‘Your Womb, The Perfect Classroom’: Prenatal Sound Systems and Uterine Audiophilia

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Abstract

In this article I explore the auditory technopolitics of prenatal sound systems, asking what kinds of futures, listeners and temporalities they seek to produce. With patents for prenatal audio apparatus dating back to the late 1980s, there are now a range of devices available to expectant parents. These sound technologies offer multiple benefits: from soothing away stress to increasing the efficiency of ultrasonic scans. However, one common point of emphasis is their capacity to accelerate foetal ‘learning’ and cognitive development. Taking as exemplary the Babypod and BabyPlus devices, I argue that prenatal sound systems make audible a particular figuration of pregnancy and gestational labour that combines divergent notions of responsibility and passivity. Contra the equation of neoliberalism with self-control and individualism, I argue that prenatal sound systems amplify neoliberal capitalism’s elision of personal, maternal and familial responsibility. As ‘reproductive sound technologies’, prenatal sound systems facilitate maternal-familial investment in the pre-born as future-child. Consequently, financialised notions of inheritance are substituted for biological inheritance. Drawing attention to the common rhetorical figuration of the sonic as womb-like, furthermore, I argue that prenatal sound systems exemplify what I refer to as ‘uterine audiophilia’. By treating ‘the womb’ as ‘the perfect classroom’, prenatal sound systems imply an intense maternal obligation to invest in and impress upon the future-child, while also envisioning the pregnant person’s body as an occupied, resonant space. Cohering with a fidelity discourse that posits the reproductive medium as passive container and a source of noise that is to be overcome, uterine audiophilia relies upon politically regressive conceptualisations of pregnancy. I thus argue that these devices mark the hitherto undertheorised convergence of auditory culture, technology and reproductive politics.
In December 2015, the Catalan startup company Babypod/Music in Baby S.L.U., in collaboration with singer and 2009 Eurovision entryist Soraya Arnelas, held the first ‘concert for foetuses’. Attended by 10 future parents, the show consisted largely of acoustic covers of Christmas songs and carols, transmitted to foetuses using the Babypod intravaginal speaker. Developed in collaboration with the assisted reproduction centre Institut Marquès, Babypod is said to stimulate vocalisation in babies before birth, helping to develop their communication skills in the womb. The device consists of a small pink silicone speaker capable of broadcasting sound up to 54 decibels and can be attached via minijack cable to a phone. With the tagline ‘music is life’ and a price of €150, the Babypod speaker is designed to be used from the sixteenth week of pregnancy. The company claims that by this stage, foetuses perceive sounds as distorted whispers and that when played music they respond with tongue and mouth movements. These are, in turn, equated with attempts at vocalisation and thus with communication development and language learning. The Babypod website states:

Music stimulates major brain structures in human beings, it improves their neurological development. Therefore, paediatricians recommend that children grow up in environments with many stimuli, including music; What if you could start now? Thanks to Babypod children can begin to enjoy the pleasure of music before birth [...] Stimulating babies through music in their first months of life has positive effects on brain development; if this is so, why not give your baby the benefits of music starting before birth?¹

With patents for prenatal audio apparatus dating back to the late 1980s², Babypod is one of a range of prenatal sound systems available to expectant parents. These sound technologies promise multiple benefits: from soothing away stress to increasing the efficiency of ultrasonic scans. However, one common point of emphasis is their capacity to accelerate foetal ‘learning’ through sonic stimulus. There is, for example, the BabyPlus prenatal education system, which describes ‘your womb’ as ‘the perfect classroom’. Founded in the US and distributed internationally—the company website lists retailers in nineteen different countries, including China, Singapore, Hong Kong, Malaysia, Brazil, Mexico and Nigeria—BabyPlus consists of a belt speaker system programmed with a series of auditory stimulation lessons ‘designed to spark cognitive development and a unique bonding experience between mom and baby during

¹Babypod ‘What is Babypod?’ https://babypod.net/en/what-is-babypod/ [last accessed 20/06/2019]
² There is, for example, W. Shannon Thomas Jr’s US patent no. 4,934,998 for Prenatal Audio Apparatus, dated June 19 1990. However, the patent was filed on 10th July 1986.
pregnancy. In a BabyPlus marketing video, East Asian BabyPlus infants are depicted performing ‘cuteness’—sitting at the piano, playing with toys, laughing and dancing—in contrast to a noisy, screaming, unhappy infant that has not experienced prenatal enrichment. The voiceover informs the viewer that playing rhythmic ‘natural’ sounds akin to a heartbeat via the BabyPlus device help ensure that babies develop better sleeping patterns, an increased capacity to self-soothe, and are more relaxed, alert and interactive; while in later life, BabyPlus children achieve earlier developmental milestones, improved school readiness, enhanced intellectual abilities and greater creativity.

