As Time Goes By: Car Radio and the Travel Experience in Twentieth-Century America

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In a May 1922 issue of *The New York Herald,* David Sarnoff, then director of the Radio Corporation of America, elicited shocked responses from readers when he predicted the eventual widespread use of commercial radios in a range of seemingly unlikely devices. "It is reasonable," Sarnoff argued, "to expect [radio's] eventual application to automobiles, trains, and in some cases, to individuals" (1922, 1). It was a bold statement, not only because of the relative newness of commercial car ownership, but also because America had not yet happened upon the golden age of radio. At the time of Sarnoff's declaration, radio was just beginning to make a place for itself in the homes of the American public, battling poor operating quality and problems with mass production. But in spite of the widespread skepticism levied toward Sarnoff's ideas, radios were introduced into automobiles by the end of the very same year. The first car radio, an option in the 1922 Chevrolet, was the Westinghouse Radio Sedan, a "$200 extravagance" with an antenna that covered the car's entire roof, huge horn speakers, and batteries that filled the space under the front seat (Fisher 2007, 67). Describing these first years, broadcaster Frank A. Seitz vividly highlighted the pitfalls associated with the early models he himself was confronted with in 1931:

> They were monsters. Enormous. Reception was spotty and they didn't have the sensitivity of today's radios. They were subject to a lot of ignition interference and the antennas were slung under the running gear from the front of the car to the rear shock absorbers. They were cumbersome and unreliable. Most of them operated from separate B batteries under the floorboards that had to be replaced quite often. (quoted in Fornatale and Mills 1980, 19)

Because of these and other concerns, radios remained rare in cars. Musicologist Marc Fisher notes that to most drivers, the idea of playing music in the car was an unwanted and dangerous distraction from the serious business of motoring (2007, 67). Indeed, Edward Suchman's 1939 editorial on this issue cited a 1934 poll of motorists in New York City finding that 56 percent of drivers were heartily opposed to the automobile radio on the grounds that it distracted the driver of the car as well as drivers of other cars (149).

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Despite these threats of danger, this same study also described an analysis of two million General Motors Corporation questionnaires indicating that "an overwhelming majority of the boys and girls want radios in their cars" (Suchman 1939, 149). Another study of passenger habits in radio-equipped taxis from the same period found a directly proportional relationship between the length of the ride and the likelihood that the radio would be used (157). Of those tuning in, 75 percent listened to music as opposed to news broadcasts or radio dramas. Such studies indicated a definite fascination with the concept of radios in the automobile. But lingering doubts over the invention's safety, combined with a moratorium on automobile production during the scrap metal drives of World War II, meant that car radios remained relatively rare until well into the start of the postwar period.

Now, nearly a century after these first models were put up for production, car radios are found in over 95 percent of cars on the road (Fisher 2007, 67). Yet, as is the case with so many developmental histories of music-related technologies, studies concerning the technical aspects of car radio far outnumber studies concerning cultural aspects of this technology.[1] Who was the first person to think it would be a *good* idea to outfit an automobile with a radio? How did it affect the travel experience for car users? And why, in spite of the well-grounded safety concerns outlined above, did it rise to such prominence in American life?

The fact that these questions have not been widely addressed isn't surprising, given the current status of radio in American culture. Despite radio's storied history as the dominant media technology of the 1920s–1950s, the meteoric rise of television from its own beginnings in the 1940s was sufficient to knock radio down from its top ranking by the very next decade—a shift which in turn led to changes in the fundamental function of the medium. During its golden age radio was used as the primary means for disseminating media material such as news, weather, and artistic productions like concerts and plays. Today, however, musicologists like Jody Berland classify radio as a "secondary medium" in the broadcasting industry, the equivalent of what she terms "sonic wallpaper," referring to the fact that actively listening to radio is not essential to industry executives so long as listeners don't turn it off (1990, 179).[2] Automobiles, by contrast, feature in a larger collection of studies by cultural historians interested in the impact of various technologies on new forms of individual and group consciousness.[3] This interest in the effects of the shift to technologically mediated thought is epitomized in the work of historian and cultural theorist Wolfgang Schivelbush (1977) on the railroad's manipulation of industrialized space and time in the nineteenth century. Influenced by Schivelbush and other works, this article posits that changes to the travel experience

brought about by the introduction of the car radio were made possible not only by individual radio and car technologies, but also by earlier technologies such as the train, which initiated the shifts in perception that the car radio would eventually build upon.

Car Radio Cocoons

Within the field of car radio studies, the vast majority of academic work has, since its beginnings, been devoted to the engineering of these devices or to the documentation of their spread across domestic and international markets. Removing this rather large corpus of material leaves a more modest collection of scholarly studies focused primarily on how the particular engineering of car radios inspire unique psychological effects on the individuals that use them. In a 2014 edited volume entitled *Sound and Safe*, for example, Bijsterveld et al. provide a fascinating examination of what they call the "acoustic cocooning" phenomenon created by car radio: namely, the ability of sound to envelop the well-insulated space of the car until the occupants are surrounded only by the sounds they themselves wish to hear. This creates a number of interesting psychological effects, as media sociologist Michael Bull points out. He places car radios within a larger sphere of music technologies—such as iPods and other personal stereo devices—that were built not just to accommodate movement but to narrate that movement as well (Bull 2015). Technologies like the car radio thus allow drivers to feel as though they are firmly in charge of their travel experiences, further insulating themselves from the world around them until the sensory input they receive from other sources—whether visual, tactile, or otherwise—is unable to penetrate the acoustic cocoon they have created for themselves. This results in drivers who are left feeling as though the world around them is not only distant, but not quite real. This notion has been echoed by recent work examining other kinds of personal stereo devices, as evidenced by a 2013 study of cyclists' "sensory strategies" for mediating their environment, which involve a nuanced and constantly shifting negotiation between practices of "listening and not-listening" to the external sonic landscape as well as the internal one controlled by cyclists via technology (Jungnickel and Aldred 2013).

