Changing Cultural Coordinates: The Transistor Radio and Space / Time / Identity

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Introduction

In the decade after 1955, the ways in which it was possible to experience listening to radio were transformed in the United States of America and, while the impact was less profound in the rest of the developed world, radio, and music listening, would never be the same again. For consumers these shifts were to be found in both when and where people were able to listen, but also in the very sense of how they understood themselves as listeners. In this chapter we want to explore the ways in which temporal, spatial and identity "reconfigurations" of listeners' experiences of radio relate to the profound changes in the devices that reproduced the programs for those listeners, in the programs themselves, and in who provided them.

Centrally, during this period, radio became much more a medium of mobile listening. The radio as a receiving device, and radio as a listening experience, became associated first with the car and then with a more generalized sense of portability. As we will show, this period coincided with a major shift in radio programming, where music-based content derived from the playing of records by self-operator MC broadcasters (the "disc jockey") became the dominant form of radio, and the complex economic and technical system of network radio was replaced by independently functioning stations who used the Top 40 and DJ as a way to cut programming costs and attract new audiences.

From the listener's point of view these changes seemed to be embodied in a relatively new technological development, applied to radio receivers, and celebrated in the term "transistor radio." The fact that a new category of wireless receivers should be named after a

key technical development in its electronics should alert us to the fact that the change was understood to be notable. Certainly, it was a feature of the advertising copy in the promotional material of even the earliest radios to use the transistor technology (see, for instance, adverts for the first US and UK transistor radios: Technology 2009; Audio UK 2009). In economic terms the sheer difference in scale and ruggedness (and later, cost) between the transistor and its functional predecessor, the electron tube,[1] also gave major benefits to radio manufacturers (Partner 1999:195–200).

However, the historical coincidence of these technological, programming, and listening innovations, and the indexical inference of the term "transistor radio," could easily suggest some sort of simple determinism at work. We start the chapter by making some points that bring this into question. We then move through questions of space, time and identity as themes to reflect on the way in which radio produced mobile music through the 1950s and 60s. In doing this, we must be mindful of the danger of allowing the romantic representations of the late 1950s / early 1960s US youth culture, and its associations with the rise of rock and roll and the radio DJ, found in films like *American Graffiti* (Lucas 1973), to act as our guide to understanding the advent of mobile music during this period. We must set aside the alluring imagery of the cruising car on an urban street, the car radio blaring out a rock 'n' roll hit from yesteryear, overtaken by the leather-clad bike-rider, on the way to the diner or drive-in-movie. Simply put, we cannot assume that the transistor allowed radios to become portable, making radio listening a mobile phenomenon, exploited by a new youth culture.

In a book considering mobile music and its relationship to media technology, we need to be especially thoughtful about how the two interact, and we need to particularly avoid any sense of technological determinism, or any hyperbole about the music listening experience. Both such approaches are totalizing, in that the historical events we are examining are

inserted into "grand explanatory systems and linear processes, celebrating great moments and individuals and seeks to document a point of origin" (Sarup 1993:59). The most significant themes in the technological determinist and romantic totalizing history are those of "personal" and "communal" listening. So, mobility of radio technology is strongly associated with narratives about personal listening, and the romance of films like *American Graffiti* are built around representations of communal listening practices.

New Radio Technology, Technological Determinism and Mobility

At the outset, we want to pose a question about the degree to which the transistor was important in the mobility of radio, and of music. In answering such a question we need to make explicit the way in which we understand the role of technology in society. Put boldly, the concept and practice of portability and mobility in radio listening predate the invention and use of transistors.[2]

The transistor was perfected in 1947 or 1948 (depending on the account) and the first transistor radios appeared in the mid-1950s (Braun and Macdonald 1978:17; Partner 1999:193–98). It was a solid-state technology that replaced the electron tube to amplify the received radio signal. Transistors used less power because tubes needed heating to achieve the amplification effect and they were not as energy efficient. Transistors were more rugged because they did not rely on glass, gas and delicate elements. Transistors were smaller, and could be reduced in scale even further. Transistors became cheaper as they were easier to mass produce (Tilton 1971:16–17; Partner 1999:203–5). These are all qualities that either enable greater mobility, or make it more affordable; all contributing to a greater culture of mobility.

