Making Noise in *The Roaring Twenties*: Sound and Aural History on the Web

**EMILY THOMPSON**

**Abstract:** The Internet offers an unprecedented bounty of historic sound recordings, and the opportunity to listen in on the past has never been greater. But online sound archives also present new challenges. Public history websites must recover the meaning of sound as well as sound itself, and thereby engender a historicized mode of listening that tunes modern ears to the pitch of the past. *The Roaring Twenties* website attempts this via an interactive multimedia environment of sounds, images, and texts, recreating for its listeners the sonic culture of New York City circa 1929, a place and time defined by its din.

**Key words:** sound, noise, aural history, modernity, technology, New York City, 1920s

The web is often characterized as a visual technology, disseminating images and texts with unprecedented efficiency and thereby offering a powerful medium for the public presentation of historical scholarship, which is primarily composed of pictures and words. This medium, however, only seems so visually oriented because we bring to it our longstanding, visually oriented assumptions about what historical scholarship looks like. In deploying the web to share our histories with a wider audience, we would do well to think quite literally of the public as an “audience,” as people who listen. There is a wealth of sonic material with which to work; indeed, the web has already become a vast digital archive of historic sounds. With just a few keystrokes we can summon a seemingly endless array of formerly rare and physically fragile sound recordings, many dating back to the phonograph’s origins toward the
end of the nineteenth century. The challenge for public historians lies in discovering how best to present these recordings, in order to engender in our audience a historically meaningful listening experience.

Aural history is not simply about hearing the sounds of the past, but additionally understanding the meaning of those sounds to the people who originally heard them. Aural historians need to elicit the *soundscape* as well as the sound; the cultural landscape of listening as well as the physical vibrations of sonic energy in air. I believe that the key to conjuring this historicized mode of listening is *to contextualize* the sounds. By embedding the recordings within a rich network of corollary content, aural historians can immerse their audience in the world of the past, and thereby enable them to listen historically to the sounds of that past.¹

The web offers a powerful medium for constructing such a context or framework for listening, and in the essay that follows I discuss my own efforts to build a website dedicated to this contextual, historical way of listening. I outline the origins and aims of the project, and then elaborate upon the design and structure of the website, *The Roaring 'Twenties: An Interactive Exploration of the Historical Soundscape of New York City* (www.nycitynoise.com), which was published in October 2013. I then close by briefly considering its reception and sketching out my plans for its future. I do not argue that *The Roaring 'Twenties* constitutes the only or the best way to present aural history on the web. Instead, I offer it up as an example of this still-new form of public history, an example whose strengths and weaknesses may inform future projects by others.

**Origins And Aims**

When *The Roaring 'Twenties* was conceived in 2007, there were few existing models for web-based aural history. Historic sounds on the web were primarily located within online archives, digital repositories of recorded media that had begun to appear in the mid-1990s. These sites ranged from the wonderfully vast and chaotically disparate collection of audio files posted at the Internet Archive (founded 1996) to more focused and curated catalogues, such as the spoken poetry recordings made available at Ubuweb (also founded 1996), and the Cylinder Preservation and Digitization Project of the University of California, Santa Barbara, which gathers and digitizes early phonographic recordings and began posting them online in 2002.²

¹ Karin Bijsterveld characterizes this context as a “frame” when considering how best to deploy sounds within museum exhibits. See her essay in this issue, “Ears-on Exhibitions: Sound in the History Museum,” *The Public Historian* 37, no. 4 (November 2015): XX-XX.

² The audio content of the Internet Archive can be accessed at: https://archive.org/details/audio. The Ubuweb sound poetry collection is located at: http://www.ubu.com/sound/index.html. See http://cylinders.library.ucsb.edu/ for the Cylinder Preservation and Digitization Project of the University of California, Santa Barbara.
Library of Congress began the online aspect of its *American Memory* project in 1996. Here, some historical audio content has been contextualized alongside correlative images and written material and is sometimes framed via descriptive text, for example in the presentation of the 1939 Southern States Recording Trip of folk music collectors John and Ruby Lomax, which includes photographs and notebooks as well as field recordings.³

But these sites were—and remain—primarily archival resources. Although invaluable for offering up the raw material of aural history, historians must do more to present interpretive history on the web. My own entry into thinking about how the web might offer a space for the contextualization of sound recordings was prompted not so much by what these archival sites accomplished, but by what my published book, *The Soundscape of Modernity*, had failed to do.⁴ Indeed, the central ideas driving *The Roaring Twenties* originated when I was still at work on that book, working within conventional archives full of paper and dust.