Surveying these and other works reveals that within the field of car radio studies there are a few unifying themes of scholarly interest revolving predominantly around the larger field of sound studies. As musicologist Marcel Cobussen (2014) points out, scholars are generally drawn to two major dynamics of the car radio phenomenon: first, that drivers are heavily invested in technologies and materials that will allow them to maintain the greatest possible degree of control over their vehicle. This includes policing

sounds produced from both the car itself and from technologies inserted within it. Second, car radios provide a tool for drivers to fill the insulated, privatized space they inhabit with their own personal sound choices, making it one of the last spaces where a person may exert near-total control over their sound environment. These two phenomena, simultaneously "*shielding* the car's interior acoustic space from outside noises" and "*filling* this space with the sounds of audio equipment and auditory signals," are what ultimately facilitate an equally simultaneous sense of control and freedom for the driver (Cobussen 2014; emphasis in original).

It is this focus on the simultaneous desire for freedom and control that leads so well into the larger body of works examining the psychosocial effects of car radio's technological predecessors. Schivelbush's seminal work, *The Railway Journey* (1977), provides an ideal point of departure for this new discussion. He discusses the railroad as a symbol of industrialized modernity that drastically restructured the way people perceived time and space: "Motion was no longer dependent on the conditions of natural space," he argues, "but on a mechanical power that created its own new spatiality" (Schivelbush 1977, 10). While hardly novel in today's world, the idea that humankind had moved away from a dependence on the beasts of the land or the currents of the sea in favor of a locomotive power generated—and thus controlled—by humans themselves led to a radical reshaping of the concept of distance as it was encountered and envisioned in everyday life. An article in the 1839 journal *Quarterly Review* deftly illustrates this new mentality in the minds of contemporary thinkers: "The Mediterranean, which is now only a week from us, has before our eyes shrunk into a lake; our British and Irish channels are scarcely broader than the old Firth of Forth . . . and the great lakes of the world are rapidly drying into ponds!" ("Reports of the Commisioners," 23). The illustrative power of descriptive notions such as these stemmed from the ability of train travel to introduce an element of *flexibility* into previously rigid structures of spatiotemporal consciousness; what had once been irrevocably far or incomprehensibly large was suddenly traversable, suddenly scalable, through means that might have seemed inconceivable just a few years before. This new flexibility in the perception of distance constituted a major shift in the perceived immutability of nineteenth century understandings of time and space—what geographer David Harvey (1989) labels "time-space compression."[4] Such a shift would, in turn, inspire a flexibility of *thought* that would greatly accelerate the rate at which future technologies, such as the car radio, would become widely embraced by a public now acclimated to the idea that time and space were phenomena within the range of human control.

Naturalizing Unnatural Technologies

This flexibility would not develop overnight. Indeed—as demonstrated by Seitz's description of the "monstrous" quality of early car radios or the *Quarterly Review* article's allusion to the terrifying "annihilation" of previous understandings of time and space[5]—the integration of new time- and space-bending technologies into the public domain was by no means a smooth process. In order for a flexible conception of space-time to truly take hold in everyday thought, the machinery that facilitated these expansions had to become a fully accepted presence in common social spheres: in essence, the normalized presence of machines like the railroad, the car, the radio, and, ultimately, the car radio had to become the norm rather than the exception (Schivelbush 1977, xv). This process would prove especially challenging for the radio, which facilitated a dissociation of the human voice from its natural condition analogous to the effects of the railroad on the motion of people and objects. R. Murray Schafer labelled this separation of an original sound and its reproduction "schizophonia," a term further elaborated upon by Steven Feld in his analysis of sampling and copyright related to Ba-Benzélé Pygmy music (Schafer 1969; Feld 1996). In this reading, the natural condition of the human voice (the production of human vocal sounds from the human body) is replaced by the unnatural or mechanical condition of the human voice (the production of human vocal sounds from a mechanical object), thus schizophonically separating sound from its original production source. Because this separation forced the sounds produced by the human voice into an unnatural condition, the first step in successfully integrating the radio into the home thus involved radio listeners acclimating themselves to sounds and voices that were simultaneously dislocated and disembodied. This involved accepting what Margaret Fisher describes as "the simultaneity of the radio speaker's real presence in the radio station and their spirit presence in the home (their virtual presence)" (2002, 42).

