth and the materials forming the sea- or river-bed has also entered into place names (for example, Puget Sound, Washington, USA, or Lancaster Sound, Nunavut, Canada). In the context of Fontana's artwork, then, the title simultaneously evokes the river itself emitting sounds and the river being measured and charted by someone (the artist) who is investigating and recording it.

[13] See www.towerbridge.org.uk/bridge-history, accessed 17 June 2017, for the contemporary institutional presentation of Tower Bridge and its history.

[14] Details available at www.londonmillenniumbridge.com, accessed 17 June 2017. On a previous version of 'the bridge's' website, Arup Group Ltd characterises the bridge as specifically linking St Paul's Cathedral and the Tate Modern Gallery, two major cultural and tourist locations in central London.

[15] Details available at www.iwm.org.uk/visits/hms-belfast, accessed 17 June 2017. HMS Belfast is stewarded and presented to the public as a tourist attraction under the auspices of the Imperial War Museum.

[16] The Thames Barrier's distance from central London mitigates against its success as a tourist attraction, which is reflected in its dispersed web presence, at en.wikipedia.org/wiki/Thames_Barrier, www.environment-agency.gov.uk/homeandleisure/floods/117047.aspx and available at www.visitlondon.com/things-to-do/place/26941-thames-barrier-information-centre accessed 17 June 2017.

[17] Details available at en.wikipedia.org/wiki/Southend_Pier, accessed 17 June 2017.

[18] See www.trinityhouse.co.uk/th/about/detailed_history, accessed 17 June 2017.

[19] Blackson et al, 2010, p. 17 and handout map (Figures 4.1 and 4.2). The catalogue and handout map provide coordinates for each recording location.

[20] Wood and Fels's theory is laid out in detail in *The Power of Maps* (1992), chapter 5, 'The Interest Is Embodied in the Map in Signs and Myths'. The theory is elaborated in relation to his well-known close reading of the 1978–79 'Official State Highway Map of North Carolina' and draws on the semiotic theories of Ferdinand de Saussure, Roland Barthes, Umberto Eco and Eduard Imhof in particular.

[21] 'Nature as system' is chapter 9 of Wood and Fels, *The natures of maps: Cartographic constructions of the natural world* (University of Chicago Press, Chicago and London, 2008).

[22] I use the term 'immersive' here in its traditional sense of 'being surrounded by' rather than in the sense it has acquired in relation to being 'immersed' in a virtual reality environment.

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