

Madrid's great sonic transformation: Sound, noise, and the auditory commons of the city in the nineteenth century

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Introduction

This article addresses a key question attending historical sound studies: how do cities shape, intervene in and manage auditory cultures? Focussing in particular on nineteenth-century Madrid, the article seeks to make sense of some of the ways in which shifting imaginations of the metropolis are also reflected in new imaginations of the city as soundscape. How did shifting segmentational logics of the city and changes in the public imagination of cities as sites of both sociability and isolation impact on the sonic liveability of the city of Madrid? I approach the question of sonic experience by drawing on the work of Augoyard and Torgue (2006) who, as members of the CRESSON research group based in Grenoble, have developed an impressive and subtle series of analytical tools for thinking about sounds in urban spaces.

A key concept that will prove useful in this article is one developed by Antonio Negri, namely, “the commons”. For Negri, this commons is a shared, accessible and publicly “owned” space (2006), a space that comes into being (is marked out, so to speak) as a result of acts of enclosure, acts of monetarisation and privatisation:

The metropolitan commons—that which the citizens produce, the style of life, the joy of the street, the cooperation and reciprocal help, enthusiasm, and the comfort of being together—they call it “positive externality,” to be reappropriated for the profit of business. The metropolis is thought of as the colony of capital. (43-4)

Negri here is referring to the dichotomous and challenging notion that the idea of the commons is itself the product of enclosure, that we can't see what is 'common' until we see what is 'private' or closed off (engaging in what Negri calls “exclosure”). New acts of enclosure (like, as we shall see, the expansion or *ensanche* of Madrid in the nineteenth century) point to older commons now under threat, and enact new kinds of commons. In this article, I argue, we need to conceive of

enclosure and the commons as also having unique sonic qualities.

What, I ask, were the terms on which a new *auditory* commons emerged in Madrid? What mechanisms were used to understand, manage and shape this commons? Dealing in particular with the conceptual field of sound as imagined, engaged and exchanged collectively, the notion of the auditory commons is developed here in order to enable us to think about the sonic dimension of the metropolis, or what I have termed elsewhere the “social relation in sound” (Biddle 2007): a key theoretical observation of this article is that the commons is a complex and dynamic space, and that conflicted imaginations of the auditory features of the commons lend the urban soundscape a particularly intense and demanding political dimension.

The auditory commons, then marks the imposition of new *regimina* of physical discipline on the human sensorium identified by Karl Marx as early as 1844. Marx, already in his *Economical and Philosophical Manuscripts* identifies the forming of the five senses as, “... eine Arbeit der ganzen bisherigen Weltgeschichte” [“a labour of the entire history of the world”] (Marx 1848, 541-2). It is striking that Marx should dally (unusually for him) around music and sound in this passage:

Just as only music awakens in man the sense of music, and just as the most beautiful music has *no* sense for the unmusical ear – is [no] object for it, because my object can only be the confirmation of one of my essential powers, therefore can only exist for me insofar as my essential power exists for itself as a subjective capacity because the meaning of an object for me goes only so far as *my* sense goes (has only a meaning for a sense corresponding to that object) – for this reason the *senses* of the social man *differ* from those of the non-social man. Only through the objectively unfolded richness of man’s essential being is the richness of subjective *human* sensibility (a musical ear, an eye for beauty of form – in short, *senses* capable of human gratification, senses affirming themselves as essential powers of *man*) either cultivated or brought into being. (Marx 1848, 541. My translation.)

For Marx, music, sound, listening and the ear, together constitute a site or a point of coagulation at which the relationship between the objective and subjective selves (between the self of thought, and the self of labour or work) is played out, and in which, as he implies, humankind is made to become “social” [“gesellschaftlich”]. This imagination of the human sensorium, I argue below, emerges in the middle of the nineteenth century as a site at which boundaries, rules (and, indeed,

“civilisation” itself) are played out in new discourses of the body, in which the body falls under a new disciplinary logic. It is this listening habitus that forms one of the key fields of investigation in this article.

As we shall see, Madrid is striking for its late embrace of the rational nineteenth-century European urban ideal. In particular, in the collective Madrilian unconscious there was an alignment of urban rationalism with the deeply unpopular French puppet monarch José [Giuseppe] Bonaparte (José I of Spain), often termed the Rey de las plazuelas (king of squares) for his attempts to reconfigure the old city into a modern Enlightenment urban centre. Hostility to the French meant that there was a widespread dislike of José’s urban enlightenment ideals. With the restoration of the Bourbon monarchy in 1813, José’s plans were halted and there ensued a period of urban entrenchment until the last third of the nineteenth century with plans for the *ensanche* (expansion) of the city. Madrid thus represents a fascinating case study in some of the ways in which delayed modernisation and the interaction of older urban logics with modern imaginations of the metropolis interact and change the sonic experience of the city.