Telephones made this process easier, to be sure, having predated commercial radios by almost three decades.[6] But the spread of radio in the 1920s and 30s rapidly outpaced the spread of telephones: John J. Karol, in a 1938 study of the rapid commercialization of the medium, noted statistical data showing twice as many homes with radio sets than with telephones. This suggests that radios allowed a far greater number of people to become acquainted with disembodied voices than what telephones had made possible.[7] In fact, Karol and the many other social scientists studying the phenomenon of radio in the 1930s eventually concluded that radio's ability to dissolve geographic divides and connect users to places and people outside of their own physical space constituted the medium's most critical

effect on contemporary notions of distance (Lenthall 2007, 67). This specific aspect of radio's power is felt today in radio's influence on subsequent media technology.

Running parallel to the radio, the automobile was a technological innovation that had also rapidly ingrained itself into the daily lives of peoples of all classes from the earliest periods of its development,[8] helping to reform the social landscape in much the same way as radio. Writing for a 1922 edition of the advertising journal *The Printer's Ink*, Marsh K. Powers deftly describes the larger social impact of this new technology:

> Bald as the statement may sound, the motor car has stolen into the vantage-point formerly occupied by the home. . . . By 1919–20 the automobile had so usurped the interest of the American family that in thousands of instances a family preferred to squeeze itself into a cramped apartment rather than live more expansively and forego its motor car. (Powers 1922, 137)

The importance of the automobile as social currency was rivaled by that of the radio, and both were used to help initiate government-sponsored attempts to modernize rural areas and in so doing create a streamlined American cultural terrain. Media studies scholar Steve Craig argues that reformers saw four innovations in particular—the telephone, the automobile, radio, and electricity—as essential to modernizing rural life. "In fact," he argues, "these technologies were inscribed with a largely unquestioned power to transform an old-fashioned rural society into an agrarian version of middle-class, urban consumer culture" (Craig 2006, 2). The success of these efforts at modernization were due in large part not just to the introduction of these technologies, but to the symbiotic relationship they quickly formed. As documentation from the period shows, the weakening of the Depression, combined with the rise of farm incomes, meant rural families were increasingly traveling to town to purchase the products touted on radio commercials (Craig 2006, 10). This meant that, by the start of the 1940s, the automobile had become an instrumental component in the completion of daily household tasks—just like the radio.

Broadening the Palate

Successfully employing radio in the home and, later, the car, involved a fascinating confrontation involving the transmission of radio broadcasts into environments with pre-existing palates of sound. As musicologist Susan Key notes, "divorcing the value of music from its worldly associations or physical environment involved a curious effacement of the relationship between performance, social context, and sound itself" (Key 2002, 107).

While the sounds of rattling pans and boiling pots were not typically part of the acoustic space of a concert hall, such sounds were par for the course for many radio listeners. This forced home listeners to divide their auditory attention between the sounds from the radio and the sounds from the space inhabited by said radio. According to Key, the individual sounds of a broadcast composition thus assumed new relationships among themselves as well as with the listener. Listeners were forced to renew the criteria by which they perceived and defined both "natural" and "unnatural" sounds, since both typically occurred within hearing range of the listener (2002, 112–13). In this way, the imposition of layered sonic environments—such as the sounds of a Dick Tracy mystery show superimposed over the sounds of a kitchen during dinner preparations or traffic outside a city home at rush hour—became a normal part of the everyday radio experience. Had this transition to a "secondary medium" status not taken place prior to the mass production of car radio, the substantial background noises associated with the running of early car models might have proved an insurmountable challenge to individuals looking to add the sounds of radio to their driving experience. The secondary medium status also reduced concerns over distracted driving by demonstrating that listeners to the radio could, in fact, perform other tasks successfully while using it.

The changes in perception brought about by radio did not go unnoticed. The practical application of these changes to broadcasting policies was expressed by Paul Lazarsfeld in the late 1930s, when he stated that, "for whatever goal radio is used, we shall want to know first to what extent people are prepared to fall in line" (1939, 2). This turn of phrase, "to fall in line," is particularly telling for the mentality of mass-production and mass-consumerism it engenders. Government officials in both Europe and the United States, aware of this research and the potentials of such mentalities, conscientiously enhanced the mass-production/mass-consumption relationship during World War II in the form of industrial music (Baade 2012). This genre evolved out of industrial psychology: the common thinking of the time that the space-time constructions of the factory floor—with its heavy regimentation and dehumanizing procedural dictates—could be both tempered and improved by introducing music designed to satisfy workers' needs for stimulation in an otherwise static atmosphere (63). Indeed, Sarnoff himself alluded to this application of radio technology in his article for the *Herald*, asserting that radios would have a "fixed position in certain classes of factory operations: more particularly could they be effectively introduced among the sweatshops to lighten the burden of the toilers subjected to the daily monotony there encountered" (1922, 11). As a result, the large-scale introduction of radio music in the workplace

was viewed as a benefit rather than a distraction, expanding the reach of radio beyond the realm of domesticity and increasing the interest in other potentially beneficial applications for the medium.