Reproductive technologies have frequently been the subject of cyberfeminist and technofeminist critique (Araujo and Sommer, 2000; Kember, 2003; Wajcman, 2004). Indeed, there is much that could be said about prenatal sound systems as artefacts of biocapitalism, neoliberal parenthood and the financialisation of life itself. (Cooper, 2017, Wajcman, 2004, Wilson and Yochim, 2017) However, prenatal sound systems also highlight particular thematicst within auditory culture. Consequently, in this article, I approach these devices primarily as reproductive sound technologies. Taking the Babypod and BabyPlus devices as exemplary, I argue that these devices make audible a particular figuration of pregnancy and gestational labour that combines divergent notions of responsibility and passivity. Prenatal sound systems can be understood in relation to other technologies of audio-affective attunement, insofar as they posit sonic or musical affect as a means of shaping, transforming and enhancing the pre-born as future-child. However, contra the equation of neoliberalism with personalisation, individualisation and self-control, I argue that prenatal sound systems amplify neoliberal capitalism’s (often unacknowledged) elision of personal, maternal and familial responsibility.

As reproductive sound technologies that aim to improve the future-child through sonic interventions into their uterine environment, prenatal sound systems enact a biopolitics of impressibility (Schuller, 2018). However, where the foetal body is configured in terms of placisticity and transformability, prenatal sound systems figure the pregnant body as a resonant container. I thus propose that these devices exemplify what I refer to as uterine audiophilia. Highlighting the coherence and tensions between common depictions of sonic experience in terms of uterine spatiality and the fidelity discourse apparent in Babypod’s design and marketing

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3 https://babyplus.com/shop/ [last accessed 20/01/2020]  
5 I borrow the phrase gestational labour from the work of Sophie Lewis (2018).
materials, I contend that uterine audiophilia serves to disappear both the pregnant person and, with them, the broader matrix of reproductive relations. In treating ‘the womb’ as ‘the perfect classroom’, pre-natal sound systems thus imply an intense maternal obligation to invest in and impress upon the pre-born as future-child, while also envisioning the pregnant person’s body as an occupied, resonant space.

Although gestational metaphors have frequently been deployed to depict sonic experience, the relationship between pregnancy and auditory culture has rarely been subject to critical examination. In offering a critical account of prenatal sound systems as reproductive sound technologies, my primary point of focus in this article is neither the effectiveness of these devices nor the scientific viability of the (frequently problematic) claims that are made by their manufacturers. Rather, I approach these devices in accordance with the logics of their design, and their auditory and reproductive imaginaries, asking what kinds of futures, temporalities and ‘listeners’ these technologies seek to produce. In doing so, I intend to make apparent some of the hitherto undertheorised connections between sound, gender, technology and multiple notions of reproduction.

**Muzak for foetuses**

The sonic has often been asserted an exemplary medium of affect. In his essay ‘Fashioning a Stave, or Singing Life’ Gregory Seigworth identifies the intimate relationship between sonic and affective experience, as well as the connection between young children and affect. He suggests that:

> Perhaps the most everyday understanding that people have of affect comes from both music and from children (especially infants)….What is it that transpires in the flash of your baby’s smile as you walk through the door exhausted at the end of the day?….Why do certain pop songs reshape our surroundings, sometimes literally altering our sense of the immediate landscape and of the passage of time itself? (Seigworth, 2003: 85)

As this description suggests, certain models of affect complement certain models of sound. On the one hand, conceptions of affect via metaphors of vibration, movement and rhythm lend themselves to theorising sonic and musical experience. On the other hand, conceptions of sound

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6 A notable exception can be found in the work of Rebecca Lentjes (2018).
7 A helpful overview of some of these issues can be found in the ABC News’s report ‘Prenatal Learning products draw expert skepticism’.

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and music via notions of embodiment, sensation and immersion resonate with many priorities of
the ‘affective turn’. In Seigworth’s analysis, furthermore, sound’s affectivity—specifically, of
thirteen-year-old Edna Arkins’ singing to their cousin’s baby in Lynda Barry’s The Good Times
are Killing Me—both facilitates and emerges from the ‘intermingling of bodies’: the sensuous
encounter between carer and infant. For Seigworth, such events illustrate affect’s ‘beyond and
before’; its operation on a register that is ‘simultaneously extralinguistic and paralinguistic. An
infant is crisscrossed by force fields of energies and intensities, immersed in affect well before
he or she stands up to say ‘I’ (much less ‘I think’) in discourse’ (Seigworth, 2003: 87). From this
perspective, affect reaches where language cannot.

