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### Radio sound

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## 30

## RADIO SOUND

*Alexander Russo*

As befits a set of technologies and practices whose histories span well over 100 years, radio's relationship to sound has taken on many meanings depending on the social, cultural, technological, and historical contexts of its use. Some points of intersection between sound studies and radio studies lie in the following areas: radio sound as technologically mediated communication, radio sound and community and public formation, the aesthetics of radio sound and the radio voice, and radio sound and avant-garde practice. While this entry creates these categorical divisions for the purposes of typology, in practice, these concerns are more often mutually determining than analytically distinct.

A caveat: Radio sound encompasses frequencies that are perceivable by humans and those that are not. Radio sound is an encoding of sound on a radio wave via variations in amplitude AM or frequency FM. AM has a far more limited dynamic range and frequency response than FM. Dynamic range is the extent of loud to soft sounds and frequency response is the high and low range in pitch. Radio signals are optimized around human perceptive limits. For example, while an individual with exceptional hearing might hear sounds from 20hz to 20,000 hz, FM stations typically broadcast from 50hz to 15,000hz. Moreover, there are other sounds that are solely machine hearable, such as subcarrier frequency waves that have uses such as providing track information for visual display on receivers, produce stereophonic effects, or serving as a trigger for Emergency Broadcasting System alerts. While not radio per se, this approach reflects Jonathan Sterne's (2012) call to understand media history as a history of compression, rather than verisimilitude.

Defined at a general level, the technological parameters of radio sound is a sound wave transduced into an electrical signal which are amplified and distributed through space and reassembled into sound by a receiver. The signals themselves are not audible without further mediation via receiving technology. Thus, the 21st-century cellular "telephone" is known as "wireless" as it carries vast amounts of visual data in contradistinction to what wireless was understood to be 100 years ago. Indeed, the parameters of those communicative exchanges one to one or one to many have themselves changed form. Moreover, the meanings of those changes for the culture in which they operated carry with them an additional set of values. Radio sounds are, therefore, as much about social and cultural categories and points of unity and fracture as they are about the possibilities of technologies of transmission and reproduction.

Radio in the context of sound studies understands the broadcasting of acoustic artifacts as sound as such, rather than as a mode of content. For example, radio is most frequently used as a medium for the transmission of music, but rather than focus on the genres or formats that organize the content, we need to understand the sounds themselves. There are certainly some important interventions here, Jonathan Sterne (2003), Emily Thompson (2004), and Steve Wurtzler (2007) explore how radio technologies overlapped with other types of electrical amplification and reproduction, especially in the start of electrical reproduction. For these authors, the techniques of sonic production and reception heralded modes of modernity, via subjectivity, architectural acoustics, and institutions of cultural production. Although these works are not explicitly about radio, they rely on the historical fact that prior to the invention of electrical recording radio had greater sound fidelity than acoustically recorded phonograph records. Likewise, the FM band has greater sonic fidelity than the AM band, and this has affected the kinds of sounds that have been deemed appropriate for each. This distinction is not simply a practical one. In this volume, other sections address sound categories that overlap with radio sound. Radio advertising sounds provides one such example and leads to another caveat that radio sound cannot be understood in isolation from other forms of sound and techniques of reproduction and dissemination. With this in mind, there some conceptual concerns and categories of analysis that have addressed radio sound per se.

### **Radio sound: foundational approaches**

Radio studies has recently begun to pay more attention to the sounds of radio as a cultural phenomenon. The first generations of radio histories tended to emphasize institutional and policy histories in part because of a perceived paucity of archival sound material. Encyclopedic, multi-volume histories like Christopher Sterling and John Kittross (2001), Asa Briggs (1961, 1965, 1970, 1979, 1995) and Paddy Scannell and David Cardiff (1991) provide important institutional and technological context but devote less attention to the sounds of the programs themselves. Part of this neglect was due to the limited number of works that considered radio as sound.

Bertolt Brecht (2015) envisioned radio as a potentially democratizing force that allowed for participation by audience members and produced aspects of “epic theater” for radio. Rudolf Arnheim (1936) also saw in radio the potential for a communication not encumbered by vision. Arnheim is remarkable for offering one of the only discussions of the uniquely aural aspects of radio aesthetics. His account of the perceptual and spatial characteristics of sound theorized new modes of experience; ones that possessed a democratizing potential. His contemporaries, Theodor Adorno and Max Horkheimer (1997), were less optimistic and saw radio as a means of standardizing not just culture but thought itself. They reacted with alarm to the use of broadcasting by the Nazi party. This view of radio matched debates in the United States in which radio was viewed with some trepidation by scholars like Hadley Cantril’s (1940) study of the “panic” surrounding Orson Welles’ *War of the Worlds*. Although subsequent revisits to the incident have challenged the extent of the “panic,” Cantril’s work reflects anxiety about the seeming ability of radio to summon a credulity among certain segments of the listening populace. Other contemporaries were less troubled and the Paul Lazarsfeld–led radio studies (1940, 1941, 1948) reflect a more functionalist approach, which saw radio as meshing with existing institutions and belief systems.