In looking at the content of broadcasts during this period, music production for the radio shifted to conform to many of the same industrial processes used on the factory floor, in the sense that radio owners, programmers, and performers were all saddled with an unprecedented awareness of time. This regimentation of music broadcasting met with not-insignificant degrees of resistance from the musicians and conductors forced to accommodate these new and tightly regulated time blocks. American Studies scholar David Goodman (2011) highlighted some of these responses when he described how the broadcast of John Barbirolli's popular Sunday concerts on CBS had to adhere strictly to a new regimen of pre-set constraints on time. He was required to be off by 4:27 p.m., and no later, in order to clear the air for a commercial program at 4:30. Goodman goes on to say that, "in 1940, there was some conflict about Barbirolli's slow entrances for broadcast concerts. A CBS official reported overhearing him asking 'if this is a factory,' and offering to take the blame if the broadcast ran over" (2011, 155). Through the regimentation of the broadcast schedule, then, the commercialized, industrialized broadcast of "sonic goods" during and after World War II extracted the maximum benefit from processes originally created for the production of "material goods" (Berland 1990, 185).

After the War

The shifts in perception spurred by the radio and the car during the 1930s and 40s—which, as described above, included the familiarization of disembodied sounds, the imposition of layered sonic environments, and the compression of space and time—were built upon and amplified in the postwar period. This came about just as the end of the war brought renewed production of consumer goods and the advent of suburbanization. While the period from 1950 to 1960 saw a 47 percent increase in suburban populations, compared to just 8 percent in cities, most workers continued to be employed in urban areas, which drastically increased the need for transportation to and from the job. As McFarland notes, "Suburbia's newly restructured day, with the addition of morning and evening commutes, created a yearning for entertainment in the car" (1972, 7). It was in this spirit of fast-paced, routine travel that car radio became a welcome addition to the driving experience of suburban dwellers. The programming for radio underwent rapid changes during this time as well, all in an effort to accommodate this newly mobile audience. Stations increasingly added regular traffic reports aired with news headlines and commercials, aware

that repetition was key to making distracted listeners absorb the content of their broadcasts (Fisher 2007, 67–68). Ken Barnes noted in the 1980s that by that point in the history of car radio programming, broadcast philosophies revolved around the assumption that "virtually anything unfamiliar will elicit a guarded reaction at best, while familiar material has a much better chance of favorable response, even if it's simply the relief of recognition" (1988, 22). As a result, station owners avoided innovation and diversity in their choice of music, save in the most superficial of ways.

This desire for consistent sound was maintained through the "clock-hour" formula, in which each type of programming—music, news, weather, and commercials—was appointed to a specific place within an hour-long rotation. This strategy was designed to create a kind of mental familiarity reminiscent of early-twentieth-century radio shows, but without the same need for concentrated, active listening from the audience. It was a shift that forced radio to shed its place as the central pillar of American home entertainment—a move greatly facilitated by the concurrent rise of commercial television—and instead adopt an even more intimate, if less obvious, role: it was "just there, always on in the background, serving not as the main entertainment of the evening, but as the soundtrack of American life" (Fisher 2007, 8). Such a shift was fully in keeping with radio's earlier transition to a secondary medium, becoming a sonic presence as ubiquitous and expected as the other sounds of everyday life in twentieth-century America.

The clock-hour formula thus capitalized on the earlier industrialization of radio by further integrating standardized practices into the production of music. Because of the strict demarcations of time within the hour formula, the amount of time any given song could occupy was strictly delineated in turn. Restrictions on time had already been in place since the mid-nineteenth century due to the technological limitations of recording technologies such as wax cylinders all the way through the 78 rpm record. Because repetition of the clock-hour formula was important in order to maximize the impact of the structure, and because radio was transitioning into the role of background medium, the music played on this secondary medium also adopted a repetitive, simplified style conducive to background focus. The goal, according to the philosophies of the clock-hour system, was for people to focus on socializing, on driving, on working—to focus their attentions on activities for which radio could regularly contribute to the sound environments encountered most frequently in everyday life.

Given the confluence of these elements within the same period—the shift to radio as a background medium, its ever-increasing presence in automobiles, and the industrial and technological standardization of the music played from within it—it should come as little surprise that the mid-

point of the twentieth century also saw a distinct rise in the number of mainstream popular songs referencing cars through sound, text, or both. Some genres, such as rock and roll, referenced automobiles more frequently than others. Indeed, the song most commonly credited with being the "first" rock and roll song was "Rocket 88," an homage to a car of the same name written by Ike Turner and performed by the early rock powerhouse group Jackie Brenston and His Delta Cats.[9] In the song, the focus on the automobile—and in particular, its status as a symbol of freedom and exploration—is foregrounded by Brenston's vocals from the first stanza:

> *A V8 motor baby, it's modern design*
> *Black convertible top and the girls don't mind*
> *Sportin' with me riding all around town with joy*[10]

This crossover of musical theme and musical medium resulted in multidirectional flows of influence on related aspects of music dissemination. On one hand, DJs and radio executives felt compelled to prominently feature these and other car-referencing genres within the clock-hour formula. On the other hand, the importance of the radio format and car technology meant musicians felt compelled to write music on these subjects, encouraging more attention from DJs and executives—thus encouraging these cycles of influence to continue.