Prenatal sound systems draw upon the associations that Seigworth identifies between sound,
affect and (pre-linguistic) infants. In the marketing materials for devices such as Babypod and
BabyPlus, sound is posited as a means of connecting with and accelerating the development of
the foetus, thus enhancing both their current and future affective capacities (i.e. what a body-
mind can do). It can be inferred that this includes speeding up the infant’s capacity to ‘say ‘I’ in
discourse’, insofar as prenatal sound systems claim to accelerate a child’s capacity for
vocalisation and language acquisition. The types of sonic stimuli that are considered most
effective in this regard vary between different prenatal sound systems. The BabyPlus device
emphasises rhythm and ‘natural’ maternal sounds. Their website states: ‘Our sounds are
developmentally ‘relative’ to the natural prenatal environment and introduce simple patterns to
the prenatal child in the only language he/she understands—the maternal heartbeat. The foetus
is understood to compare the rhythms of the gestator’s heartbeat with those of the BabyPlus
device, resulting in learning. By comparison, Babypod primarily asserts music as the ideal sonic
stimulus for enriching the foetal environment, with the company noting music’s neurological,
autonomic and emotional effects. Such devices complement popular imaginations of ‘the power
of music’—its ability to impress upon bodies and minds; to modulate feeling and to reshape
listener’s perspectives and capacities; or to function as a universal mode of expression. In this
regard, it is unsurprising that Babypod cite Mozart’s Serenade K525 as the most effective
musical stimulus given the persistence of the (widely discredited) Mozart Effect hypothesis,
which postulates that exposure to Mozart (and other types of classical music) can improve
intellectual development and performance. Babypod claim that Institut Marquès have tested

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8 BabyPlus ‘about’ https://BabyPlus.com/about/ [accessed 20/01/2020]
9 For an important sociological account tracing the cultural and political emergence and implications of The Mozart
effect see Beauvis, 2014.
foetal responses to a variety of sound and music samples in collaboration with Universal Music Group.\textsuperscript{10} Stimulation is measured in accordance with the number of foetuses that move their mouth and tongue in response to the audio being played. In addition to Mozart, classical music pieces by Bach, Beethoven and Prokofiev are listed as particularly effective at stimulating foetuses. However, Babyod’s playlist is more heterogenous than a straightforward comparison to the ‘Mozart Effect’ might suggest, albeit remaining Eurocentric. As well as classical music pieces, Babypod list Queen’s ‘Bohemian Rhapsody’, an acapella version of ‘Adele’s ‘Someone Like You’ and The Village People’s ‘YMCA’.

In aiming to stimulate the foetus through interventions into their sonic environment, prenatal sound systems can be situated in relation to other technologies of audio-affective attunement. Sound and music’s affective or ‘functional’ properties have been central to many contemporary sound technologies: from the abundance of Spotify playlists that offer a sonic background or foreground conducive to studying, exercising or undertaking domestic labour; to the variety of sonic apps for sleep, relaxation or stress-relief. (Eriksson and Johansson, 2017; Hagood, 2019; Kassabian, 2013) These technologies and their discourses emphasise sound and music’s ability to ‘tune’ the listener and their environment via the management or modulation of mood, sensation or bodily state, resulting in an enhanced capacity to produce (through work) and reproduce oneself (through rest, exercise and study).\textsuperscript{11} In this regard, prenatal sound systems might be understood as a manifestation of what Paul Allen Anderson refers to as ‘neo-Muzak’. Where Muzak in the twentieth century sought to regulate production and consumption by targeting the pluralised worker or purchaser, ‘domesticating’ workplaces with ‘a “feminine” sonic atmosphere’ by taming current hit songs to produce ‘moderately-stimulating background music’; neo-Muzak targets the individual as a personal care product, offering music as a tool of affective self-fashioning, self-composing and self-management (Anderson, 2015). Indeed, technologies of audio-affective attunement frequently offer promises of self-control. (Eriksson and Johansson, 2017; Hagood, 2019) As a result, user and listener, manager and the managed are imagined as one and the same.