### **Radio sound as technologically mediated communication**

Radio sounds of intercommunication has its origins in a pre-broadcasting moment (although this too is contested as with the example of Radio Hirmondó, the telephone based wired

broadcast network that preceded wireless radio). For early observers, radio sounds took the form of direct person-to-person communication via tones like the Morse Code. Here the sounds of transmission and reception were neither the voice nor intended for widespread reception. Even after the widespread introduction of music and voice broadcasting, short wave radio continued the tradition of coded and otherwise unintelligible transmission, as illustrated by the example of numbers stations run by government spy agencies to communicate with agents around the world. Conceptual radio sound as two-way communication speaks to some of the cultural imaginaries of communing with the dead, as chronicled by Jeffrey Sconce (2000). As Susan Douglas (1989, 2004) argues, ham radio operators offered forms of masculine mastery and exploration, even as the operators themselves were sometimes viewed as suspect. Interconnection also provides the groundwork for radical conceptions of radio such as Brecht's ideas of radio sound as democratic feedback loop. Although, as Sconce notes, these developments did not occur without some amount of anxiety. For Sconce, early radio's ability to connect across space and time was understood to exist even to the afterlife. Later, as a medium of broadcasting, the sounds from the speaker reflected anxieties about the decreasing autonomy of the individual within large networks and institutions. In contrast, the shift from one to many carries with it the symbolic weight of the receptive capabilities (or lack thereof) of the audience. The move to broadcast radio has been animated by its community defining characteristics.

### Radio sound communities

Benedict Anderson's (2006) work on "imagined communities" has been widely utilized by radio scholars. While Anderson's work addressed the conjunction of print capitalism, vernacular languages, and national identity, radio's connective capacity and linguistic orientation has been seen as similarly reflective of a potential to facilitate communal identity. A range of authors has explored radio sound's capacity to unite and divide social groups. These related conversations have been anchored by the work of Michele Hilmes (1997) and Susan Douglas (2004). Hilmes looks at the ways in which race, class, and gender provide crucial cultural signifiers that anchored radio's potential to evade the visual signifiers of identity in interwar United States. The conjunction of economics, technology, and language allowed radio to circulate cultural narratives that defined "who we are and who we are not." For Hilmes, radio voices worked to both stabilize and undermine understandings of identity. Only certain types of speech were permitted and this worked to standardize and homogenize language. At the same time, however, radio's lack of visual referents also threatened to undermine the stability of visually determined racial markers and allowed for various types of cultural ventriloquism and cross dressing. Susan Douglas (2004) examines community formation via attention to modes of listening. At certain moments these identities were nationally based, but in other periods the sound-based communities revolved around modes of aural engagement, for example, imaginative listening of baseball games produced via sound effect and narration or intensive listening to high-fidelity psychedelic recordings in the 1960s. Building on these dynamics of broadcast sound and community, Alexander Russo (2010) and Susan Squier (2003) examine the ways in which communities defined at a smaller level than the nation also used aligned specialized content of radio broadcasts with cultural affinities. Russo argues that network radio was not wholly hegemonic. A parallel ecosystem of station representatives, radio transcription producers and distributors, and spot salesmen served to localize and regionalize national content in ways that appealed to geographically defined audiences. Squires' anthology reflects a range of work that focuses on the ways that race, class, and gender were activated by radio-based communities. Similarly, Ari Kelman (2009) and Delores Ines Casillas (2014) examine the complicated positions of, respectively, Yiddish

and Spanish-language broadcasts within majority English-speaking United States seeing within them the ability to create sub-altern publics within the larger radio sphere.