That's not to say that early rock and roll held a monopoly on car-themed songs. There are hundreds of possible examples spanning every decade of the mid- to late-twentieth century, including "Route 66" (1946), which references the iconic highway frequented by car enthusiasts. Cars and road travel are front and center in country music, with old hits like "On the Road Again" (1980) receiving just as much airplay as more recent songs like Tim McGraw's "Truck Yeah" (2013). Even the 2009 Miley Cyrus pop-rock anthem "Party in the USA" situates its narrative within a Los Angeles taxi cab. The song details the young singer's move from Tennessee to Los Angeles to pursue a solo singing career. Unable to overcome her anxieties about the move, she jumps into a cab at LAX only to discover her favorite songs by her favorite singers playing on the car radio—at which point she forgets her troubles and calls for a "party in the U.S.A." (for more, see Carroll 2009). And, of course, any discussion of the connection between music and cars would be incomplete without reference to rap music, the lyrics and imagery of which demonstrate the continuing presence of cars as status symbols (Williams 2014; see also Gilroy 2001).

Although the impact of automobiles on the subject matter of American popular songs has undoubtedly been great, cars have also had a notable effect on the actual design of musical sound. Sound artist Peter Sinclair, for

example, developed the interactive RoadMusic project in 2013, whereby "sensor information gathered from the surroundings and from the movements of the car" are used by composers to craft real-time musical responses for passengers and drivers in the car (Parkinson and Tanaka 2013, 136). And as musicologist Justin Williams explains, hip-hop artists and producers regularly craft music specifically for the listening space of the car:

> My case study focuses on one producer, Dr. Dre, and his creation of a style labeled "G-funk," which according to him, was created and mixed *specifically* for listening in car stereo systems. As borrowing is so central to hip-hop's ethos, Dr. Dre's production reflects how musical materials become reused for a new space, updated and customized for the automotive listening experience. (Williams 2014, 74)

The ability to so carefully control the sound environment of a vehicle—especially with the recent rise of near-silent electric engines, which greatly reduce the level of "noise pollution" in a car interior and thus increase the "acoustic cocooning" effect so desired by contemporary drivers—thus makes composing music intended to be heard in cars an intriguing and challenging experiment for music makers across genres. But coupled with this kind of innovation come moves in opposing directions as well. For instance, the ongoing privatization and careful curation of space, both material and conceptual, inspired some American car manufacturers at a March 2013 Radio Ink conference to consider releasing models without any AM/FM radios at all (Rhoads 2013; George 2013). The general sentiment among manufacturers was that in an age of highly customizable media consumption, the mass market structure of AM/FM radio had become obsolete. Instead of having their sonic environments curated for them, drivers of these new vehicles would have the option of either connecting to their own satellite radio attachments or connecting a personal portable music device.

This idea was met with substantial public backlash: just days after that conference, veteran radio media strategist Mark Ramsey conducted a randomized, nation-wide study of car consumers gauging their responses to the idea, in which 74.5 percent of respondents strongly disagreed with the idea that removing AM/FM radios from cars was acceptable, and 58.3 percent strongly agreed that they would still want AM/FM radios in their cars even if they could still listen to all their favorite stations on their mobile devices or via the internet (Ramsey 2013). Two manufacturers—BMW and Tesla—did eventually commit to removing AM radio from their electric car models in 2014, arguing that electric motors cause interference on AM

stations that reduce their broadcast quality (Boeriu 2015; see also Gordon-Bloomfield 2014; Neal 2016). But the National Association of Broadcasters officially petitioned BMW to reconsider, with one commenter on a public forum writing, "I plan to drag out my portable AM radio and leave it in the car" (Smith 2014).

These developments, while heralding definite shifts in the mechanical integration of radio into the car, do not indicate that the presence of this century-old medium is likely to disappear from cars altogether. Industry studies continuously show that drivers across demographic lines maintain a strong preference for radio over internet-based listening or personal stereo devices such as iPods or mobile phones, with a study of female drivers from February of 2017 showing that 71 percent of women surveyed tune into local AM/FM stations, while only 14 percent relied on pure play streaming services—that is to say, services without commercial interruption (Burns and Rod 2017). But these first attempts to remove the radio—the traditional means of encountering curated sound in the car—nevertheless point to the fact that in doing so manufacturers are removing the possibility, however small, of encountering the sonically unexpected. No longer would the listener have to worry about the insertion of unwelcome or even simply unplanned sounds into their sonic environment, even if those sounds are heavily curated themselves, as is the case with commercials or the clock-hour rotation. Instead, they would be met with a fully controllable system of musical delivery. Regardless of whether the removal of radios from these new electric car models ultimately becomes the norm, then, the realization of this idea even on a small scale speaks in and of itself to the new modalities of industrialization and mass production of space, time, and experience via the technologies employed in everyday life.

Conclusion

As Schivelbush notes in his introductory thoughts on the relationship between technology and social structure: "If an essential element of a given socio-cultural space-time continuum undergoes change, this will affect the entire structure; our perception of space-time will also lose its accustomed orientation" (1977, 36). Car radio did not set the precedent for the kinds of perceptual changes Schivelbush describes; however, it did provide a new manifestation of the technologically mediated spatiotemporal paradigm gripping the West in the first half of the twentieth century. The result confirmed in its own way that human experience—and the larger social processes constituted from such individual experiences—cannot be understood in isolation, but rather must include consideration of how such experiences shape and are shaped by predominant or shifting concepts of

space and time. Any kind of disruption or change in social processes must necessarily involve a change in our understanding of space-time, and vice versa.