\textsuperscript{10} Babypod ‘Music’ https://babypod.net/en/music/ [accessed 20/01/2020]

\textsuperscript{11} The ‘productivist’ tendency of these audio-affective technologies is well-illustrated by the website for the ‘Sonic Sleep Coach’ app: a featured testimonial by Debbie Williamson suggests the app has enabled them to be more productive at their work. See Sonic Sleep Coach https://sonicsleepcoach.com/ [last accessed 20/01/2020]. Of course, listener’s are also ‘made productive’ insofar as they generate audience data via platforms such as Spotify. For more on this see Rekret, 2019.
In the case of prenatal sound systems, however, the notion of auditory self-control is complicated, inasmuch as the affective target of these devices is someone—or, rather, something—other than the user. Although they are undoubtedly framed to offer reassurance to prospective users that through purchasing these devices they are fulfilling their role as ‘good parents’—Babypod, for example, suggest that their device enables ‘the pregnant mother to ensure fetal well-being’—prenatal sound systems are primarily intended to work on the pre-born as future-child Consequently, these technologies affirm the pregnant individual’s maternal-familial responsibility. In her study of the historical convergences of U.S. neoliberalism and neoconservatism around the family, Melinda Cooper challenges the conflation of neoliberalism with an atomised individualism: although ‘neoliberals persistently exhort individuals to take responsibility for their own fate…the imperative of personal responsibility slides ineluctably into that of family responsibility when it comes to managing the inevitable problems of economic dependence (the care of children, the disabled, the elderly or the unwaged).’ (Cooper, 2017: 71) These ‘inevitable problems economic dependence’ tend to be unevenly distributed: the ‘family labour’ of taking care of children and elders, is often undertaken by women, or alternatively, deferred onto to the lowest paid strata of society – migrants and women of colour. (Endnotes, 2013) If promises of self-control offered by technologies of audio-affective attunement are considered symptomatic of neoliberalism’s emphasis on the individual (Hagood, 2019), then prenatal sound systems amplify the elision of the personal, maternal and familial.

In affirming the pregnant person’s maternal-familial responsibility, prenatal sound systems also affirm the child as a figure of maternal-familial investment. Who gets to be a child has always been partial and selective, inasmuch as it is a status predicated upon particular racialised, gendered, classed and sexual norms; and indebted to Eurocentric, bourgeois notions of the nuclear family (Muñoz, 2009; Rekret, 2017). However, the mutations of capitalism’s socioeconomic structures and division of labour mean that previous figurations of the child—as that which is morally, economically and spatially distinct from the realm of the adult—have been thrown into crisis. In his work on the child in popular music, Paul Rekret argues that neoliberalism and finance capitalism’s oft-cited reconstitution of the boundaries between private and the public, home and factory, work and leisure, productive and reproductive labour threatens not only the spaces of childhood but also its temporal coordinates. As finance capitalism enters into the household in search of surplus value; and every element of life becomes a potentially tradable security—including education, health, care and childrearing—the common association of the child with leisure and enjoyment becomes increasingly precarious. (Rekret, 2017: 78-79)
Childhood, meanwhile, is increasingly structured around preparing for a competitive future. The social and ontological insecurity resulting neoliberal capitalism’s redistribution of public and corporate responsibility for the social wage onto individuals, families and civic institutions is manifest in anxieties about the future, which are ‘channeled in and through concerns about children and the nature of childhood.’ (Katz, 2008: 6) Writing in the context of waning US-European presumptions of hegemony and rule, Cindi Katz suggests that anxieties around political economic, geopolitical and environmental futures are relayed into securing children’s futures and producing ‘perfect’ childhoods. In this context, children become an accumulation strategy: ‘In the current period, children are both an economic and psychic investment in the future.’ (Katz, 2008: 9) With the apparent limitations of the future of work, ‘it is common for individuals and families to scramble to ensure that their children ‘make it’. (Katz, 2008: 10)

Symptomatic of the contemporary figuration of the child as accumulation strategy are ‘hothouse children and the saturation of resources that produce them.’ (Katz, 2008: 11) Education becomes a means of investing in the child and their future, both causing and enabling them to compete at younger and younger ages to, for example, get into schools that secure their success.

There are important metaphysical and ethical questions that should prevent the straightforward conflation of foetal life with the figure of the child. Nonetheless, apropos the temporal crisis of childhood identified by Rekret, it is significant that prenatal sound systems and the discourses associated with them erode any clear distinction between prenatal and post-natal development. Indeed, if capitalism has entered into the home in search of surplus value, reconfiguring the temporal categories of child and adult in the process, prenatal sound systems evidence how capitalism has also entered the reproductive body and the ‘first home’ of the uterus.12 In keeping with Katz’s diagnosis of the child-as-accumulation-strategy, prenatal sound systems, via sonic affect, enable investment in the future child prior to birth: they serve to shape the future child and with them, the future of the child. The listicle ‘9 Best prenatal Sounds and Systems for Baby and Mom’ by the website The Pregnancy Zone is exemplary in this regard. Under the subheading ‘because your baby deserves the best chance of success’, the article claims that prenatal sound systems ‘Give your baby the advantage he or she needs by helping them learn even before they’re born.’13 The notion of ‘advantage’ invoked in this description is

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12 My intention here is not to suggest that this entry is ‘new’: the occupation of the reproductive body by capitalism may be seen, for example, within the histories of slavery and colonialism, whereby pregnancy and childrearing has been either enforced or prohibited, depending on its profitability. For more on this see Mies, 2014.