However, portable radio receivers go back well before the mid-1940s. Portability was an important quality for the early military use of wireless communication. The Marconi company produced mobile radio receivers as early as 1901, and of course hobbyist receivers were small enough to move around (Schiffer 1991:17–31). Portability in reception was, then, (in Schiffer's phrase) a cultural imperative from the beginning. Radio receivers developed into a piece of furniture because of another, domestic, cultural imperative, not because it was inherent in tube technology (VanCour 2008:168-85). Portable radios, and radios in cars, were far from unusual in the mid-1920s, and low power and small tubes, and even pocket radios that used them, could be found in the late 1930s. And, by the mid-1940s, hand-sized portable tube radios with speakers were not uncommon (Schiffer 1991:161–71). In the US, by the mid-1950s, most new radios were produced for cars, and 83% of cars had radios (Gomery 2008:144).

There is a tendency to give technology agency in the development of listening practices, especially as they relate to mobile music. This tendency is part of a wider technological determinism in discussions of communication media. Amongst others, Brian Winston has provided a useful summary of the extent of this tendency, as well as asserting that processes of technological innovation are more complex. Specifically, he argues that new technologies are accommodated within, rather than transformative of, existing social practices (1998:2).

In recent years Michael Bull has set the agenda for discussions about the audio experience and mobility across a number of articles and books (Bull 2000, 2007; Bull and Back 2003). He endeavors to explore how people use a range of portable music devices, set within what he terms the "urban experience." The strength of this work is in the refocusing of our attention on the auditory, rather than exclusively the visual. Bull's interpretations of the aural immersion made possible through the iPod or car stereo are more positive than those

often found in popular representations. However, he gives a primacy to the technology, and so often implies that it is the technology that has agency, rather than people. For instance, in his study of the iPod, he overplays the transformative nature of the new device, presenting it as a driver of behavior, rather than a tool used to accomplish something. Newspaper readers on the subway are just as good examples of immersion and the privatization of public space as the iPod listener; and people have created communal music experiences using portable music devices and speakers for at least eighty years in record clubs, later through Walkmans plugged into an audio playback system, or in the recent past by taking CDs to work (for instance Bull 2007:65, 119). Overall, Bull's analysis relates sets of human experience to technology, rather than examining how that technology is deployed in the context in which it is employed.

Far more useful, then, is to understand portability and mobility as cultural imperatives, and to explore how the technology is deployed in specific historical moments, and how the human agents act within underlying social structures. That is not to ignore other factors, like economic determinants, or to try to remove the importance of technology, but simply to highlight the cultural factors that are so often underemphasized. When discussing the transistor radio, then, we must deal with equivalent shifts in who listened to radio and when, and seek out the factors that determined music programming on radio. We argue that these can be best understood as cultural phenomena that remake radio space, time and listener identity. In the sections that follow we take each of these in turn.

Radio *Space*

It is fairly straightforward to understand that the increased use of radios in cars, and "carry anywhere" receiving devices, reconfigured a series of public and private spaces. The

wider opportunity to enjoy "music on the move" is a significant cultural change within the USA during the late 1950s. Eulogies to the new American pop culture of the late 1950s and early 1960s give a central place to the car, and to pop music in cars. The lyrics of the new rock 'n' roll songs were often themselves a celebration of the mobility of the car. In addition, though, there is a new sense of space wrought by radio during this period that is less often cited. We take the term "radio space" from Jody Berland (1993), who has argued that the programming and listener experience of radio creates a number of different senses of space. At the most basic level, these are bounded by the broadcast footprint of a single radio station, but they are also the creation of the programming of radio itself.