Noise and phonography: the end of one story

It is a commonplace of historical sound studies, understandably, to mark the advent of sound recording technology in 1877 as a key epochal moment at which cultural constructions of sound and listening change. There is, implicit in this epochal thinking, a tendency to bracket out or marginalise pre-phonographic dynamics that also contributed to radical shifts in the cultural function of the listening habitus. This article seeks to explore how the “modern” city sounded before recording technologies intensified some of the changes already underway in the urban soundscape.

At the other end of the first phonographic era, Michael Denning has shown, how, “[i]n a few short years between the introduction of electrical recording in 1925 and the onset of the worldwide depression in the 1930s, a noise uprising occurred in a series of relatively unnoticed

recording sessions” (2015, 17). In Spain, Denning identifies key recordings of flamenco *cantaores* la Niña de los peines (Pastora Pavón), Antonio Chacón, Aurelio de Cádiz and Niño de Cabra. Flamenco, wildly precocious in its relationship with emerging sound reproduction technologies, already had by this time an established discographic presence, reaching back to the thousands of wax cylinders recorded by Caganche de Triana, El Mochuelo, Paca Aguilera and Antonio Mairena in the first decade of the twentieth century. For Denning, the overlapping of several key historical processes led to the “noise uprising” of vernacular music in the five or so years after the advent of electronic recording: the expansion of port cities, the rationalisation of distribution networks, the rise of a pervasive vernacular musical culture, the “very noise” of which, “promised a music beyond the racial orders of colonialism and settler colonialism” (57),

Denning’s noise uprising belongs to a period not covered by this article and constitutes the apotheosis of a number of techno-bureaucratic transformations that reach back to the first half of the nineteenth century. Changes to the soundscapes of the city of Madrid were enacted not just by the numerous regime changes of the Spanish nineteenth century, but also (and, perhaps even more so) by key technological and cultural shifts in urban thinking. Denning’s end point also marks the second phase of the phonographic era. It is an era that realises and brings to full fruition the dizzying and alienating transformations of the auditory worlds of the city. Even so, we must caution against crude technological historical determinism here: indeed, the very sudden appearance and then rapid disappearance in Madrid of the *gabinetes fonográficos* (over a period of five or so years at the end of the nineteenth century) would seem to suggest that the technological basis for lasting transformation could be quite flimsy (Moreda Rodríguez 2017). In what follows, then, I concentrate my analysis on the pre-phonographic transformations of the urban soundscape of Madrid, focussing in particular on the legal and methodological problems that attend historical sound studies.

Madrid, the new and imagined metropolis

When did Madrid start sounding modern? The question is deliberately capricious, open-ended and ambiguous. One way we might attempt to answer this is to think about the intersections of sound, changing legal contexts (new ordinances, new powers enacted by new agencies) and urban expansion. The legal framework for managing noise in Madrid developed slowly: several key ordinances [*Ordenanzas*] address sound production and noise levels explicitly. The strange and opaque 1830 *Ordenanzas de Madrid, y otras diferentes que se practican en las ciudades de Toledo, Sevilla, con algunas advertencias á los alarifes y particulares, y otros capítulos añadidos á la perfecta inteligencia de la materia, que todo se cifra en el Gobierno Político de las Fábricas*, lays out numerous rules and requirements for organising labour and building works, but little attention is paid throughout to the production of sound, save a few short passages requiring Madrileños to pay attention to their neighbours and to avoid noise from manufacturing processes in residential neighbourhoods (especially in the *fraguas* or forges of the old centre). It is not until the 1847 Ordinances that the city begins to codify its understanding of noise disturbances systematically and to address noise as a consistent social ill. Here, laid out in a more rational (clearly enumerated) format, the relatively authoritarian later publication addresses sound production on several fronts: boundary crossings, street cries, the policing of infringements and so on. These *Ordenanzas de policia urbana y rural para la villa de Madrid* [The Ordinances of Urban Policing for the City of Madrid] were clearly designed to intensify the legal management of Madrid's municipal environs, with particular emphasis on the legal framework for managing key city functions and functionaries. One section of the new Ordinances, entitled "Orden y buen gobierno" lays out rules for general living, and affords regulatory authority to two key social agents, the "serenos" and the "celadores". The term *serenos* first appears in Spain in the first half of the eighteenth century (the Cuerpo de Serenos was officially recognised in 1765) and by the early nineteenth century had been codified as a special task force of young men whose job it was to keep order and manage safety by completing *rondas nocturnas*. The 1847 ordinances afford the *serenos* official status and also include *celadores* or vigilante adjuncts as part of the system for maintaining order. It is these two agent groups, then,

that are afforded the authority to manage noise levels in the city, especially at night. Several passages of the new Ordinances deal explicitly with noise, most clearly article 72:

Se prohíbe absolutamente el abuso de dar cencerradas bajo cualquier pretexto, así como también juntarse en pandillas para dar músicas o turbar el reposo en las horas altas de la noche. (14)

The *cencerrada* or “rough music” is an ancient practice that has parallels in other countries (“Skimmington” in English, “charivari” in French, “Katzenmusik” in German, “scampanate” in Italian, for example), usually involving an auditory assault meant to humiliate or unsettle a transgressor or rule breaker. Often, in nineteenth-century Madrid, the *cencerrada* was used in contexts specifically relating to adultery or domestic violence. The fact that the ordinances saw fit to mention the *cencerrada* as a kind of “abuso” suggests the practice was sufficiently widespread to warrant legal intervention (Mañero Lozano, 2017). Article 72 also taxonomises the *cencerrada* as belonging to a particular order of auditory transgressions: congregating together to make music, disturbing the peace in the early hours and so on. Here, then, the notion of an auditory commons comes under assault: the congregation of sound makers, in particular, is to be discouraged, and systems of surveillance meant to delimit sound production, also lend legal visibility (so to speak) to an auditory commons that threatened the aural serenity of the city. Hence in seeking to legislate against this commons, the 1847 *Ordenanzas* paradoxically agentise the auditory commons as “dangerous” or as a site of contagion.

This corner of the first section of the *Ordenanzas* deals extensively with noise-making contexts, such as newspaper street vendors (allowed only with a permit from the city authorities, with and no selling in the early hours), noise emanating from cafes, bars and other *establecimientos de reunión* [social establishments]:

Art. 73. Se prohibeí vender papeles públicos por las calles, sin permiso de la autoridad competente.

...

Art. 75 Queda absolutamente prohibida dicha venta en las altas horas de la noche, exceptuándose únicamente las gacetas extraordinarios del gobierno.

...

A number of key developments emerge after the *Ordenanzas*, affecting the conditions under which sounds were produced, heard, and understood. The auditory commons therefore emerges in the middle of the century as a legislative problem. One key dynamic that intensified this problem, was the partial completion of what became known as the *ensanche* or expansion of Madrid. The liberal (rational) imagination of the city proposed by the city's chief engineer, Carlos Maria de Castro in 1860 enacted radical changes (if only partially) to the cityscape and its auditory characteristics in particular. The *ensanche* was an attempt to enact the kinds of changes Paris had undergone under the Hausmannisation process, but the incomplete nature of the *ensanche* and its eventual passing to private agencies and a more piecemeal developmental pace, meant that it did not comprehensively destroy Madrid's old heart.

Nonetheless, under the logic of urban rationalism, the overcrowded old centre inside the 1625 walls was represented an epidemiological and political problem that Castro was keen to "solve". Despite the "failure" of the project (notably the hostility of both the aristocracy and working-class residents towards the new hygienic and slightly dull suburbs), the key idea that Madrid needed to be sanitised, reorganised and expanded, persisted. As Llano has shown, the *ensanche* represents a symptom of the desire to "medicalise" the city (2018). Llano's development of the notion of "aural hygiene" is useful here in that it links a number of distinct media regime changes to a common cause: the rise of the notion that "noise", and other forms of unwanted sound, fall, in the first half of the nineteenth century, under the logic of contagion (Llano 2017a, 2017b, 2018). Noise becomes an epidemiological problem, something to manage, discipline, zone. The auditory commons is brought under the disciplinary sway of capital. Hence, with this notion of contagion front and centre, Castro's key idea in the *ensanche* plan was to remove the bourgeoisie from the (harmful) noisy old centre and to thereby alleviate overcrowding but also, and crucially, to segment the city and thereby to develop new auditory spaces, new kinds of auditory commons. These new urban segmentational logics (along "liberal" or rational lines), were grounded in a profoundly elitist disdain for the cheek-by-jowl chaos of the old city and for

the working classes in particular. The new segmentational logics also imagined the spaces of the new Madrid as part of a functioning urban machine, purveying people through new wide arterial channels in and out of the old centre. As Castro makes clear:

Madrid es uno de los pueblos que, en proporcion de su vecindario, menor superficie tiene destinada, en su recinto interior, a paseos, plazas, y otros desahogos tan necesarios para el movimiento y el tráfico. Como bajo el punto de vista del ornato y de la salubridad. (6)

The functionalisation of urban space (paying attention to “el movimiento y el tráfico”, for example) envisaged by Castro is symptomatic of a desire to discipline also the auditory traffic of the city. Llano makes the point that the logic of the *ensanche* flows from the nineteenth-century hygienist belief in miasma theory (the notion that diseases are air-borne), to which Castro firmly subscribed (Llano 2018, 9). “Air”; distance; the removal of the aristocracy and bourgeoisie from the fear of contagion; the strict social segregation of classes and the functionalisation (normalisation) of class hierarchy: these are all symptoms of the urban rationalism of the nineteenth century. They constitute a radical assault on the old auditory commons, and an attempt to replace it with a new hierarchized auditory commons.

With successive additions to ordinances (1830, 1847, 1860, 1892), Madrid established a new kind of street acoustics that might be termed “lo-fi”, borrowing from R. Murray Shafer’s terminology:

On a lo-fi soundscape individual acoustic signals are obscured in an overdense population of sounds. The pellucid sound – a footstep in the snow, a church bell across the valley or an animal scurrying in the brush – is masked by broad-band noise. Perspective is lost. On a downtown street corner of the modern city there is no distance; there is only presence. There is cross-talk on all the channels, and in order for the most ordinary sounds to be heard, they have to be increasingly amplified. (43)

Hence the period we are examining in this article belongs to a transitional moment from the more hi-fi urban soundscapes of the eighteenth century to the lo-fi soundscape Shafer so eloquently identifies as belonging to the post-industrial urban soundscape of the first half of the twentieth century (and beyond). Madrid, therefore, helps us plot this change with particular clarity since it is both relatively swift and, by other European capitals’ standards, somewhat late.

Whilst Schafer offers us a way of thinking about the enormity of the city soundscape in general terms, (and this is undoubtedly useful here) his soundscape methodology, as we shall see, is problematic for this generality: soundscape studies tends to construct an idealised and dispersed omnipresent listener (or no listener at all) and it tends to abstract the sonic experience of moving through the soundscape such that real humans can be emptied out of the scene altogether. With this problem in mind, in the next section I address a key problem of urban sound studies, how to account for the experience of the listener (of specific, socially-located individuals) in negotiating the soundscape.

“El ruido monótono y profundo de las ruedas”: Madrid in 1871

For the moderns, it would seem, simply to read on a tram is to experience the full richness of modernity’s cacophonous urban confusion. Public transport systems represent one of the most profound changes to urban soundscapes and the moderns fixate on the experience of negotiating these new networks. Indeed, as Elizabeth Amann (2017) has shown, the introduction of the omnibus to large European cities, “gave rise to a vast body of cultural representations – both images and texts – that probed the unique social experience of public transport” (195).

Numerous literary examples attest to this: Dovid Bergelson’s 1909 short Yiddish-language novella *Arum vokszal* (at the depot), for example, explores a new and transient community of tram travellers by mimicking the cadences of their voices, aping the linguistic habits of each group, represented flatly, without hierarchy. Tolstoy’s 1889 *Kreutzer Sonata*, also explores the sonic experience of reading on the train.

One of the earliest examples of this new transport literature is Benito Pérez Galdós’s early novella *La novela en el tranvía* of 1871. It is remarkable that this novella was published only months after trams were first introduced to Madrid, its very first mode of public transport.

Madrid was a latecomer to public transport, as Adolfo Foresta noted in 1877

¡Cosa singular! En Madrid no existen, ni han existido nunca, ómnibus para el servicio de la ciudad, y se ha pasado directamente de la ausencia absoluta de estos medios de transporte tan populares y baratos a la última forma de los mismos, es decir, al tranvía (quoted in Santos 1994).

Galdós's novella explores the relationship between the interior space of the tram and the inner world of the narrator. It also explores the, for Madrid, new auditory world of the modern metropolis, by now some way into the *ensanche*. Amann argues that the novel is organised according to a series of structural dichotomies: interior vs exterior; small vs large; “sound on” vs “sound off”; legible vs illegible (195-6). The acoustic logic of the tram space is represented in two ways: first it stands as a metaphor for a new kind of inwardness or alienation where the boundary between privacy and the public becomes radically porous. Second, it stands as a new kind of sociability - random, prone to contagion, dangerous. At the opening of the novella, the narrator is in introspective mode, focussed exclusively in his own need to get to the seat he wants:

El coche partía de la extremidad del barrio de Salamanca, para atravesar todo Madrid en dirección al de Pozas. Impulsado por el egoísta deseo de tomar asiento antes que las demás personas movidas de iguales intenciones, eché mano a la barra que sustenta la escalera de la imperial, puse el pie en la plataforma y subí (171).