13 The Pregnancy Zone ‘9 Best Prenatal Sounds and Systems for Baby and Mom’
https://www.thepregnancyzone.com/prenatal-care/prenatal-sound-systems/ [last accessed 20/01/2020]
instructive: what, precisely, are unborn infants gaining an advantage over? The implication, it would seem, is that it is never too early to prepare for a competitive future.

Reproductive sound technologies and the biopolitics of impressibility

I have proposed that prenatal sound systems operate and circulate as reproductive sound technologies. In naming them as such, I intend to emphasise their status as both sound reproduction technologies and reproductive technologies. This, however, requires expanded definition of the latter. Reproductive technologies (or ‘assisted’ reproductive technologies) are typically thought of as medical procedures and practices that address issues concerning fertility and conception, such as surrogacy, in vitro fertilisation and gamete intrafallopian transfer. While some prenatal sound systems have been developed in proximity to these procedures—the Babypod speaker, for example, is said to have been developed in relation to Institut Marquès’ research into music’s impact on in vitro fertilization—14—they do not fit comfortably with conceptualisations of reproductive technologies that centre upon the genetic and the cellular, being sold instead as non-medical ‘wellbeing’ devices that provide environmental enrichment.

In spite of this, there remain points of continuity that enable prenatal sound systems to be productively framed as reproductive technologies, inasmuch as both pertain to technological interventions that assist, facilitate and ‘optimise’ gestation, appearing at the intersection of the biological and social. Prenatal sound systems, like reproductive technologies more broadly, concern the ‘making’ of babies and parents, raising political, ethical and ontological questions about pregnancy, childrearing and kinship. Charis Thompson notes how reproductive technologies operate in relation to multiple ‘relevant kinds of time’ (Thompson, 2005: 10) – there is, for example, repetitive time of medial and treatment cycles, the bureaucratic time of the working day into which appointments must be fitted and the linear, non-repetitive time of ‘biological clocks’. Prenatal sound systems, likewise, encompass multiple temporalities. This includes rhythmic or musical time, the repetition of using the devices on a regular basis, the linear time of foetal and cognitive development that these technologies aspire to accelerate, and the folding of time that results from projecting the future of the child onto the pre-born. Furthermore, just as reproductive technologies attest to the intertwining of reproduction’s numerous literal and metaphorical meanings inasmuch as they emerge from the intersections of

technology, economics, biology and society (Thompson, 2005: 8), prenatal sound systems enact and connect multiple reproductions. They bring sound reproduction technologies into relation with processes, practices and institutions of biological reproduction, and in doing so they also function as technologies of social reproduction. As devices intended to secure a competitive future, these devices both affirm and seek to reproduce the uneven distributions of the social.

In the edited collection *Domain Errors!* *Cyberfeminist Practices!* (2002), Emily de Araujo and Lucia Sommer provide a timeline of eugenicist thought and practice between 1904-1999. Identifying the emergence of ‘new’ eugenics in the second half of the twentieth century, presented as voluntary and primarily driven by the consumer market, they suggest that the then current bio-technologies of selective sperm banks and lucrative egg-selling websites reflect the ideological values of the social formation within which they were designed and deployed. Araujo and Sommer’s history concludes with a warning that ‘under the guise of optimizing reproduction—and ‘improving’ human beings—today’s reproductive technologies are being implemented without a critical discussion of their latent eugenic content.’ (2002: 168) If prenatal sound systems can be recognised as reproductive technologies—and are consistent with Araujo and Sommer’s diagnosis of such technologies as being predicated upon ‘optimizing’ reproduction and improving human beings via the choices made by the parent-as-consumer—then the question remains as to the extent to which these sonic devices carry with them a ‘latent eugenic content’.