In 1997, while working on a book about architectural acoustics, specifically on a chapter of that book about the early twentieth-century problem of urban noise, I visited the Municipal Archives of the City of New York, to learn about that city’s Noise Abatement Commission.⁵ I called up the files associated with the group, and archivist Leonora Gidlund suggested that I might also find material potentially relevant to my project in the alphabetically organized files of the Commissioner of Health. Filed under “N” for noise were records of hundreds of citizens’ complaints about noise, sometimes including the original hand-written letters of complaint. These letters brought to life everyday New Yorkers’ experience of the sonic environment that had led to the establishment of the Commission. Most of the complaints were located at specific street addresses, and I wondered what a map of this data would look like. Such a map, however, would have required street-level detail for all five boroughs of the city, and it was clearly not possible to present this kind of map on a single page, or even a two-page spread, of a book, so I set that idea aside. I eventually organized the complaints by noise-type, in a table that appeared in my book when it was published in 2002.⁶

Not long after the book appeared, I was talking with Ron Hutchinson, a generous and well-informed collector of phonograph recordings associated with early sound motion pictures. We were discussing a different project I was working on at that time, the story of a deadly fire that occurred in December of 1929 on a movie soundstage in Harlem. “Would you like to see and hear the

---

⁶ Thompson, *Soundscape of Modernity*, 160.
fire?" Ron offered, as he produced a videotape recording of some old sound newsreel footage taken at the scene on that cold, sad day. This is how I learned of the existence of the Fox Movietone newsreel collection at the library of the University of South Carolina, part of their Moving Image Research Collection, or MIRC.  

Although the library is now working to make this extensive collection of newsreel footage directly accessible on their own website, this was not the case in 2002. At that time, however, they did offer online a wonderfully comprehensive and easily searchable database that described the well-documented content of the reels of film in their vaults. I played with this database and realized that the collection constituted a treasure-trove of historic recordings of the sounds of New York City in the 1920s and 1930s. Indeed, these recordings may offer some of the earliest such "environmental" recordings of urban noise. Someday, I thought, I’d love to mine this collection to extract and compile a sonic catalogue of the sounds of the city, finding examples of all the noises about which people complained at the time. But what would I do with such a collection of sounds? The answer was not then apparent.

About five years later, an answer fortuitously presented itself. In 2007 I was invited by the new media scholar Tara McPherson, co-editor with Steve Anderson of the online journal Vectors, to propose a sonic project that would take advantage of the new possibilities of web-based scholarship. I immediately recalled my desire to create a sonic catalogue of New York City’s noises. By this time the powerful mapping capabilities of the web were apparent, and I realized I could also create digitally the noise complaint map that I had only imagined years ago. Indeed, I could combine the two, sonically instantiating the noise complaints via the Movietone newsreel soundtracks, and then locating both the sounds and the complaints on a map of the city.

---


8. The collection’s span is much greater than my own interests. Its holdings include newsreel footage recorded across the United States and around the world, covering the periods from 1919–1934 and 1942–1944.

9. Previous efforts to capture city noise via the sound-gathering horn of the acoustic phonograph—including one attempt by Thomas Edison himself in 1878—were considered failures, as the technology was incapable of "listening" at a distance and in multiple directions at once. During the first World War, new electroacoustic technologies were developed that greatly expanded the possibilities for recording sound. See Thompson, Soundscape of Modernity, Chapter Six. The sonic result of Edison’s early attempt is now available on the website First Sounds, http://www.firstsounds.org.

10. This notion of "mining" was inspired by the brilliantly subversive work of artist Fred Wilson. In Mining the Museum, his 1992 exhibit at the Maryland Historical Society, Wilson "excavated" the Historical Society’s collection of Chippendales and oil-paint portraits of antebellum elites "to extract the buried presence of racial minorities." Judith E. Stein, "Sins of Omission [Fred Wilson’s Mining the Museum],” Art In America (October 1993): 110–15, quote 10. Although my own efforts fall far short of Wilson’s provocation and its political significance, it is the case that, for many of the newsreels identified in my search, the noises that I sought were not the primary target of the newsreel crew’s attention, but were ancillary elements, side effects of their journalistic efforts.
Vectors is not simply a resource where media such as sound files and video clips complement traditional, narrative forms of scholarship. Rather, the journal supports work that needs to exist as multimedia, combining forms old and new “to foster ways of knowing and seeing [and hearing!] that expand the rigid text-based paradigms of traditional scholarship.” It was thus clear from the start that a Vectors-sponsored website would fundamentally restructure my scholarship, and not merely add sounds and images to what I had previously published.

Such a restructuring might lead me to understand the meaning of noise in New York circa 1929 in new ways, but this was not my motivation for undertaking this project. Indeed, for me, urban noise was just one piece of a larger history of architectural acoustics, the story of scientific and technological efforts to control the relationship between sound and space. The chapter of my book on urban noise had been a necessary tangent, moving briefly from indoors to outdoors in order to understand more fully the motivations of those men who worked to shape the sound of interior space. That chapter on noise, however, had clearly caught the imagination of my readers, and thus it seemed like a viable subject for a public history project on the web. If it prompted others to generate new ways to understand urban noise, I would consider this a measure of success.