Thus, the creation of radio audiences, whether in the home, at the office, or in the car, led to the creation of new concepts of space-time. Radio and the automobile both compressed and expanded users' notions of space by, on the one hand, decreasing the labor involved in moving from one space to another and, on the other hand, increasing the accessibility of previously foreign locales. The temporal effects of these industrial technologies also tended toward compression. Like the radio schedule itself, with its strict markers of the hour and timed rotation of current and past hits, the music playlist continuously demarcated the present from the immediate or distant past (Straw 1988). Combining this demarcation with the closed environment of the car instilled in its listeners a sense of what Michel Chion labels the "perpetual present," thus reducing the perceived passage of time between origin and destination (1994, 86).

So while it may be true today that car radios have taken a back seat in the minds of the public, this need not be a sign of radio's failure as a communicative medium. Rather, its status today—whether it be labeled a secondary medium, sonic wallpaper, a social soundtrack, or something else—should only serve as a testament to the incredible power of this innovation and others like it to intimately influence the foundations of human consciousness. In the broadest sense, car radio reinforces the listener's ability to manipulate the interaction of two concepts (space and time) once upheld as immutable laws of the natural universe. But on a more personal level, inserting radio into the car allowed listeners to take the music, voices, and sounds that tied them to their communities, injecting acoustic markers of humanity into technologies that might otherwise seem forebodingly inanimate. Through the medium of the car radio, shifts in space and time occurring during the travel experience became a more palatable and familiar concept, allowing travelers to keep within their minds those thin ties of sound and sense that underpin the self, connecting listeners to home and hearth no matter how far into the distant unknown they should choose to go.[11]

Notes

The conference paper that led to this article was presented as part of the "Medium is the Message" panel at the 2012 Society for Ethnomusicology conference in Pittsburgh, Pennsylvania. I am grateful for the thoughtful commentary of the audience members as well as my fellow panelists. Finally, I credit Beth Levy and her provocative, evocative, and impeccably curated graduate seminar on radio for inspiring the original thoughts that generated this final work.

1. Cataloging all journals, books, and trade publications listed in JSTOR, WorldCat, and ProQuest, as well as the archives of the Institute of Electronics and Electrical Engineers—believed to be the world's largest technical professional organization in the world—showed a consistent 2:1 ratio of books, journals, journal articles, or trade publications focusing on technical versus sociocultural aspects of car radio. Technical studies included those focusing on component parts, manufacturing processes, broadcasting range and requirements, maintenance and repair, environmental impact, and advances in technology such as analog to digital. Sociocultural studies included studies from psychology, sociology, anthropology, music and others on car radio's effects on cognitive perception; family/social dynamics; music, news, and entertainment production; traffic patterns; urban planning; and political affiliation. Excluded from this review were professional or scholarly publications produced in a language other than English, studies focusing primarily on technologies other than car radio, and speculative studies published prior to the actual invention of car radios.

2. Several scholars in the late 1970s and early 1980s noted this shift to a secondary medium status as it was happening, documenting the new industry reliance on radio for advertising purposes. See the works of Benjamin Compaine (1979) and Christopher Sterling (1979, 1984) for examples.

3. See, for example, Bull (2003); Hård and Knie (2001); Gartman (2004); Koshar (2001); McFarland and Moore (1960).

4. For more writing on theories related to the social construction of space and time in contemporary life, see Lefebvre (1974); Soja (1989, 1996); Giddens (1981); Virilio (1986); Massey (1994); and Postone (2007).

5. Although not cited specifically, the article's use of the phrase "annihilation of time and space" may be a reference to a similar phrase coined by Marx in *Gundrisse*, a collection of unfinished essays from 1857 on a wide range of topics, including the impacts of capitalism's contradictions on conceptions of space and time.

6. Telephones: patent issued to Alexander Graham Bell in 1877. Radios: patent issued to Guglielmo Marconi in 1904.

7. For more on this subject, the field of sound studies has yielded a great deal of relevant scholarship. For examples, see Barthes (1977), Attali (1985); Chion (1994); Bijsterveld (2006); Hilmes (1997); Mowitt (1987); Kittler (1999); and Sterne (2003).

8. Cars: Model T patent issued to Henry Ford in 1908.

9. After a great deal of debate, the song was recognized by the Rock and Roll Hall of Fame in 1991 as the first recorded rock and roll song. It is also credited by many as being one of the first songs to feature guitar distortion, a result of Turner's decision to record with an amplifier that had broken—ironically enough—after falling out of a car.

10. Ike Turner, *Rocket 88.* Chicago: Chess Records, 1951.

11. The idea of travel—a journey, an adventure, a venturing into the distance—is both the subject of this article and an apt metaphor for the processes involved in its creation. I am deeply indebted to many individuals who have offered me support and encouragement as I travelled this path. The editorial staff of *Current Musicology*, with the help of two anonymous reviewers, provided wonderfully thoughtful and challenging commentary on this draft, and Henry Spiller, Alex Stalarow, and Gillian Irwin performed critically important revisions of this work in its early stages.

References

Attali, Jacques. 1985. *Noise: The Political Economy of Music*. Translated by Brian Massumi. Athens: Ohio University Press

Baade, Christina. 2012. *Victory through Harmony: The BBC and Popular Music in WWII.* Cambridge: Oxford University Press.