Though infrequently acknowledged, sonic and eugenicist histories have often intersected. The term eugenics was coined by the English polymath Francis Galton as an adaption of the Greek words for ‘well born’. In his 1869 study *Hereditary Genius: An Inquiry into its Laws and Consequences*, Galton studied musicians, alongside judges, scientists and athletes; citing the composers Sebastian Bach, Haydn, Mendelssohn and Mozart as instances of hereditary genius. (Galton, 1869: 289) In the early-twentieth century, the notion of musical talent as hereditary informed the establishment of ‘musical eugenics’ in the US. The music psychologist Carl E. Seashore, in collaboration with the Eugenics Record office under Charles Davenport, undertook a decade-long experiment at the Eastman School of Music that sought to validate the measurement of musical talent and interrogate the ways in which insights from eugenics research might be applied to musical education. The ‘Seashore Measures of Musical Talent’ can be situated in the history of standardised intelligence testing as an instrument of racial and class-based social stratification, inasmuch as they were deployed in explicitly racialised studies of
musical ability and were used to lend support to the extension of educational segregation. (Cowan, 2017) In addition, eugenics features in histories of auditory communication and sound reproduction. The telephone’s inventor, Alexander Graham Bell, was involved in the US eugenics movement at the beginning of the twentieth century and played an important role in emerging biopolitical approaches to deafness. After conducting a genealogies of deaf families and surveying deafness in schools, Bell advocated for the prevention of deafness through, amongst other strategies bans on intermarriage between those born deaf (Mills, 2015).

These audist histories risk being invoked by the suggested diagnostic potential of Babypod: a published study by Institut Marqués concludes that the device could potentially be used for conducting prenatal hearing screening, although a rationale for this screening is not offered (Lopez-Teijo et al., 2015). Beyond this, however, prenatal sound systems appear to have little to do with the eugenics of Galton, Davenport and Bell, which primarily concern the minimisation and maximisation of hereditary traits via selective reproduction. By contrast, devices such as Babypod and BabyPlus suggest that ‘success’ (which is conflated with accelerated learning) is acquired through nurture. The BabyPlus website is instructive in this regard, claiming in the ‘About’ section that ‘A recent study published by UCLA researchers states only 45% of the temporal lobe, the part of the brain which plays a role in learning and memory appears to be inherited. In other words you can make a difference in your child’s foundation for learning. That’s empowering!’

In siding with environmental nurture over genetic destiny, biological and neurological plasticity over determinism, prenatal sound systems might be more accurately described as enacting a biopolitics of impressibility. Writing in the context of the US, Kyla Schuller identifies the emergence and circulation of a pre-geneticist discourse of impressibility amongst nineteenth-century scientists, writers and reformers. Pertaining to the capacity for bodily transformation in relation to external agents, impressibility came to differentiate the ‘vitality’ and vulnerability of the civilised—that is, white and other racial groups deemed capable of ‘progress’—from coarse, ridged and prehistorical elements of the population. Through the management of the body’s environment, experience and its impressions—that is, affective relations that leave a trace—certain populations could be improved, depending on their capacity for impressionability. This notion underlines the ‘biophilanthropy’ of the Children’s Aid Society founder Charles Loring

15 BabyPlus ‘about’ https://babyplus.com/about/ [last accessed 20/01/2020]
Brace and his Emigration plan, which removed European-born pauper children from their families and urban dwellings and relocated them to American farms with the aim of exposing them and their ‘impressible’ nervous systems to new domestic settings, families and habits. Youthfulness was deemed a stage of heightened impressibility and, as a consequence, ‘a number of reform movements accordingly argued that the nervous system of uncivilized youth could be impressed with beneficial sensations, and sought to mutate their bodies and their heritable material into assets, rather than threats, to land accumulation.’ (Schuller, 2018: 21)

Although operating in a very different social, technical and economic milieu, there are nonetheless some significant points of connection between nineteenth-century impressibility discourses and the ontological figurations produced by prenatal sound systems. In positing the foetus as a receptive and malleable body with the potential to be corporeally and cognitively transformed via its affections; and in offering the pregnant person the opportunity to ‘optimise life’ through the provision, management and control of sonic impressions, these reproductive sound technologies might mark one afterlife of impressibility, to augment Schuller’s phrasing. However, where nineteenth-century notions of impressibility were bound up with questions of heredity—the impressions of current populations were understood to shape future generations—the relation between impressibility and heredity is reconfigured in the context of prenatal sound systems. Though still indebted to the nature/nurture distinction (as initially formulated by Galton), prenatal sound systems can be understood to replace biological with financialised notions of inheritance insofar as competition, success and optimisation pertain to familial and intergenerational investment. However, a diminished emphasis on heredity should not be mistaken for a post-racialism. Just as ‘the magic and promise of reproductive technologies’ has often been represented by the image of the healthy white infant (Russell, 2015: 603), white women and smiling white babies frequently feature in the marketing materials of Babypod and BabyPlus. Yet the racialisation of these devices extends beyond visual (and sonic) signifiers. If impressibility is enmeshed with histories of racialisation, whereby whiteness both results from and marks the most advanced capacity for plasticity, adaptability and transformation, then this