The intellectual question I brought to the project was more about method than subject. The archival sites that characterized historic sound-on-the-web at that time mainly offered streams or downloadable audio data sundered from its original time and place and divorced from the physical forms it originally inhabited. I wanted to present the Movietone sounds in a different way, to contextualize them so that one couldn’t help but imagine their original context and form. Simply put, simply clicking “Play” would not do. The website would be an experiment to see how one might embed historic sound files within an immersive environment or experience, to attempt to elicit this historical mindset.


13. In his Pitchfork review of The Roaring Twenties, musician/poet/publisher Damon Krukowski responded: “To those of us who click play buttons all day long, this is quite a throw-down. The Internet has brought us into easy contact with so many sounds, but typically at the price of divorcing them from context. . . . Context, or Thompson’s ‘historicized mode of listening,’ would seem to be precisely what we are losing by listening online.” Damon Krukowski, “What Did New York Sound Like in the Roaring Twenties?,” November 7 2013, http://pitchfork.com/thepitch/126-the-roaring-twenties/.
The potential for achieving this kind of immersion rested upon another great strength of the web as a medium of presentation, its capacity for user-controlled interactivity. Although readers of books can and do make the experience their own, the physical format of a book nonetheless encourages a top-down experience dictated by author and publisher. Web-users, in contrast, encounter an expressive form that requires them to construct their own path through the content, free of any master narrative that a content-provider might prescribe. In this way, web-based public history may have more in common with museums than with books, and as Karin Bijsterveld shows in this volume, auditory public history has its own vital and growing tradition within the physical spaces of museums. Within a museum, content is provided via physical artifacts (including sonic artifacts) that are selected and curated into organized collections and sequences, but users ultimately plot their own journeys through this material, making their own meaning along the way. The best exhibits offer guidance to support user-generated discoveries, and I wanted to create a website that would do the same. As a writer who has always relished reading and writing historical narratives with a strong and compelling through-line, I knew I would be challenging myself to think and write in new ways.

William Cronon, one of the masters of the art of historical narrative, has highlighted the fact that readers are gaining “more and more of their ‘content’ via screens rather than paper; they are doing so in ever smaller and more fragmented bites that undermine the richly contextualized interpretations and narratives of traditional historical writing.” Could I deploy these “fragmented bites” in ways that shored up, rather than undermined, a historically meaningful experience? The key seemed to be to corral them within an interconnected framework, a structure that would be both flexible and powerful, strong but not rigid. This framework could organize a myriad of “bites” to provide coherence rather than diffusion. My intentions may have pushed against the inherent qualities of the web here, but I was intrigued by the possibility of using the web’s own strengths against it. By working with its essentially diffuse character, its defining ability to be everywhere and

14. Bijsterveld, “Ears-on Exhibitions.” Some sound history exhibits have included associated websites, but these sites are typically secondary to the physical installations they reference. See, for example, the website accompanying the exhibit Virtual Paul’s Cross: A Digital Re-Creation of John Donne’s Gunpowder Day Sermon, which was installed in the Teaching and Visualization Lab of North Carolina State University’s James B. Hunt Library in 2014: http://vpcp.chass.ncsu.edu/.


16. When I presented my ideas to a forum of Vectors scholars in 2007, many of whom were far more deeply engaged with new media than myself, the reception was not unanimously positive, and some clearly found this maneuver uninteresting if not downright old-fashioned. This was not a gathering of historians, however, nor were their own projects necessarily intended for a general audience. See the Vectors project archive for wide-ranging examples of different styles of digital scholarship: http://vectors.usc.edu/archive/.
nowhere, I would attempt to evoke a very specific place and time, New York City circa 1929.

The Vectors editors generously accepted my proposal and paired me with the USC-based programmer and web designer Scott Mahoy to elaborate and execute the plan. Before describing what we created, it may be worth noting that the project was intended to be a small sideline, a follow-up to my book that would take just a few months to pull together. In fact, we spent over three years building what proved to be a very complicated sonic time machine.17

Structure And Construction

Readers who have not visited The Roaring ‘Twenties website may now be imagining that it offers up some kind of virtual environment like a computer game set in the past. This was never the intention; there is no virtual Broadway down which avatar gangsters and flappers stroll amidst the cacophony of the city.18 The environment is instead built of information, a network of content and context that one can explore at will but that—like a book—requires the user’s imagination to bring fully to life. This informational underpinning is characteristic of most Vectors projects, and the technical infrastructure that makes it possible is a database of their own design called the Dynamic Backend Generator, or DBG.19 Scott and I identified all the different elements of information we wanted our website to incorporate. He configured the database to hold it all, and I began the lengthy task of filling it in.

Permission to use selected newsreels was negotiated with the Moving Image Research Collection, and they provided digital video files which I then edited to extract excerpts with the specific sounds and scenes that we required. These files, fifty-four different newsreel clips ranging from several seconds to several minutes in length, were then loaded into the database. Permission was also obtained to reproduce approximately 350 unique documents from New York City’s Municipal Archive, and digital facsimiles of these letters of complaint and Department of Health memos and inspection reports were obtained and uploaded.20 I looked up the latitude and longitude for each complaint and newsreel clip on Google Maps and entered these coordinates

17. Commencement of the project was also delayed for several years as the Vectors group focused their own resources in the direction of building new scholarly tools, such as the multimedia site-building tool Scalar, rather than supporting the construction of specific projects like The Roaring Twenties. Scott Mahoy and I began working substantively together in the summer of 2010. For more on Scalar, see: http://vectorsjournal.org/journal/blog/category/tools/scalar/.