Barnes, Ken. 1988. "Top 40 Radio: A Fragment of the Imagination." In *Facing the Music,* edited by Simon Frith, 8–50. New York: Pantheon Books.

Barthes, Roland. 1977. *Image-Music-Text*. Translated by Stephen Heath. London: Fontana Press.

Berland, Jody. 1990. "Radio space and industrial time: music formats, local narratives and technological mediation." *Popular Music* 9 (2): 179–92.

Bijsterveld, Karin. 2006. "Listening to Machines: Industrial Noise, Hearing Loss, and the Cultural Meaning of Sound." *Interdisciplinary Science Reviews:* 31 (4): 323–37.

Bijsterveld, Karin, Eefje Cleophas, Stefan Krebs, and Gijs Mom. 2014. *Sound and Safe: A History of Listening Behind the Wheel.* Oxford: Oxford University Press.

Boeriu, Horatiu. 2015. "Why you can't get an AM radio in your BMW i3." *BMW Blog*, July 9, 2015. http://www.bmwblog.com/2015/07/09/why-you-cant-get-am-radio-in-your-bmw-i3.

Bull, M. 2003. "Soundscapes of the car: A critical study of automobile habitation." In *The Auditory Culture Reader*, edited by Michael Bull and Les Back, 357–374. London: Berg.

———. 2015. *Sound Moves: iPod Culture and Urban Experience*. Second Edition. New York: Routledge.

Burns, Alan and Hal Rod. 2017. "What Women Want—How Women Feel About Radio." *What Women Want 2017.* Alan Burns and Associates in Partnership with Strategic Solutions Research.

Carroll, Larry. 2009. "Miley Cyrus Spoofs Her Roots in Teen Choice Awards Performance." *MTV News*. August 10, 2009. http://www.mtv.com/news/1617968/miley-cyrus-spoofs-her-tennessee-roots-in-teen-choice-awards-performance.

Chion, Michel. 1994. *Audio-Vision: Sound on Screen*. New York: Columbia University Press.

Cobussen, Marcel. 2014. "Review: Sound and Safe: A History of Listening Behind the Wheel— Karin Bijsterveld, Eefje Cleophas, Stefan Krebs, Gijs Mom. Oxford University Press, 2014." *Journal of Sonic Studies,* February 28, 2014. http://sonicstudies.org/bijsterveld2014.

Compaine, Benjamin M. 1979. "Introduction." In *Who Owns the Media? Concentration of Ownership in the Mass Communications Industry,* edited by Benjamin Compaine, 1–17. White Plains, New York: Knowledge Industry Publications, Inc.

Craig, Steve. 2006. "'The More They Listen, the More They Buy': Radio and the Modernizing of Rural America, 1930–1939." *Agricultural History* 80 (1): 1–16.

Feld, Steven. 1996. "Pigmy POP: A Geneology of Schizophonic Mimesis." *Yearbook for Traditional Music*, 28: 1–35.

Fisher, Marc. 2007. *Something in the Air: Radio, Rock, and the Revolution that Shaped a Generation.* New York: Random House.

Fisher, Margaret. 2002. *Ezra Pound's Radio Operas: The BBC Experiments, 1931–33.* Cambridge, MA: MIT Press.

Fornatale, Peter and Joshua E. Mills. 1980. *Radio in the Television Age.* Woodstock, NY: The Overlook Press.

Gartman, David. 2004. "Three Ages of the Automobile: The Cultural Logics of The Car." *Theory, Culture & Society 21* (4–5): 169–95.

George, Patrick. 2013. "Will AM and FM Radio Really Be Eliminated On New Cars?" *Jalop-*

nik, March 15, 2013. http://jalopnik.com/will-am-and-fm-radio-really-be-eliminated-on-new-cars-453849045

Giddens, Anthony. 1981. *A Contemporary Critique of Historical Materialism: Power, Property and the State*. London: Macmillan.

Gilroy, Paul. 2001. "Driving While Black." In *Car Cultures*, edited by Daniel Miller, 81–104. Oxford: Berg.

Goodman, David. 2011. *Radio's Civic Ambition: American Broadcasting and Democracy in the 1930s.* Cambridge: Oxford University Press.

Gordon-Bloomfield, Nikki. 2014. "BMW i3 Interference Killed the AM Star. The NAB Wants it Back." *Transport Evolved*, August 14, 2014. https://transportevolved.com/2014/08/14/bmw-i3-interference-killed-star-nab-wants-back.

Hård, Mikael, & Andreas Knie. 2001. "The cultural dimension of technology management: lessons from the history of the automobile." *Technology Analysis & Strategic Management* 13 (1): 91–103.

Harvey, David. 1989. *The Condition of Postmodernity: An Inquiry into the Origins of Cultural Change*. Cambridge, MA: Blackwell.

Hilmes, Michelle. 1997. *Radio Voices: American Broadcasting 1922–1952.* Minneapolis: University of Minnesota Press.

Jungnickel, Katrina and Rachel Aldred. 2013. "Cycling's Sensory Strategies: How Cyclists Mediate their Exposure to the Urban Environment." *Mobilities* 9 (2): 238–55.

Karol, John J. 1938. "Analyzing the Radio Market." *Journal of Marketing* 2 (4): 309–13.