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16 It is important to note that impressibility discourse was not straightforwardly oppositional to eugenics. Schuller argues that ‘reformers eagerly extrapolated the theory of impressibility into a theory and practice of eugenic breeding.’ (2018: 21) Although early-twentieth century eugenicists positioned themselves in opposition to those who believed that hereditary materials could be changed through experience, and while ‘dominant logic’ would posit mutable heredity in opposition to biological determinism, in seeking to regulate, modify and improve hereditary materials at both the level of the individual and the collective, advocates of impressibility might be best understood as an antecedent rather than a radical threat to eugenicists’ goals. (Schuller, 2018: 22)
suggests that the idealisation of the foetus as a malleable (future) subject is a racialised figuration.

**Uterine audiophilia**

Gestational metaphors have been used in various discursive contexts to depict sonic experience, whereby the creation of purportedly immersive auditory environments is heard to evoke foetal life within the womb. Popular music writer Simon Reynolds, for example, repeatedly makes reference to uterine space when referring to atmospheric or ambient sonic encounters. Writing about rave, he describes the experience as ‘a nowhere/nowhen wonderland, where time is abolished, where the self evanesces through merging with an anonymous multitude and drowning in a bliss-blitz of light and noise. It’s a regressive womb-space or clandestine kindergarten.’ (2008: 414) Dub, meanwhile, is described by Reynolds as invoking ‘the blurry sonic intimacy of womb-time, the lost paradise before individuation and anxiety’. (2008: 172) Other depictions of the sonic as uterine are present in the work of philosophers such as Jon-Luc Nancy (2007) and Peter Sloterdijk (2011), as well as the Canadian acoustic ecologist R. Murray Schafer. In his chapter on the natural soundscape, Schafer presents an origin myth of listening and what he terms the ‘first sound’: the caress of waters. Where Greek myth tells of how man arose from the sea, Schafer notes how ‘the ocean of our ancestors is reproduced in the watery womb of our mother and chemically related to it. Ocean and Mother. In the dark liquid of ocean the relentless mass of water pushed past the first sonar ear. As the ear of the fetus turns in its amniotic fluid, it too is tuned to the lap and gurgle of water.’ (1998, 15) The sea is thus ‘a fertile sonic archetype. All roads lead back to water.’ (1998: 18) For Schafer, the sonic ocean-womb is evoked by listening experiences in which distance and directionality are absent—a condition he hears facilitated in much contemporary and popular music: ‘the listener finds himself [sic.] at the center of the sound; he is massaged by it, flooded by it […] where then is the dark and fluid space from which such listening experiences spring? It is the ocean-womb of our first ancestors: the exaggerated echo and feedback effects of modern electronic and popular music re-create for us those echoing vaults, the dark depths of ocean.’ (Schafer, 1998: 118, my emphasis)

These depictions of sonic experience pertain to what I want to call **uterine audiophilia**. Where the audiophile wants the recording to reproduce the ‘lost paradise’ of live sound, in the gestational metaphors of Reynolds, Schafer and others sound reproduces the ‘lost paradise’ of the womb: the comforting, immersive space of belonging. However, just as the audiophile values the reproduction of an imagined original sound, gestational metaphors rest upon the reproduction
of an imagined prenatal experience. This imagination, furthermore, involves an erasure of the materials means of reproduction: it prioritises content over medium, foetal ‘listener’ over pregnant person. In this regard, uterine audiophilia is underlined by politically regressive figurations of pregnancy and foetal life. In positing the pregnant person’s body as material container, resonant chamber or sonic envelope, the conflation of sonic experience with uterine experience reproduces the longstanding reduction of pregnant people to their capacity for maternal provision.

Feminist critics have long challenged these objectifying accounts of pregnancy and gestational labour as they appear in relation to reproductive technologies such as ultrasound. (Haraway, 1997, Hartouni, 1991, Petchesky, 1987) Carol Stabile, for example, has traced the figuration of the maternal body as both benevolent environment and inhospitable wasteland. Writing about the development of foetal photography and the correlative ideological work performed in the service of US New Right politics in the 1980s and 90s, Stabile notes how emergent representations of ‘fetal personhood’ rely upon the erasure of the pregnant person, reducing them to ‘passive, reproductive machines’ (Stabile, 1992: 180). Where historically, appeals to motherhood worked to erase female subjectivity and sexuality, the unprecedented establishment of ‘fetal autonomy’ via visualizing technologies, enables the pregnant person’s body to become ‘an environment that the fetus alone occupies.’ (1992: 180, see also Petchesky, 1987)