Understanding the mobility of music from this time, then, requires that we investigate how the portability of receivers, first in the car and ultimately in the shirt pocket, intersected with the signal of the radio stations they received and the music programming that these stations broadcast.

While the transistor did not lead to the invention of car radios (in 1946 nearly 40% of the nine million US cars had radios), the expansion of car ownership in the US heralded a revolution in mobile music listening, and 60% of the then 50 million cars had radios by 1963 (Douglas 1999:226). Douglas Gomery (2008:144) points to a whole raft of statistics that reveal the extent of this change, including: by 1954, cars were replacing residential property as the main sites for radios, and a year later most radios were sold in cars; by 1958, there were 78 car radios per 100 US families, and half the population was listening in their cars. At the same time, television replaced radio in the living room, with only 25% of radios, but 85% of televisions, based there. Gomery also singles out radio station WJR in Detroit, which introduced news, travel and weather information programming aimed specifically at local car travelers in 1958, after extensive market research.

In US films and pop recordings, the car, radio, and rock 'n' roll are intimately linked: *American Graffiti* opens with a radio being tuned to "Rock Around the Clock" (1955) as an image of a car at a diner fades from black, and the young heroes of the story are introduced one by one to a sound track of DJ Wolfman Jack and early 1960s pop. Here, though, the mobility of music results in a communal culture through which the characters "come of age." So while these representations mark out a delineation of youth space from adult space, there is little of the sense of the privatization of space often identified as being characteristic of such mobile technology. Chuck Berry's "Maybellene" was a hit in the same year as "Rock Around the Clock," a "saga of the eroticized automobile" with its "cinematic car-chase lyric" (Cubitt 1984:209) through which Berry's Ford V8 catches-up with (in two senses of the word) Maybellene's Coup-de-Ville; but the song structure never resolves, the track fades out, and we are left in a perpetual present of unfulfilled movement. The two records became emblematic of the new rock 'n' roll associated with the new youth culture, the mobility of the car, and the delineation of listening spaces (Peterson 1990).

In Europe, these images were not reproduced in popular media texts, except to index US culture. Penetration of radios into cars was not as substantial, and music mobility had far less significance. That is not to say that in Europe youth was not linked to music and mobility during this period, just that it took on a different relationship. Primarily this related to the portability of radio receivers, rather than the mobility of music. By this we mean that the "trannie" became a means to separate off the young listener from the domesticated, family orientation of earlier forms of radio listening, but at a much later point than in North America. Susan J Douglas points to the importance of US youth audiences and pocket radios in 1961 in a *Life* magazine feature in which young "transistor addict" and "bleatnick" listeners are presented as being "hooked on sound" (Douglas 1999:226). In Britain, as was the case in much of Western Europe, though, there are few references to "pocket radios," and

far more to young pop music fan listening under the bed clothes late at night, or in their own private world, plugged into their radio.

To understand the differences, here, we need to understand the differences between radio systems and the content of radio programming. The increased portability of radio receivers from the mid-1950s coincided with some fundamental changes in radio ownership and production in the US that did not occur in Britain. During the 1930s and 1940s US radio had become increasingly dominated by continental networks of affiliated radio stations that shared mixed programming, but during the 1950s the independent Top 40 local music station came to the fore. In part this was a response to the increasing portability of radios, but other factors were of equal, if not greater importance. In Britain, and to a slightly lesser extent, other Western European countries, radio was dominated by publicly funded national radio services, rather than profit-maximizing localized (but networked) broadcasters, and the major shifts in programming that characterized US broadcasting did not occur in Britain.