Key, Susan. 2002. "John Cage's *Imaginary Landscape No. 1: Through the Looking Glass*." In *John Cage: Music Philosophy, and Intention, 1933–1950,* edited by David W. Patterson, 105–33. New York: Routledge.

Kittler, Friedrich. 1999. *Gramophone-Film-Typwriter*. Translated by Geoffrey Winthrop-Young and Michael Wutz. Stanford, CA: Stanford University Press.

Koshar, Rudy. 2001. "On the history of the Automobile in Everyday Life." *Contemporary European History* 10 (1): 143–54.

Lazarsfeld, Paul. 1939. "Radio Research and Applied Psychology." *Journal of Applied Psychology* 23 (1): 1–7.

Lefebvre, Henri. 1974. *La production de l'espace*, Paris: Anthropos.

Lenthall, Bruce. 2007. *Radio's America: The Great Depression and the Rise of Modern Mass Culture.* Chicago: University of Chicago Press.

Marx, Karl. 1993. *Grundrisse*. Translated by Martin Nicolaus. London: Penguin Books, 1993.

Massey, Doreen. 1994. *Space, Place, and Gender*. Minneapolis: University of Minnesota Press.

McFarland, R. A., and R. C. Moore. 1960. *Youth and the Automobile*. Association for the Aid of Crippled Children.

MacFarland, David R. 1972. *The Development of the Top 40 Radio Format*. New York: Arno Press.

Mowitt, John. 1987. "The Sound of Music in the Era of its Electronic Reproducibility." In *Music and Society: The Politics of Composition, Performance, and Reception*, edited by Richard Leppert and Susan McClary, 184–97. New York: Cambridge University Press.

Neal, Megan. 2016. "Why Electric Cars Are Ditching AM Radio." *Motherboard*, February 5, 2016. https://motherboard.vice.com/en_us/article/why-electric-cars-are-ditching-am-radio.

Parkinson, Adam and Atau Tanaka. 2013. "Composing for Cars." *Proceedings from the Sound and Music Computing Conference 2013,* SMC 13: 136–41.

Postone, Moishe. 2007. "Theorizing the contemporary world: David Harvey, Giovanni

Arrighi, Robert Brenner." In *Political economy and global capitalism: the 21st century, present and future,* edited by Robert Albritton, Bob Jessop, and Richard Westra, 85–107. New York: Anthem Press.

Powers, Marsh K. 1922. "The Forgotten Fireside: New Standard, Now, to Indicate One's Position in the Community." *Printers' Ink: A Journal for Advertisers* 64 (1): 132–38.

Ramsey, Mark. 2013. "Radios Ripped from New Cars? 'Not So Fast,' Say Consumers." *Mark Ramsay Media*, 11 March. http://www.markramseymedia.com/2013/03/radios-ripped-from-new-cars-not-so-fast-say-consumers.

"*Reports of the Commissioners appointed to consider and recommend a General System of Railways for Ireland.* Presented to both Houses of Parliament by command of Her Majesty." *Quarterly Review* 63 (1): 1–60.

Sarnoff, David. 1922. "The Radio of Today and Tomorrow." *The New York Herald,* May 14, 1922, 1, 11.

Schafer, R. Murray. 1969. *The New Soundscape: A Handbook for the Modern Music Teacher.* Toronto: BMI Canada.

Schivelbush, Wolfgang. 1977. *The Railway Journey: The Industrialization of Time and Space in the 19th Century.* Berkeley: University of California Press.

Smith, Gordon H. 2014. "08/13/14 BMW Letter." *National Association of Broadcasting: Digital Archives*, August 11, 2014. http://www.nab.org/documents/newsRoom/pdfs/081314_BMW_letter.pdf

Soja, Edward. 1989. *Postmodern Geographies: The Reassertion of Space in Critical Social Theory.* New York: Verso Books.

———. 1996. *Thirdspace: Journeys to Los Angeles and Other Real-and-Imagined Places.* Oxford: Basil Blackwell.

Sterling, Christopher H. 1979. "Television and Radio Broadcasting." In *Who Owns the Media? Concentration of Ownership in the Mass Communications Industry,* edited by Benjamin Compaine et al., 35–52. White Plains, NY: Knowledge Industry Publications, Inc.

———. 1984. *Electronic Media: A Guide to Trends in Broadcasting and Newer Technologies, 1920–1983.* New York: Praeger Publishers.

Sterne, Jonathan. 2003. *The Audible Past: Cultural Origins of Sound Reproduction*. Durham, N.C.: Duke University Press.

Straw, Will. 1988. "Music Video in Its Contexts: Popular Music and Post-Modernism in the 1980s." *Popular Music* 7 (3): 247–66.

Suchman, Edward A. 1939. "Radio Listening and Automobiles." *Journal of Applied Psychology* 23 (1): 148–57.

Virilio, Paul. 1986. *Speed and Politics*. Transl. by Mark Polizotti. New York: Semiotext (e).

Williams, Justin A. 2014. "'Cars with the Boom': Music, Automobility, and Hip-Hop 'Sub' Cultures." in *The Oxford Handbook of Mobile Music Studies Volume 2*, edited by Sumanth Gopinath and Jason Stanyek. Oxford: Oxford University Press.