Parallel histories of broadcasting and national community in other countries are addressed by authors like Joy Hayes (2000) on Mexican radio and Thomas Hajkowski's (2010) and Simon Potter's (2012) work on the ways that the imperial imagination accompanied British radio broadcasting. This nationalistic orientation informed the types of programs beamed from England but also influenced the ways in which British colonies such as Canada, New Zealand, and Australia modeled their national broadcasting services on that of the BBC – at least to some extent. As Canadian historian Mary Vipond (1992) argues, the commercial models of its Southern neighbor also influenced radio in Canada. In the postwar period, colonial independence movement also tapped into these elements of radio sound. Writing in 1965, Franz Fanon wrote on how the radio both gave listeners access to non-colonial forms of information, anti-colonial programs, and served as an index of their struggles based on the severing of jamming operations arrayed against anti-colonial programs. In another example, Brian Larkin (2008) looks at how the practice of public listening in Nigeria “reorganized the practice of leisure.” Within the United States, radio served as a nexus for protest and negotiation over representation in sound-based programs and with their producers, as both Kathy Newman (2004) and Elena Razlogova (2011) have charted. Finally, Michele Hilmes argues that the sound of both British and American radio in the interwar period was based on global circuits between the two countries. Although ostensibly opposed to one another, the public and privately oriented systems defined themselves via the “constant presence of the other.”

### Radio sound publics

National identity can also have more ominous overtones depending on the form of government. There is a voluminous history of radio sound and propaganda. Kate Lacey (1996) and Carolyn Birdsall (2012) address the complex relationship of the Nazi government with its audiences and the ways it challenged straightforward distinctions between public and private. Steven Lovell's (2015) work on Soviet-era radio in Russia addresses the far different path taken in that country as a result of conflicting dictates of propaganda and popular programming. There are many histories of the Anglo-American radio propaganda as well. Holly Shulman (1990) examines how propaganda was conceptualized by the Voice of America as a means to achieve policy goals of the US government. Gerd Horten (2002) explores the ways that commercial entertainment was integrated into national propaganda apparatus during World War II. Sian Nicholas (1996) and Christina Baade (2011) examine similar dynamics in the UK during the same period although the latter author focuses on on musical broadcasts. Finally, Melissa Dinsman examines (2015) the efforts of literary modernists to craft radio programs that achieve maximum comprehension and propaganda value.

Questions of public and private sound have also engaged radio scholars to a significant degree. While in one sense radio offers public discourse, available to all who choose to listen, it is largely consumed privately, in individual homes and automobiles. This apparent contradiction has inspired a range of approaches and insights. Raymond Williams (2003) sees radio broadcasting as prefiguring television's mobile privatization in its centralizing address to individual homes. Jason Loviglio (2005) has highlighted the affective dimensions of the radio voice and how those connections blurred the boundaries of public and private, creating what Loviglio calls “intimate publics.” Other authors like Douglas Craig (2000) and Bruce Lenthall (2008) are more identifiably political in their focus on politicians' use of radio. Finally, addressing the category public interest radio sound, Matthew Ehrlich (2011) examines the evolution of radio documentary in

the postwar period, arguing that radio reflected a variety of strains of political thought even as it shifted from a docudrama to documentary mode. Similarly, Heather Hendershot (2011) examines how far-right conservatives ran afoul of public interest regulations in the 1950s and 1960s.

### **Radio sound and the voice**

Another fruitful sonic arena for radio studies has been the voice. The radio voice has particular characteristics, chiefly its lack of corporeality. There are multiple implications of the disembodied electrical voice. For Marshall McLuhan (1994) the electrified radio voice was an “extension of man,” a prosthetic that somewhat counterintuitively was a “hot” medium that directly affects the receiver of the message and makes the medium a resonant “tribal drum.” For Michele Hilmes (1997) the disembodied voice has “uncanny” characteristics that “threaten to set off a riot of signifiers,” particularly around identities like race and gender that are rooted in the body. John Durham Peters (1999) uses the disembodied voice to explore and express the ambiguities of the communication process, which tends to privilege the face to face above the mediated. Edward Miller (2003) argues that, during the 1930s, the newfound possibilities of listening to technologized, unseen voices resulted in “an uproarious connectedness” (Miller 2003: 8) an uncanniness of dread and powerlessness. Allison McCracken (2015) has recently charted the ways in which electrical amplification technologies allowed for the softer voice of crooning an intimacy via microphone technique. Christine Ehrick (2015) explores the ways that gendered hierarchies structured the soundscape of Argentinian and Uruguayan broadcasting during the 1930s and 1940s.