In 1965, US radio was hardly recognizable as the same media that it had been in 1945. In that twenty-year period the number of stations had grown from approximately one to four thousand, with most of the increase being made up of independent, localized stations that grew from negligible numbers to nearly 2,750 (Sterling 1984:12). While the networks organized by ABC, NBC, and CBS had been built upon series and serials of mixed programming with nationally recognized radio stars, independent radio used blocked programming aimed at diverse groups, often based upon cheaper formats of music using recorded and live music popular with the target audience. Certainly before 1955, when Billboard's Top 100 was introduced for the radio industry, the music was usually of local origin (Rothenbuhler and McCourt 2002:371). The networks moved decisively into television, taking the most popular radio shows, their stars and the advertising income at the same time (Barnouw 1975). Detroit's WJR was an early, but common, response to increased

competition and falling revenues: go for cheap programming with strong local identity, and divide your programming between audiences of housewives and commuters. Recorded music, and a Top 40 format with a unified station sound, became increasingly prominent (Rothenbuhler and McCourt 2004). Other stations developed around specific minority audiences, especially those who could not afford television. WDIA in Memphis was a leader in aiming at black urban listeners from 1947 (Cantor 1992), while the format become common across all major cities during the 1950s (Barlow 1999), and was linked to the rise of the independent record company during the same period (Gillett 1971).

By contrast, radio broadcasting in Europe was dominated by state broadcasters, who often had a monopoly. In the UK, for instance, the BBC, which provided three main domestic services organized around middlebrow mixed programming (the Home Service), highbrow music and culture (the Third Program) and light entertainment (the Light Program). Licensed music radio, in the sense that it was understood in the US, did not reach Britain until 1967 when BBC Radio One was established. There were stations that broadcast pop music programming from outside Britain, aimed at those British citizens who could pick up the transmissions, first from land-based Radio Luxembourg, and then ships based in the English Channel (Barnard 1989, 2000; Chapman 1992). These stations were often best heard at night, and the smaller and cheaper radio allowed the young listener to retreat to their bedrooms. Here the portability of the radio allowed a separateness of radio consumption within, rather than outside, the home, which was characteristic of British radio listening culture through to the late 1960s.

In these very different contexts, the technology of the transistor eventually resulted in cheaper and more reliable car radios, and later the pocket radio, but the main determinant was cultural. In the US the new forms of radio receivers gave rein to the wider cultural imperative of portability and mobility within both North American and European societies, but the

mobile music it ushered in was the product of changing demographics, media ownership arrangements, and programming in pursuit of a new audience in America. This sense of mobility created new senses of space associated with the car and "listening on the go" pocket radios, but more significant still was the move away from network radio's sense of a coast-to-coast culture to the more localized senses of radio space, created by the localization of radio production in independent companies and the deployment of self-conscious senses of the distinct locale in the programming of news, weather and travel information. In Britain, the national monopoly of the BBC resisted this tendency to further split the audience along geographic or demographic lines.

Mobility in pop music (and in pop radio) is therefore far more to do with the romantic representations of films and songs, than actual spatial movement. As Iain Chambers has suggested "a predominantly masculine influenced . . . romanticism of night streets and rear-view mirror scenes, of motor bikes and cars, of being with the boys and staring at the girls, runs right down the middle of pop's symbolic universe" (Chambers 1985:207).

Radio *Time*

Just as changes in radio resulted in shifts in the sense of space, real and romanticized, similar changes can be identified in structures of radio time. Radio time, for Berland, is industrial time. She notes the way that contemporary radio is built upon the routines of a standard industrial day: breakfast, driving to work, morning and afternoon, and finally the return drive home (Berland 1993). This increasingly became the dominant form of organizing broadcasting, into a series of conventional "day parts."

Radio time has always been built upon the binary opposition between work and leisure, and although radio has long featured "music while you work," the earliest radio

programming was most often seen to be a leisure activity, usually one that occupied our full attention. It is clearly possible to extrapolate from our discussion above that it was the shift to the mobile car radio in the mid-1950s that established a new set of dominant radio programming structures, and the idea of distracted listeners using radio as a secondary medium: one that involves them while they do something else.

Radio time from the mid-1950s, then, is built around an "imagined listener," or to be precise three imagined listeners. The first is the industrial worker, primarily in their role as the commuting worker, who determines the breakfast and drive times. The second listener is the middle-class housewife, seeking entertainment to underwrite her domestic chores, perhaps supplemented by those workers who were allowed radios in the paid workplace. The third, the youthful listener who determined the evening broadcasts, was understood to seek a distinct cultural experience in their leisure time, away from parents now engaged with the television.