18. A recently published website that pursues this approach, offering a historical re-creation of a soundscape of eighteenth-century Paris (without the interactive dimension) is the Project Bretez: https://sites.google.com/site/louisbretez/actualites.

19. The Dynamic Backend Generator is freely available, and an overview is provided at http://vectorsjournal.org/journal/blog/dbg-overview/.

20. The total cost to obtain all these digital artifacts as well as permission to use them was in the low five-figures. Permission was dependent upon presenting the artifacts in a way that precluded mass downloading, as both archives specified that they were allowing only the
into the database, alongside all the descriptive text I composed for each particular item. Much of this text consisted simply of names, street addresses, and dates. But to characterize the work as “data entry” does not capture the reality that, in some cases, hours or even days of research were required to locate a complaint with a vague provenance or to comprehend and thereby explain a perplexing piece of newsreel footage. Locating “Water Shaft 12A” in Queens proved particularly challenging, for example, in part because both cross-streets indicating its location were renamed shortly after the complaint was made in 1930. Why did dozens of shouting children, waving what appeared to be pieces of trash, suddenly rampage down Henry Street in March of 1930? The fact that this reel also included footage of sanitation workers was a clue, but without the searchable resources of the Proquest Historical Newspapers database, I might never have learned of the Lower East Side’s “Clean Streets Campaign,” the historical context for the sounds of those raucous kids.

This was substantive historical research and writing, albeit on a scale and in a form very different from that with which I was familiar. Scrimshaw-like snippets of detail and background had to capture often complex bureaucratic decisions and sometimes dramatic civic actions. These summaries each had to stand alone as discrete fragments of content, yet also contribute to a larger understanding of the era that would accumulate as users worked their way through the many different complaints and newsreels. People who know my writing say they can “hear my voice” emerge from deep within the site, and this suggests that an authorial presence is available through this medium, even if the author is working in a highly fragmentary way. I came to enjoy this kind of writing, and it fit well within a busy academic calendar that presents too few opportunities to ponder and develop the long-term narratives historians typically strive to generate.²¹

A database is not a website, however, so while I filled the DBG with content, Scott composed the HTML program that would bring this material to life on screen. We worked out the structure and design of the user’s experience in collaboration, with our “canvas” defined as a computer screen.²² From the start, I had imagined three different ways for users to interact with our content. In addition to the map, which organizes the material across space, I wanted users

²¹ Although I did not enlist student assistants, this kind of work might lend itself well to such collaborations.

²² Smart phones and tablet devices were not significant factors when we began the project. They grew in importance over the years that we worked together, but the website in its current form, coded via Adobe Flash, is neither visually nor technically capable of functioning on such small-screen devices, which have not been designed to run Flash-based programs. Aside from this coding issue, designing visual interfaces that work equally well on a wide range of differently sized screens is a difficult challenge. Although I hope to offer a tablet version of our site in the future, a phone-based version would have to be redesigned from scratch in order to work within such a tiny window, and this is not a task that I care to pursue.
to be able to access everything according to its sound-type, and also via a timeline. Scott built a program that enabled these three different modes of engagement, and he designed the homepage of the site to feature portals into each of these three different interfaces: Sound, Space, and Time.

In order to have the Sound interface itself contribute to the construction of a historical framework for listening, the organization of content by sound-type is presented through categories that come from the era under consideration. Indeed, the Sound interface consists of the Frontispiece of *City Noise*, the 1930 report of New York’s Noise Abatement Commission. It is a hand-rendered illustration that organizes and depicts a wide range of city noises under headings like “Traffic,” “Homes,” and “Harbor and Rivers.”  

The specific noises compiled under each heading are activated through code to call up a listing of all the complaints and newsreels exemplifying that particular kind of sound. When users roll their cursor over “Barking Dogs,” for example, under the “Homes” heading, a list of sixteen items appears: thirteen complaints about barking dogs, and three newsreels whose soundtracks include that sound. Clicking on any one of the individual items in this list opens a window in which appears either the information and documentation...

---

23. Edward F. Brown et al., eds., *City Noise* (New York: Department of Health, 1930). We added some new categories of our own to this image, a few to incorporate sounds that didn’t fit the categories provided by the image, and others to gather content in ways that weren’t on the agenda of the Noise Abatement Commission in 1930. The latter categories are found under the “Miscellaneous” heading. We used a slightly different font for all additions, in order to distinguish between the original categories and our own, but some users appear to have missed this distinction, indicating our approach was too subtle.
for that particular complaint, or a video-player with that newsreel excerpt cued to roll.