The upper level of the tram, the *imperial*, was an area for those who could afford more expensive tickets and designed to ensure the bourgeoisie did not have to mix with workers. On his way up to this upper level, the narrator bumps into his doctor friend Don Dionisio Cascajares de la Vallina and, once they have sat down, and dented an English lady's hat in the process, they chat in a disinterested and slightly fragmented manner, not really paying much attention to each other's words. What characterises the novella throughout is a shifting between narrative introspection and outward-facing conversations with fellow passengers, between the narrator's inner monologue and a “situated” or diegetic position in the world. This swinging between two auditory logics (the one fantastically quiet, the other beholden to the chitter chatter of his fellow passengers and the wider auditory world) also marks the paradox of a peculiarly modern subject: as readers, we are never sure as to the veracity of the narrator's ruminations, and this radical

uncertainty is reflected in the narrator's own uncertainty about himself and the world around him. For Amann, this uncertainty finds a structural parallel in the writing in a shifting from metonymy to metaphor: "This slide from metonymy (the defining feature of the tram) into metaphor (the principle of the *feuilleton*) lays the ground for the narrator's subsequent confusion" (205). The logic of metonymy (contiguity, detail, naturalistic specificity) gives way to metaphoric logic (linking things by their similarities, where truth and the *feuilletonista* outlook collide and become confused). This, I would also argue, is key to understanding the acoustic logics of the tram: the confusion that attends the narrator's understanding of the world also attends the listening subject more broadly; she or he is enclosed in a wooden box, being drawn by horses, in which the lo-fi soundscape of the city mingles with the lo-fi drone of the wheels on the street. In one particularly strange passage, the narrator becomes lethargic and imagines the tram is being pulled under water:

A medida que era más intenso aquel estado letárgico, se me figuraba que iban desapareciendo las casas, las calles, Madrid entero. Por un instante creí que el tranvía corría por lo más profundo de los mares: al través de los vidrios se veían los cuerpos de cetáceos enormes, los miembros pegajosos de una multitud de pólipos de diversos tamaños. Los peces chicos sacudían sus colas resbaladizas contra los cristales, algunos miraban adentro con sus grandes y dorados ojos. Crustáceos de forma desconocida, grandes moluscos, madreporas, esponjas y una multitud de bivalvos grandes y deformes cual nunca yo los había visto, pasaban sin cesar. El coche iba tirado por no sé qué especie de nadantes monstruos, cuyos remos, luchando con el agua, sonaban como las paletas de una hélice, tornillaban la masa líquida con su infinito voltear. (185)

The muffled sound of the *nadantes monstruos*, something like a propeller [las paletas de una hélice], articulates both the mechanical drone of the tram (its lo-fi monotonous wail) and the disinterested alienated world of the narrator, lost in an underwater fantasy, oblivious to the city and other passengers around him. In the very next passage, the narrator switches from the claustrophobic muffled underwater space to an open visual panorama (and, it seems, from an emphasis on the auditory to one on the visual) and imagines the tram is flying through the air:

Esta visión se iba extinguendo: después parecióme que el coche corría por los aires, volando en dirección fija y sin que lo agitaran los vientos. Al través de los cristales no se veía nada, más que espacio: las nubes nos envolvían a veces; una lluvia violenta y repentina tamborileaba en la imperial; de pronto salíamos al espacio puro inundado de

sol, para volver de nuevo a penetrar en el vaporoso seno de celajes inmensos, ya rojos, ya amarillos, tan pronto de ópalo como de amatista, que iban quedándose atrás en nuestra marcha. Pasábamos luego por un sitio del espacio en que flotaban masas resplandecientes de un finísimo polvo de oro; más adelante, aquella polvareda que a mí se me antojaba producida por el movimiento de las ruedas triturando la luz, era de plata, después verde como harina de esmeraldas, y por último, roja como harina de rubíes. El coche iba arrastrado por algún volátil apocalíptico, más fuerte que el hipógrifo y más atrevido que el dragón; y el rumor de las ruedas y de la fuerza motriz recordaba el zumbido de las grandes aspas de un molino de viento, o más bien el de un abejorro del tamaño de un elefante. (186)