For Theodor Adorno, the organization of time by radio as industrial time, the activity of secondary listening, and the music that was played on the radio acted as social cement, and regulated both work and leisure time for the benefit of capitalism ([1941] 1990, 1945). Although based upon an analysis of 1940s radio, the emphasis on industrial time and secondary listening was consolidated (in adapted forms) in radio through the 1950s and into the 1960s. His analyses seemed less relevant as radio was increasingly presented as a youth medium, and radio music as rock 'n' roll, especially if we interpret it through traditional broadcasting histories, that increasingly see pop radio and FM-based alternative cultures as "rebel radio" (Post 1974; Chapman 1992; Keith 1997; Neer 2001).

It is certainly the case that first pop radio, and then FM and freeform radio, altered radio time significantly again. While the standard day parts discussed above developed before the widespread adoption of music radio formats, there are other senses of time that are

produced by the radio programming, the ways in which it is consumed, and the technology through which it is heard. Again, these are mainly US phenomena in the late 1950s and early 1960s; they became the foundation for a new version of public service broadcasting that developed around specialist music in the UK in the 1970s (Wall and Dubber 2009). Firstly, music radio moved from blocks of programs, to what Todd Stortz, the "father" of Top 40 radio, called a "total station sound" (Rothenbuhler and McCourt 2004). Although Top 40, with its emphasis on branding a station rather than a single program, predates rock 'n' roll radio, it became the dominant way of organizing the new music as a radio form. The station output becomes a single rolling experience into which we are assumed to dip for a fixed, and usually short, period of time. While *American Graffiti*, mainly through its use of Wolfman Jack, may have portrayed pop radio as anarchic, it was far more regimented than the forms that preceded it, which had allowed for considerable local independence, even with stations affiliated to the three networks. This was particularly so in the block programming produced within an affiliate, or by program makers who bought airtime.

The FM music formats (also known as alternative and free radio) are styles of radio that started to develop in the late 1960s and early 1970s, and strangely, given the emphasis on music mobility so far, depend upon the development of high fidelity in static music reproduction technology. The home audio or Hi-Fi system that became prominent features of first middle-class American households, and then college dorms, play a key role in both post-1967 rock music and its radio distribution. The 33 rpm 12 inch long playing record and the FM radio receiver seem to run counter to the increasing mobility of music during the previous twenty years. They both emphasized audio quality over portability, and the programming of FM radio emphasized both longer segments in the broadcast time chain (longer chunks of slower speech; and longer tracks from LPs rather than three minute singles) and less coherence to presenter and music programming styles. Many freeform broadcasters

seemed to share Adorno's belief that it was only disruptive forms of radio that would challenge the status quo.

Britain inherited, and then reprocessed, the pop and rock (AM and FM) radio styles from the US in the early 1970s. Although the BBC's pop service had started in 1967, it was a daytime-only AM broadcast within the structures inherited the older Light Service. From 1973 an evening strand—*Sounds of the Seventies*—was built on the US FM-format. When commercial stations were introduced in the same year they were obliged to provide fixed hours of specialist music programming they used the same approach, widely known within the British radio industry as "ratings by day; reputation by night" (Barnard 1989).

These new forms of radio time, then, can be tied back to the enabling possibilities of transistor radio technology, and through the way that radio space significantly altered after 1955. It should also be apparent that they also engage with senses of personal identity, related in particular to a sense of being young, and in other ways to a growing importance for African American culture and music in both US and European societies.

Radio *Identity*

In this final section, then, we want to address the way in which radio, and music on the radio, relates to the way in which Americans and Europeans understood and presented themselves within their social worlds. That is, we want to explore how we could understand radio identity. Radio engaged with their audience's sense of themselves in two primary ways: by responding to their conception of group identity, and by addressing them directly. Although it is possible to identify both processes at work before the 1955 date we have used to mark the adoption of the transistor radio, two distinct constructions of it are apparent after this date, and they soon become the dominant forms of radio in first the US and then Europe.