In designing the individual complaint windows, we sought to create an experience that, like the Sound interface, would be true to the historical material contained therein and equally capable of serving users both casual and scholarly. We wanted to evoke the archive, to enable our readers to feel as if they were making historical discoveries themselves, whether they were trained to do so or not. We heeded to the monochromatic color palette that characterized our sources, and Scott developed a “bureaucratic” style to fit their official nature, deploying file-folder tabs to organize the information visually in different layers to serve different kinds of users. The default view offers basic information about each complaint, including its date, the location of both complainer and complainant, and a summary of the departmental action undertaken in response. The second tab, labeled “Source,” provides full archival documentation. Like an endnote, this tab conceals the scholarly apparatus from those who do not seek it, but calls it up quickly and easily for anyone interested. I wanted the website to be as rigorous as any book or article I might publish. The Source tab provided a place for that rigor without impeding the flow of the experience for users who don’t require it.
A third tab provides access to the digital facsimiles of archival documents, opening a new window in which these scans appear. The documents arrive in a chronological stack, allowing the user to page through the material as if they were reading through a pile of papers on a physical desktop. When hand-written letters are encountered, another tab appears marked “Transcription,” offering a typescript translation of handwriting that is, in some cases, rather difficult to read. But the transcription doesn’t appear unless one calls for it. The crabbed nature of some complainers’ handwriting is an important aspect of this source material, and I didn’t want to transcribe it away. Instead, I wanted to require even casual users to confront it, implicitly encouraging them to engage with it by distancing them—a bit—from the transcription. By attempting to decipher these fraught tracings for themselves, users encounter evidence of the distressed bodies of the people who complained. Just as the actual voices of oral history subjects carry meaning that can elude or be effaced from textual transcriptions of their words, this handwriting offers testimony about the problem of urban noise not captured by the syntactic content of the complaints.24

24. For more on the sonic value of oral history, see the remarks of Michael Frisch within the “Interchange: The Promise of Digital History,” Journal of American History 95, no. 2 (September 2008): 452–491. The Library of Congress’s recordings and transcripts of former slave narratives,
The Documents tab has opened a window presenting all the documentation for the Ely Avenue neighbors’ complaint about Karl Schneider. Shown here is one page of a letter from Mr. Schneider to the Health Commissioner, one of only a few letters in the archive in which the complainant’s views are expressed. The Source tab shows the archival provenance of the letter. If the user were to click on the Transcription tab, a typescript of Mr. Schneider’s hand-written letter would appear in place of the archival citation seen here. (Image courtesy of the author.)

The video-player window for the newsreels also offers a Source or citation tab along with the default Information tab. The latter contains the date and location of the newsreel excerpt, alongside an indication of the length of the clip and descriptive text of its content. The size of the window in which the newsreel plays constitutes a compromise between video resolution and user immersion. Data transmission rates are always increasing, but when we formatted the video files for our project several years ago, we wanted to ensure that even users with less-than-state-of-the-art streaming capacities would be able to view the newsreel footage without buffering hang-ups or other transmission-based interruptions. This required sizing the videos at less than full-screen.

In fact, I came to prefer the smaller window through which the motion pictures are viewed. Not only does it keep the user present in the site-as-a-whole while he or she watches a newsreel excerpt, but it also provides a well-defined visual frame through which the viewer experiences the past, a literal window between us and them. This admittedly pushes back against my goal of dating from the 1930s and available at the American Memory website, await a thorough examination of the different meanings transmitted by sounded words and transcribed text. See http://memory.loc.gov/ammem/snhtml/.
generating a historical mindset that enables users to listen like it’s 1929, but this push-and-pull is essential to all historical endeavors and I think it is useful to acknowledge this in our designs as well as our words. Although historians always strive through our work to “get back there,” ultimately and inevitably we fail to transcend our own time and place. This, of course, is what keeps our field vital and relevant. A window simultaneously connects and separates two different worlds, thereby serving as a metaphor for what historians do. Since one of the goals of *The Roaring 'Twenties* was to empower its users to be their own historians, manifesting our essential tension within the experience of the site seemed appropriate.

The separation between then and now is emphasized further when users encounter newsreels that have suffered physical deterioration over time. The Movietone crews shot on cellulose nitrate film. Chemically unstable, this kind of film often decomposes in visually magnificent ways, bubbling and dissolving or sometimes creating bright halos of light around dark objects. When the soundtrack is optically recorded, as it is here, the sound can also be distorted by these ravages of time upon the film stock. On some of our newsreel clips, this deterioration is visually and sonically assertive. This “noise,” like the

25. The 1928 newsreel footage of the ringing of bells at the Park Avenue Baptist Church best exemplifies the sonic and visual deterioration of the newsreel film.
window that frames it, may push the past further out of reach. But it can thereby challenge the user to try a bit harder, straining eyes and ears, to enter that unattainable world. It additionally requires us to acknowledge the materiality of the archival objects at the heart of this digital experience and their own journeys through time.