That the emphasis here is on the visual, on colour, light and space, is clear. The sudden opening into a pure space [un espacio puro inundado de sol], for example, is the visual equivalent of what we shall be calling in the next section the “cutting effect”, drawing on terminology developed by sound theorists Augoyard and Torgue (2006: I deal with their work in more detail below). Put simply, for Augoyard and Torgue the cutting effect is experienced when there is a “sudden drop in intensity associated with an abrupt change in the spectral envelope or the reverberation of noise” (29), especially, for example, when moving into a larger space. As we shall see below, the challenge of describing sounds from the historical soundscape can be addressed through the use of sonic effect methodology developed by the CRESSON group (the Centre de recherche sur l’espace sonore et l’environnement urbain).

For Galdós, sound and space mingle in the fantastical mind of the narrator: he reaches for metaphors of light to make sense of the confusing cuts from one acoustic space to another, and is drawn back into the medial logic of sound in this dislocated half-awake, half-dreaming episode. The noise of the wheels makes him think of the whirring of windmill sails, or the buzz of a bumblebee “del tamaño de un elefante”. The rush to metaphor here, and the synesthetic slippage between light and sound, are symptoms of the modern immersion in metonymy: the sonic detail, the auditory dislocation, the endless contiguities and discontinuities of the modern city exhaust, immersing the confused subject in endlessly changing micro-soundworlds, too numerous to grasp. Metaphor here operates for the narrator as a semiotic lifeline, standing in for an (otherwise absent) organising principle that he imposes on the city’s soundscape himself.

The acoustic order of Madrid in the nineteenth century

Galdós's novella helps us understand the challenges of negotiating the new soundworlds of the rationalised city. One might object that Galdós's novella represents a particular take on the auditory commons, but he does allow us to test out the sonic effect methodology and, I suggest, enables us to access some features of the auditory experience of the city of Madrid in the second half of the nineteenth century. It does not, of course, allow us to access the sonic world of nineteenth-century Madrid *as such*, since those sounds are forever lost. I have already mentioned some of the ways in which local ordinances offer evidence for new ways of thinking about noise, sound and contagion, and a full-on assault on the old auditory commons. Taken alongside Galdós's novella, these point to a fascinating and complex series of shifts in the urban soundscape in this period. That Galdós should fixate so clearly on the tram is quite telling: the introduction of the tram to Madrid in 1871 intensified the need for clear ordinances about street sounds: in 1898, Madrid authorities renewed the 1847 and 1860 ordinances and intensified the mechanisms for managing sonic contagion (Llano, 2017, 2018a and 2018b). From 1879, the mule-pulled trams were replaced by steam and then, in 1899, these were replaced by electric trams. Each technological change brought with it its own acoustic masking effects that had profound consequences for the auditory experience of the city.

It is clear, then, that one of the complexities of doing historical sound studies is the challenge of listening to sounds long since dissipated. Although it might be impossible to account for the full impact on the soundscape of the shifting urban patterns during Madrid's *ensanche*, for example, it does remain possible to develop approaches that could usefully taxonomise the experience of the changing soundscape. As I mentioned above, one way to do this is to draw on the CRESSON group's "sonic effect" methodology, especially as laid down in Augoyard and Torgue (2006). The CRESSON group has argued quite persuasively that both the soundscape methodology of acoustic ecology (as exemplified in the work of R. Murray Shafer and others), and

the emphasis on the *objet sonore* of Pierre Schaeffer's *Treatise on Musical Objects* (1966)¹ are too extreme to capture the dynamic interface between acoustic detail and acoustic context:

We lack the generic concepts to describe and design all perceptible sound forms of the environment, be they noisy stimuli, musical sounds, or any other sounds. The concept of the soundscape seems too broad and blurred, while the sound object seems too elementary (in terms of levels of organization), to allow us to work comfortably both at the scale of everyday behaviour and at the scale of architectural and urban spaces (7).

The essence of the CRESSON methodology, then, is to begin with a questioning of auditory *experience*: what does it *feel like* to encounter acoustic phenomena in situ, and how can those phenomena be related to each other? In particular, the group has sought to establish a way of working that accounts for different scales of sound, one that is sufficiently flexible to adapt to the complexities of the auditory experience of the city. As Augoyard and Torgue put it:

... the environment can be considered as a reservoir of sound possibilities, an *instrumentarium* used to give substance and shape to human relations and the everyday management of urban space. There is an effect to any sonic operation. The physical signal is under a perceptive distortion, a selection of information and an attribution of significance that depends on the abilities, psychology, culture, and social background of the listener (8).