### **Radio sound aesthetics**

Discussions of radio aesthetics engage with sound in both traditional and avant-garde forms. As far as traditional aesthetics, Andrew Crisell (1986) has charted a semiotic approach to radio sound. Following Arnheim, he controversially argued that radio is a “blind” medium. Other authors, like Tim Crook (1999), take issue with that characterization, noting that radio uses words and sound effects to create images within listeners’ minds. Historical examinations of the BBC’s aesthetic practices appear to be more significant as the United Kingdom has a longer and ongoing record of producing radio drama, as compared to the United States. See Peter Lewis (1981), John Drakakis (1981), Dermont Rattigan (2002), and Louis Niebur (2010) on the history of BBC radio drama. Rattigan and Niebur, in particular, focus on the elements of sonic performance in radio narratives and electronic effects, respectfully. Practices of literary adaption to radio, especially by modernist authors like Ezra Pound and Samuel Beckett, among others, have received special attention via Margaret Fisher (2002), Todd Avery (2006), Timothy Campbell (2006), Kevin Branigan (2008), Debra Cohn et al (2009), Jeff Porter (2016), and Matthew Feldman et al. (2014). The histories of American radio aesthetics have been written by Shawn VanCour (forthcoming) and Neil Verma (2012). VanCour explores the process by which radio producers both modified existing dermatological techniques of the stage and created new radio-specific features that would define the boundaries and practices of radio drama. Verma addresses a later time period, arguing that radio expressed changing models of the imagination, in essence serving as a proxy for cultural understanding of mental processes. Significantly, his model of the spatial positioning of the listener that itself was a proxy for political movements and the hopes and fears of radio’s power. Additionally, Michael Socolow (2016) examines the ways that radio broadcasts of the 1936 established techniques of sporting spectacle that would carry over into television.

On the side of avant-garde radio sound, Douglas Khan’s collaboration with Gregory Whitehead (1992) produced a collection of essays on radio art that jump-started an extended

conversation in the 1990s. Radio served as a venue for sound-based arts to exhibit their work and as a source of institutional and technological support. Artists like Pierre Schaeffer, for one, picked up their craft through their experience as radio sound engineers. In this respect although Douglas Kahn's (1999) monograph focuses on how "practices of inscription," like the return of the repressed, bubble up frequently and repeatedly in radio transmission. Daina Augaitis et al. (1994) provide an essay collection that covers various avant-garde practices. Allen Weiss (1995) sees modernist themes of alienation and the fracturing of the self in the radio body. He sees the work of avant-garde radio artists such as Antonin Artaud and Valère Novarina as prefiguring what cultural critics of the 1980s and 1990s described as postmodernism's schizophrenic subjectivity. Daniel Gilfillan (2009) looks at German radio as a site for aesthetic innovation in the Weimer and Postwar periods and Louis Niebur (2010) examines the history of the BBC's Radiophonic Workshop to mine its influential role in bringing experimental, electronic sounds to British radio drama from the late 1950s through the 1990s.

### Listening to radio sound

Although much radio scholarship has focused on the technologies of sound reproduction, the aesthetics and of radio sounds like voice and sound effects as signifiers, and the types of communication enabled, a final category of analysis is the practice of listening. Scholars in this vein utilize different methodologies and approaches, but all engage with questions that stem directly from sound studies. Paddy Scannell's (1991) phenomenological engagement discussion of listening places it within the context of structuring everyday life. Jo Tacchi's (1997) oral histories of radio listening provide a material history of reception. David Goodman (2011) examines anxieties around distracted listening in the 1930s and how radio sought to address anxieties around passive reception via its "civic ambition." Charles Fairchild (2012) critiques contemporary commercial radio aesthetic and argues for a set of aural aesthetics that will facilitate democracy. Additionally, Kate Lacey (2013) puts listening at the center of the public sphere. She argues against an artificial binary that sees the voice and the word as central to the constitution of publics and relegates listening to the sidelines as mere reception. In contrast, she sees listening as an active practice that "bridges both the realm of sensory embodied experience *and* the political realm of debate and deliberation" (Lacey 2013: 8).

In the twenty-first century, the boundaries of radio sound have become porous. The techniques of "reality radio" (Biewen and Dilworth 2010) that have invigorated long-form audio narrative on public broadcasters have proven durable enough to transfer to other modes of distribution via internet-based podcasts. Thus, while certain aural aesthetics are triumphant, other key characteristics, like liveness and transmission, are no longer essential. The convenience of feed-based online distribution makes non-synchronous listening not only possible, but preferable. Smartphones allow for the portable storage of programs that both replicate and extend the aural aesthetics of radio drama and documentary. Like cable and on-demand video producers, radio producers have discovered that being freed from the shackles of the broadcast clock (and its attendant assumptions about listener attention) allows for greater flexibility and creativity in audio forms. The entrance of private equity financing into audio production has allowed for an explosion of high quality programming but also raises issues about the future role of public broadcasting. In recent years, special issues of radio-oriented journals have begun to address these questions of media specificity within the podcast-era. Convergence media have had a similar effect on other media, whose definitions become fuzzier by the minute. Still, the robust histories of broadcast sound as a form of representational technology promise future innovations and cultural import.

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