Just as the maintenance of scholarly rigor was important from the start, I was also committed to keeping salient the material basis of this project. The overall goal was to conjure up a very specific place, but I also wanted to remind users that the digital artifacts they see and hear on screen to evoke that place are themselves physical objects with histories of their own. We designated an area within the Information portal on the home page to elaborate upon these objects, as well as the processes that turned them into the digital facsimiles encountered on the site. So here, the user learns that much of the departmental correspondence in the Health Commissioner’s files consists of fragile, translucent onion-skin copies that were generated with carbon paper when the originals were typed. The originals, although made of much sturdier stock, were lost to history when sent off through the mail, whereas the delicate copies survived in their stead. Users also learn that the Movietone newsreel team shot sound and image onto the same strip of negative film, unlike in Hollywood’s studios where sound and image were recorded separately so that each could be edited and independently manipulated for dramatic effect. The newsreels’ physical integrity ensures that what you see is what you hear. Sound seems ephemeral and immaterial, and indeed this perception may explain why historians have paid it so little heed for so long. But in fact, sonic history is built from things, and sound media are objects as well as content. Since the tendency of the web is to efface the materiality of its content, we consciously strove to re invoke this aspect wherever possible on our site, additionally making clear the sometimes complicated chains of technological transformations that turned those things into digital code.26 Many users may not care, but these transformations stand between us and the past, and for those who want to understand the processes more fully, a complete provenance is provided.

No attempts were made to “improve” the sound quality, as the goal was to present the sound recordings in as direct a manner as possible. Of course a more authentic presentation would entail playback from the original media on original equipment from the era. This might be possible in a museum, where one could go to great lengths to attempt to re-create the physical sounds of the recordings with as much historical accuracy as possible.27 But this isn’t possible with a website, where each user listens through presumably

26. The Cylinder Preservation and Digitization Project of the Library of the University of California, Santa Barbara also elaborates on the material history of the objects digitized. See: http://cylinders.library.ucsb.edu/index.php.

27. The vacuum tube-based system of sound reproduction that was used in theaters screening the Fox Movietone newsreels was state-of-the-art audio technology circa 1930. Developed by engineers at the Bell Laboratories research facility at 463 West Street in downtown Manhattan, it
modern equipment of their own choosing. It seemed more productive to focus on creating the context that would work *between* users’ ears when they listened, rather than to attempt to re-create the original sound of the original media. Our goal, after all, was not to evoke the experience of those who watched and heard the newsreels in their local movie palace, but of the people out listening on the streets of New York, those who were captured on film when the newsreel truck drove by.

It is the case that the audio reproductions heard through our website sound “old” to users attuned to stereo recordings with greater fidelity in the upper and lower ends of the spectrum of audibility. This quality of sound can help evoke the past in a way that modern re-creations and recordings of historic sounds, such as those described by Karin Bijsterveld in her essay in this issue, can not. But the nostalgia associated with “old time” sound has its own dangers. Here too, the contextualization we provide seems crucial to forestall a simplistic sentimentalization of the sonic past.

Although the website’s Sound interface is useful for allowing users to focus on different types of urban noise, the Space interface, which maps the content across the city’s length and breadth, offers a more journey-like experience, enabling one to explore specific neighborhoods or just to wander the city at will. I had initially assumed it would be impossible to find a historic map with both the scale and precision that we required, and I imagined that the complaints and newsreels would necessarily be placed onto a modern rendering of the city, significantly compromising the historicity of the interface itself. In spite of the obvious challenge, Scott encouraged me to look for an old map that would better fit the content, and after many months of fruitless hunting through the catalogues of archives and libraries, I found the map of my dreams on Ebay. Fortunately, no one else was looking for a seven-foot-square engraved map of New York City from 1933, and my bid was successful. This beautiful if unwieldy artifact was photographed by the Princeton University Library, and Scott broke their digital image down into thousands upon thousands of tiles which allowed us to recompose the map at seven different levels of scaling. These tiles are laid over Map Quest’s current map of the city, and in this way the user can scroll and zoom, via Map Quest’s

---


29. The map was produced by the City’s Board of Estimate and Apportionment. Six different plates were engraved to generate prints of the five boroughs that were assembled, with visible seams, into the metropolitan whole. It may have been produced as a reference tool for the Board and possibly for other municipal departments. If so, it must have been hung on a wall to be useful, due to its size. This might explain why copies are now so rare, as they would have been used until worn out or outdated. But this hypothesis of its origins leaves unanswered the question of why such an aesthetically beautiful and assumedly expensive map was created for such utilitarian purposes, particularly in the economically challenging year of 1933. Since obtaining my own print of the map, I have learned that the Avery Architectural Library at Columbia University also lists a copy in its catalogue of holdings.
engine, while seeing the historic image in lieu of their modern map. Here, icons, placed by latitude and longitude, indicate the locations of complaints and newsreel footage, and by clicking on any icon, the user opens a complaint or video-player window like those that appear within the Sound interface.