Beyond this, the sonic effect represents also a middle ground between the universal and the particular, and is described as “paradigmatic” and as not being able to exist without example. The flexibility of the notion of the sonic effect then, its studied avoidance of differentiations between aesthetic and non-aesthetic auditory experiences, and its insistence on dynamism, all represent a major improvement to the original conceptual lynchpins of sound studies, the soundscape and the *objet sonore*.

Olivier Balaÿ, a member of the CRESSON group, has recently very productively shown how applying the sonic effect method to historical urban situations can help us understand how architectural morphology impacts on auditory experience. He states that “[a]uditory perception and the various ways of making space sound differ with variations in morphology: the nature of sound exchanges between the street and dwellings and the forms of appropriation are transformed” (Balaÿ 232). With this in mind, I want now to explore some of the ways in which

the changing shape of the city of Madrid impacted on the auditory experience of the city and on the old auditory commons of the medieval centre of the city.

A key effect that the modern city enacted on its inhabitants is the effect of the cut, cut out or *coupure*. This represents:

... a sudden drop in intensity associated with an abrupt change in the spectral envelope of a sound or a modification of reverberation (moving from reverberant to dull spaces, for instance) (Augoyard and Torgue, 29).

As Augoyard and Torgue make clear, this effect is useful in trying to understand the effects of rapid changes in auditory locations common to the urban experience. In particular, the shift from a narrow street into a wide street (from, for example, the old centre of Madrid into the parts of the city developed during the *ensanche* such as the passage from Calle de San Pedro onto the newly widened Calle de Atocha). The cut out thus “punctuates movement from one ambience to another.” (Augoyard and Torgue, 29) For Galdós’s narrator, as we have seen, this effect demands the metaphor of light, and a kind of *shock of meaning* in which a sudden clarity, or a sudden reorientation of the subject feels like an elation:

Volábamos por el espacio sin fin, sin llegar nunca; entretanto la tierra quedábase abajo, a muchas leguas de nuestros pies; y en la tierra, España, Madrid, el barrio de Salamanca, Cascajares, la Condesa, el Conde, Mudarra, el incógnito galán, todos ellos. (186)

For the everyday listener, used to the narrow streets of Madrid inside the seventeenth-century walls, the new urban spaces of the avenues of the *ensanche* must have appeared like a troubling and rapid challenge to the logic of old Madrid. Moving into a wide avenue means that sounds suddenly dissipate more rapidly, and are added to a generalised *mêlée* rather than standing out against each other when reverberating off the hard walls of the narrower spaces of the older city. Open spaces allow sounds to rise, and they also allow for a certain *generalisation* of sounds.

One common sound effect in the urban environment, and one much more prevalent in the Madrid of the second half of the nineteenth century, is the effect of decontextualisation. Here, the city intervenes, apparently at random, in what is experienced as a coherent acoustic situation. The tram, for example, might purvey its passengers into districts that are unfamiliar to

the listening subjects on the tram, or might pass a sound source that is *perceived* as standing out of the context of other auditory materials. Somewhat like the cut, the decontextualisation effect elicits the question of meaning, a desire to recontextualise or even to evict that sound from the auditory consciousness. Madrid's rapidly changing acoustic environment occasioned such responses and, arguably, the desire for what Llano terms "aural hygiene" springs precisely from the overabundance of this effect in the new soundscapes of the city.

Other effects mentioned by Augoyard and Torgue worth exploring here include: delocalization, where a sound becomes perceptibly dislocated from its source; the drone effect (exemplified in the "ruido monótono y profundo de las ruedas" of the tram in Galdós's novella); envelopment, where one experiences the feeling of being surrounded by a sound (or sounds); hyperlocalisation, where an unfamiliar or unusual sound draws the attention, and requires the listener even to follow that sound; masking, where one sound blocks or covers over another, or where a building blocks or dramatically reduces the intensity of a sound. All these effects operate extensively in the new Madrid right the way up to the end of the nineteenth century and do so with increasing frequency, intensity and often simultaneity: it is both the intensity of these effects and the rapidity of their appearance that helps us understand something of the specifics of the new sonics of Madrid. They are all significant contributions to what Shafer calls, as we have seen, the "lo-fi soundscape". Hence the one effect, perhaps more than any other, that dominated the later nineteenth-century soundscape of Madrid was the mixing effect. Augoyard and Torgue describe this effect in the following terms:

A compenetration of different and simultaneous sound sources. In everyday life, the mixing effect implies close levels of intensity between the diverse sounds present. The effect can be found particularly in spaces of transition that are likely to receive sound ambiances originating in different places. (99)

One of the consequences of the undecidability of sounds in this effect is confusion or indecision, which will occasion, as in Galdós's novella, a desire to reinvent or gloss over with metaphor (attempting to refute in some the metonymic order of the urban soundscape). This is particularly

evident in the narrator's fantastical dreams in the tram where he reaches for synaesthetic cross-media metaphors or even for quasi-religious (or religious) symbolism. In radical contrast to his later works, especially the *novelas españolas contemporáneas* (from 1881 to 1889), *La novela en el tranvía* offers dreamy metaphor as a solution to the cacophony of the new urban lo-fi soundscape. The mixing effect, therefore, occasions in Galdós a flight from the specific to the general. It also sounds the death of the old auditory commons in favour of a new sonic ubiquity.

Conclusion

In seeking to understand the effects of some of the key changes to the Madrid soundscape in the nineteenth century, this article has traced a line from the emergent legal frameworks for managing that soundscape, through the very 'modern' confusion and uncertainty of the narrator, when faced with the dizzying sonics of the new city, in Galdós's *La novela en el tranvía*, to a final examination of some of the ways on which Augoyard and Torgue's sonic effect methodology might help us understand and quantify the kinds of existential shock the new soundworlds of the *ensanche* might have effected. On the level of a 'reading', the article has drawn on well-established conventions of cultural historical approaches to contextualising the cultural productions of the city: Galdós's 1871 novella here represents a resource for understanding how new soundworlds afford new expressive means, and how they incubate new ways of thinking about the listening subject. In addition, the article has outlined some of the ways in which sonic effect methodology helps us to re-read those cultural productions for evidence of existential bewilderment in the face of sonic cutting, dislocation, masking and mixing. In other words, the two approaches enlarge and enrich each other here.

Of course this has left us with some questions, not all of which I have been able to answer here. Perhaps the most pressing question is how these new audibilities, these new auditions and auditory regimes, shape new forms of sociability. One way to think this, as we have seen, is through the notion of the commons as propounded by Antonio Negri. For him, it is a

construct of the new politics of the modern in which what is shared, open and available becomes limited, a nature reserve of the democratic in the face of the march of private money. The commons is a coagulation without coherent ideological cause, an assemblage that is fragile, transient and, most importantly for us here, it is an imaginary without coherent object: in other words, Negri's commons is an after effect of a new urban disposition, a new kind of capital. This objectless politics, symptomatic of what Negri and Hardt (2005) have termed *multitude*, works in line with his theorisation of shared spaces, of communal, common grounds, of publically owned and publically organised spaces. In a sense, then, the new auditory regime of the modern city, intensified by the introduction of the tram into the city in 1871, is also the fall of one particular kind of commons: the hi-fi auditory commons of the more socially mixed old Madrid becomes audible precisely when there is something against which to compare it (the lo-fi soundscapes of the *ensanche*). The newer forms of capital that eventually flow into the new areas of the city built during the *ensanche*, also bring into being new kind of sonics that eventually displace and marginalise the older commons in favour of a new kind of private listening, so eloquently exemplified in Galdós's narrator. As Negri makes clear, the commons is under attack by the constant colonisation of the city by capital (44). The 1871 trams in Madrid were no exception: they were privately run, and connected the wealthiest areas of the city. Nonetheless these new forms of circulation worked against the promise of auditory hygiene and exposed bourgeois clients to areas of the city they would otherwise not have encountered. In this sense, then, the auditory regime of mid-industrial modernity is also an invasion of the auditory regimes of older commons by the regulatory auditory regimes of the new capital, a colonisation in both the metaphorical and literal sense of that word. It is an insidious but also traumatic colonisation, flattening and monetising human sociability. This, then, is the first of many falls: the fall of the commons, the fall of older forms of sociability as attested in Galdós's novella, the fall of hi-fi soundscapes, and the rise of a new disciplinary auditory logic in which sounds become ubiquitous, systemic, distributed.

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Notes

¹ Schaeffer's key observation (at least for our purposes) is that all sound can be thought of as made up by a number of discrete "sound objects". These "objects" are units or lumps of sound, clearly distinguishable as such; the soundscape (not a term he uses) is thus littered with them. The problem with Schaeffer's notion of the sound object is that it is avowedly ahistorical, shot through with essentialist thinking and particularly prone to logical fuzziness.