Group identity becomes the basis for organizing programs and then whole stations around niche, rather than general audiences; and these audiences are addressed mainly through the DJs and the music they played.

As we have shown, niche groups of mobile commuters, domestic housewives, urban African Americans, and later new young audiences soon emerge as the most significant niche audiences. Women in the home had been the longest running group in this list, of course, and by the late 1930s sponsored serial dramas—the soap operas—made up over half of daytime airtime on the networks. As Michele Hilmes has shown, wartime attempts to address women as "powerful" in order to "conscript" them into the industrial war effort soon disappeared after the end of hostilities, but the magazine format program that emerged on radio through this time established a new way to speak to women and their concerns (1997:264–70, 277–87). The less formal, usually unscripted, and direct address of presenter-producers who followed Mary Margaret McBride not only created the genre that dominates daytime television to this day, but also transformed how people on radio spoke to their listeners.

These shifts were paralleled in the establishment of the disc jockey, initially a far more marginalized form of presentation that had grown up in another niche form of programming targeted at African American communities of listeners. With origins rooted in African American jive talk, there is a long history of the adoption of the style as a radio persona, from at least as early as Jack L Cooper's *All-Negro Hour* and New York radio personality Symphony Sid in the late 1930s, and running through specialist stations aimed at black urban listeners starting with Memphis's WDIA in 1949. By 1946 there were 400 stations throughout the US aimed at this niche market, many featuring black and white presenters addressing their listeners in a high-octane and verbally dexterous, if not always comprehensible, style (Barlow 1999).

So, if radio constructed itself as more local from 1955, it also produced a more personal relationship with its listener, primarily achieved through the talk of the DJs. The recorded music also played a major part in the address. Rhythm and Blues records became key elements of an urban black identity for African Americans through the 1950s, and black radio and independent regional record labels became key providers to this culture (George 1988). Chuck Berry recorded "Maybellene" for Chicago's Chess Records, a fine example of the form (Collis 1998; Cohodas 2000), and as this, his first record, went from a regional radio hit to a wider audience, it was understood to have crossed-over to the mainstream pop market (Perry 1988). At the time, this pop mainstream was dominated by New York based songwriters and the Broadway musical theatre, and later Hollywood interpretations of the biggest theatrical successes (Palmer 1976:120–37). Songs from the shows, and from the films of the shows, became the defining music of Top 40 radio in the early 1950s, but after Berry and Haley's crossover successes with a white young audience a new form of bi-racial pop was established that relied heavily on Top 40 radio, and a set of DJs like Wolfman Jack and his tamer contemporary Alan Freed (Ward 1998:123–72).

To white youngsters looking for the novel and exciting, hearing black record-based programs in the evening, with their jive-talking presenters, was a revelation. It was no coincidence that Elvis Presley, who came to define rock and roll for a generation, grew up in Memphis listening to WDIA. Radio may have reflected identities, but in structuring people's access to cultural artifacts (most significantly, here, music) it also constructed them. Radio did not just respond to the birth of rock 'n' roll, it *invented* rock 'n' roll. When DJ Alan Freed used black slang for sex in the title of his radio show, and played black music to white audiences, his listeners in first Cincinnati and then New York came to think of the term as descriptive of the music. Freed adopted the style of black radio presenters for his audience just as much as he adopted the hits of the black community to play for youngsters. At the

same time, the white teenager adopted the jukebox from the black juke joint, and the black dances from their segregated black peers for the dance fads that followed rock and roll (Wall 2006). The music to which people listened, and the radio stations that played that music, were areas in which people might express their affiliation and form bonds with likeminded others. Listening to a particular station had become both a choice and a statement—an expression of identity. The notions of freedom and mobility that had been a core driver within urban culture were given their own teenage version, and the music and radio systems that played the records encultured these romantic dreams. The transistor radio played an important part in allowing the music an important degree of mobility to match the physical and social mobility that was characteristic of post-war America, but it was not in any simple way its determining factor. Instead, it supported the identities that grew up around music, as part of a discourse of identity that included the particular technological means (in terms of model and brand) by which one consumed music.