This approach—sound mapping—has become widespread on the web, albeit with a focus on the current soundscape, not that of the past. There are now numerous examples of cities, including London, Montréal, and Mumbai, whose contemporary sonic environments have been recorded, geolocated, then placed onto digital maps that also provide the interface for retrieving and exploring these sounds. Although some have questioned the value of these endeavors, noting that insufficient attention is paid to the context in which these recorded sounds were produced, this sonic raw material may offer an important resource for future aural historians.

30. Our map originally resided on top of Google Maps, but in September 2014, we had to convert our code to use Map Quest, for reasons outlined later in this essay.
31. A valuable survey and analysis of these sites is offered by Gascia Ouzounian, “Acoustic Mapping: Notes from the Interface,” in Matthew Gandy and B.J. Nilsen, eds., The Acoustic City (Berlin: Jovis, 2014), 164–73. Critical views of the format appear on pages 171–72. Many of these maps are ongoing projects, growing and evolving through the addition of user-provided material, and some connect to the work of sound artists who forge musical compositions out of
Our own sound map on The Roaring 'Twenties website is complemented not only by the parallel Sound interface, but also by an interactive Timeline in which the complaints and newsreels are organized chronologically and accessed via icons placed in time instead of space. Aside from appealing to a historian’s inherent compulsion to line things up in temporal order, the Timeline allowed us to incorporate additional material that did not easily fit into the Sound or Space interfaces. To help build up the context essential for historicizing the sounds, the Timeline offers brief summaries of hundreds of news items from the era about the problem of urban noise, culled from popular magazines and The New York Times. Additional archival material and information about the Noise Abatement Commission is also available here.

A brief Introduction to the website, accessible via the homepage, lays out the intentions and the structure of the site for first-time visitors. A section labeled Information offers additional material, including links to the archives whose collections have been deployed, as well as the aforementioned details on the technical processes that transformed their material objects into the digital facsimiles found on the site. Links to other websites about New York environmental sounds. One site that incorporates a historic dimension, through some sound recordings but mainly through pre-phonographic textual references to urban sounds, is the London Sound Survey, which originated in 2008 (http://www.soundsurvey.org.uk/). Additional examples include the global Radio Aporee (http://aporee.org/maps/) and Soundscities (http://www.soundcities.com/); UK Soundmap (http://sounds.bl.uk/sound-maps/uk-soundmap); Montréal Soundmap (http://www.montrealsoundmap.com/); and Sounds of Mumbai (http://soundsofmumbai.in/). For historical context on the many meanings and forms of sound collection, see Karin Bijsterveld and José van Dijck, eds., Sound Souvenirs: Audio Technologies, Memory and Cultural Practice (Amsterdam: Amsterdam University Press, 2009).
City and its sounds are provided, as is a bibliography of relevant books for further reading. A version of my own book’s chapter on noise is also posted here for any user seeking a linear narrative to guide their journey through the site.

Reception And Reflection

With all this digital infrastructure and historical content finally in place, and after a long and frustrating period of troubleshooting to get it all to work, *The Roaring Twenties* finally went live in October 2013. Perhaps even more so than with books, authors of websites must inform the world that their work exists. Indeed, philosophers might argue whether or not a website exists until others find it and link to it. To avoid this conundrum it helps to have a plan, or at least an email list, for getting the word out to media old and new. The previous summer I had consulted for a *New York Times* reporter working on a series of articles about city noise, and she returned the favor by posting a piece about our website on the paper’s *City Room* blog.32 Radio journalists are always eager to cover stories about sound, so I contacted a number of programs to let them know about our project, and National Public Radio’s *All Things Considered* produced a short piece about the site, which they posted online as well as broadcast on air.33 These two pieces of coverage begat others, and word spread through a diverse range of websites featuring postings about technology (*Paleofuture*), design (*Fast Company*), and music (*Pitchfork*), to name a few. Each of these, in turn, generated additional tweets and re-tweets, Facebook alerts, and blog postings that brought thousands of visitors to the site.34 According to the Google Analytics account that we set up to track traffic to our website, over 80,000 visits to the site have occurred as of June 2015, representing almost 70,000 different visitors from 149 different nations around the world. Not surprisingly, two-thirds of these visitors were located within the United States, with approximately 9,000 originating from within New York City itself.35 *The Brian Lehrer Show*, on WNYC, emphasized the local aspects of the site by incorporating it into a “town hall” radio program about the problem of noise in


33. The piece is archived at: http://www.npr.org/blogs/thetwo-way/2013/10/22/239870539/the-sounds-of-new-york-city-circa-1920. The Canadian Broadcast Corporation spread the word further north, via the program *Spark with Nora Young*, and local radio coverage was provided on WNYC. Anyone working on history with a sonic dimension should make sure their local NPR affiliate is aware of their work, as these organizations offer a forum for publicity invaluable in terms of both reach and quality.