Just as European senses of radio space and time moved at a different rate, and looked to those that dominated in the US, so did senses of radio identity. Again, to take one specific European example, the cultural domination of British radio by the BBC allowed only a few spaces for a youthful popular culture, and those that did exist, like the Light Service's *Saturday Club*, became the focus of incessant concerns about processes of Americanization of European culture. It is no surprise, then, that the entrepreneurs behind the sea-based unlicensed broadcasters started in the hip clubs of 1960s London, and drew on models of US pop radio's direct musical and personal address to drive their programming (Chapman 1992).

It is ironic, therefore, that the base of the new listening culture was the portable technology developed to full economic and functional viability in the Japanese post-war industrial and technical renaissance. The success of transistor technology, and the corresponding penetration of high-quality Japanese manufacturing into America, was so

marked that many people have come to (erroneously) associate Japan (and more particularly

Sony) with the birth of the transistor radio (Du Gay et al. 1997:47; Partner 1999:194, 201).

As Simon Partner has shown, this success was the result of a combination of determination, a

material consumerism, and a low wage, mainly female, workforce (Partner 1999:193–224).

Yet the economic conditions for this industrial bloom had been created in some

measure by the United States. The post-war occupation of Japan, which lasted formally until

1952, imposed restrictions on Japanese manufacturing that turned weapon factories and

military production processes over to consumer goods (Du Gay et al. 1997:47). The willing

participation of US companies enabled the majority of Japan's radio manufacturers to begin

exporting transistor radios by the end of 1957, and the costs of production in the US meant

that the labor intensive process of transistor production could be met much more cheaply by

Japanese manufacturers. Japanese exports thus hit the US "with the suddenness of a hammer

blow" (Partner 1999:205–6). Meanwhile, American middle-class domestic experience was

being systematized in just the same way as the production line for the consumer goods

through which music was experienced.

Conclusion

Examining the introduction of the transistor radio as a transformative technology, or

accepting its role in mythologizing films of long lost youth, may provide us with some

insights into the way that radio created a mobile music, but they do not reveal the more

complex shifts in economics and culture that were the real imperatives at work. As we have

shown, the mobility that is often understood to be a direct influence of the transistor radio

already existed as a cultural imperative, and pre-existing technologies had been significantly

adapted to achieve the goal of portability for the radio receiver. The transistor radio was a key

item of technology for cultural agents to exploit, rather than an agent of change in itself. Equally important were the shifts in economics that allowed richer Americans to replace their radio listening with television watching, and required radio executives to seek out a new purpose and format for radio. Music, and its mobility, provided the most satisfactory solution; and along with shifts in ownership of radio stations, resulted in new localized programming, personal address, and representation of previously marginalized groups of Americans and Europeans.

Mobility, then, can be understood in spatial, temporal and identity terms, and the interaction of technological, cultural and economic factors remade "radio" and created new senses of radio space, radio time and the radio listener. Although the leaders of the monopolistic European broadcasters resisted these shifts, and alternative radio DJs in the US tried to reclaim radio for some listeners at least, radio became an ordered and regimented production and listening experience. To some extent, its formats now resembled the regimes of production that created the radio receivers themselves. Japanese technologists and factory managers responded to American mercantile culture to lead part of their post-war economic renaissance. The transistor radio that was one of their first key products, though, somehow encultured a set of relationships that formed a globalised popular music culture, experienced just as much in Europe as in Japan and in America. It is this cultural mobility that is perhaps the transistor radio's greatest legacy.

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[1] Or thermionic valve (or most often, valve) as it is known in Europe.
[2] The concepts of portability and mobility are closely associated. Radios are portable when they are designed to be moved easily (as opposed to being installed); they become "mobile" when they can be used while on the move.