35. These figures were taken from Google Analytics on June 16, 2015.
New York today,\textsuperscript{36} and neighborhood blogs took the local to a micro level, pointing out the presence on the site of sometimes still recognizable landmarks and soundmarks from their particular corner of the city.\textsuperscript{37}

Most of our website’s visits came within a few months of its publication and it is unlikely ever again to enjoy daily visit totals numbering in the thousands. Even a modest but steady influx of visitors has to be cultivated, and I believe that pedagogy presents the best opportunity to sustain its relevance. In the spring of 2015 the National Humanities Center sponsored a webinar for secondary school teachers that featured \textit{The Roaring 'Twenties} and fostered an online discussion about using sound to teach history. The forty-five participants were eager to think about incorporating sonic material into their history classrooms, and it was clear from the conversation that lesson plans or structured exercises to accompany the site would greatly assist teachers interested in putting their intentions to work. My plan for the future of the website is thus to develop, in collaboration with graduate students and experts on pre-collegiate curriculum, an ancillary webpage offering a toolkit of classroom ideas and exercises for primary and secondary school teachers.

Others have proposed far more ambitious ideas for the project, from expanding it to include other cities or other time periods, to establishing a social media platform that would enable users to upload current environmental sounds to enable “then and now” comparisons at specific locations archived on the site, but my own interests now lie elsewhere. Many web scholars may embrace the ease with which web scholarship can be constantly expanded and revised, but I am a person who seeks and celebrates closure. So, although I will make corrections where required and although I look forward to developing supporting pedagogical tools, my goal is to leave the site itself largely as is.

But “as is” is itself a moving target in the world of the web. Websites are complicated technologies and their technical infrastructure is constantly changing. If you don’t maintain your machine, it will eventually break, so a plan for ongoing institutional maintenance is required long after any web project is complete. We knew from the start that our choice to code in Adobe Flash would present long-term issues. Flash is a powerful design tool but, for reasons having more to do with corporate rivalries than technical proficiency, its slow demise has been long predicted. So we realized that, down the road, our site would need to be translated into a different language in order to keep working. In fact, this problem arose much sooner than anticipated, and in September of 2014 our site stopped working—indeed it completely disappeared—when Google Maps severed its functional connection to

\textsuperscript{36} The full program is archived at: http://www.wnyc.org/story/the-brian-lehrer-show-2014-02-04/.
\textsuperscript{37} See, for example: http://southsloopenews.com/blog/history/new-map-pinpoints-nyc-noise-complaints-from-the-20s-and-30s; and http://ditmasparkcorner.com/blog/history/enough-to-drive-one-mad-ditmas-parks-1930s-soundtrack. A year after its publication, the site was recognized locally by the Archivists’ Round Table of Metropolitan New York with its 2014 Award for Innovative Use of Archives.
Flash-based geospatial websites. When a book goes out of print, previously published copies do not suddenly vanish into thin air, but with web-based scholarship, all your hard work can simply evaporate right before your eyes. This, needless to say, is a real disadvantage to working in digital media and it highlights the need for ongoing vigilance and maintenance. In our case, a short-term fix got our site back up within a month, but it is now imperative to translate the code out of Flash and into Javascript in order to ensure the website’s long-term viability.

Clearly, even a well-bounded web project is never really done. For this reason, a web-author’s ongoing commitment to the underlying goals of their project may be even more crucial than the commitment that every historian makes to the subject of their next book or exhibit. In our case, that goal was to develop a new way to present to the public historical sound recordings and to offer a rich framework of context that would enable our audience to imagine, through listening, the world in which those recordings were made. The reception of our website suggests that we have been successful, at least for some of our users. A number of comments on the site have highlighted its immersive capacity, whether warning of its addictive qualities (“It’s a time suck”) or celebrating its ability “to transport the viewer backwards.”

Through immersive, contextual listening, we can indeed pull our audience back in time. We can harness the all-encompassing, fragmented, and diffuse nature of the web and channel that strength into something very different, historically rendering a very specific place and time; here, a great city at the close of the decade that roared. On the web, the user typically gets the last word, so let me extend that privilege here by quoting one online commenter who shared his reaction to our site, a reaction any public historian would be gratified to elicit: “From squealing pigs to steam-driven shovels, overhead trains to hand-cranked carousels,” writes Dr. John Krant of Williamstown, Massachusetts, “this is a lost world come to life.”

EMILY THOMPSON, Professor at Princeton University, explores the cultural history of sound, music, noise, listening, and technology. Her next book, Sound Effects, will examine how the art and craft of making and showing movies changed when recorded sound was introduced to the American film industry, 1926–1933.

38. We missed the announcement by Google that they were planning to sever this connection on a specific date, so when that day arrived, we were unprepared and our website ceased to function.
39. The translation is now under way at Princeton University’s Center for Digital Humanities. The new version, when published in 2016, will work on tablets as well as computers. The underlying need of digital history for a stable and vigilant institutional host might present a challenge to non-tenured faculty who don’t yet enjoy this stability themselves. Since the historians who are most eagerly pursuing digital scholarship tend to be these younger scholars, both they and their host institutions must consider and plan for the long-term institutional future of their projects.
41. Krant, after Rueb.