A similar erasure of the pregnant person and assertion of foetal ‘personhood’ can be traced in descriptions of sonic ambience and immersion in terms of uterine experience. In romanticizing the fetal-uterine connection as harmonious, the complex and often antagonistic nature of this relationship is obscured. As Sophie Lewis (2017) identifies, there is a growing emphasis on the multidirectional but nonetheless asymmetric character of human gestation, whereby foetus and gestator are both transformed in the process. And while the foetus is part of its gestator, this is by no means a straightforwardly happy union. Take Schafer’s sonic archetype of water. While the originary water might be fine for foetuses - their lungs are filled with it, they neither breathe nor drown—as Lewis notes, for the person filled with that water it is extremely dangerous. Foetuses and their gestators neither exist autonomously from one another and yet nor do they exist in harmonious oneness. This ‘less than two, more than one’ relation of human gestation is aggressive and risky. And yet, inasmuch as the ‘interior’ cannot be cleanly separated from the ‘exterior’, nor production from reproduction, biological from social, uterine space from wider environment, the degree of risk that human gestation carries with it is co-constituted by other
factors: gestation is far less risky when undertaken in the context of universal healthcare and robust reproductive rights than without, for example. (Lewis, 2017) Gestation is thus situated within a broader matrix of constitutive relations that incorporate but extend beyond foetus in utero. Gestational metaphors of sonic experience, by contrast, romanticise uterine space as ahistorical, natural and universal: an originary ‘echoing vault’ or timeless paradise that the foetal ‘listener’ alone inhabits. Consequently, these depictions work to obscure the sociality of pregnancy.

Prenatal sound systems also operate in accordance with a distinct but related uterine audiophilia. This is made particularly explicit by the Babypod speaker system. Where feminist critics have argued that the foetal ‘autonomy’ afforded by visualising technologies is predicated upon the invisiblisation of the pregnant person (Petchesky, 1987; Stabile, 1992), Babypod provides an auditory analogue to this process of disappearance inasmuch as the device attempts to make the necessary presence of the pregnant person inaudible. Babypod claim that their vaginal speakers differ from other prenatal sound systems insofar as it enables the foetus to have a higher fidelity and thus more effective learning experience. They state: “We have discovered how to allow your baby to hear like us, in such a way that they will perceive sound effectively in terms of intensity, and free from distortions.” Hearing music clearly and ‘like us’ according to Babypod, is ‘solely possible via the vagina’ because ‘the abdominal wall muffles sounds’. The website states:

The uterus is a place protected from the exterior, and it is the mother's body that carries out this protecting role through multiple layers of soft tissue. These attenuate the intensity of sound and distort it in its journey to the uterus; it’s similar to what happens when you hear a conversation in the next-door room without catching everything that is said….By placing a speaker inside the vagina, we overcome the barrier formed by the abdominal

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17 This disappearance is reproduced in Babypod’s marketing materials. The homepage of the website features a large pink smiling foetus that appears autonomous from both its uterine environment and the pregnant person’s body. Babypod, ‘Everything you should know’ https://babypod.net/en/what-is-babypod/everything-you-should-know/ [last accessed 20/01/2020]

18 Of course, claim that a foetus perceives music ‘just like us’ assume some degree of parity between prenatal and post-natal consciousness and cognition, discounting the specificity of the uterine environment. Put simply: the foetal relationship with its environment is fundamentally different to the newborn’s relationship to its environment. However, this difference is obscured when the perceiving foetus is treated as synonymous with a listening child, or future subject.
wall and the baby can **hear** sounds with almost as much intensity and clarity as when emitted.  

In other words, Babypod considers itself superior to its competitors, since it minimises the noisy presence of the pregnant person’s body. It thus coalesces with audiophilic notions of sonic realism that are predicated upon the dream of mediumless—and therefore noiseless—sound. Realist discourses tend to imagine recorded sound as a copy, or documentation of a live event. As Aden Evens notes, for the audiophile ‘the sole criterion for judging recorded music is the extent to which it sounds like live music’. Consequently, ‘the audiophile trains *his* ears to sort out the "true" sound of the violin from the artifacts introduced by the recording and playback process. Audiophiles are the self-appointed guardians of fidelity.’ (Evens, 2005: 6-7, my emphasis) High fidelity recordings and playback are those in which the medium’s noisy presence remains unnoticeable to the listener; where low fidelity refers to the way in which the medium draws attention to itself.

As Evens highlights, audiophile discourse is masculinist: its history is indebted to the musical activities, practices and perspectives of (predominantly) white, male and often wealthy listeners. In masculinist audiophile discourse, furthermore, the containing and sustaining medium is feminised—it is frequently imagined as passive, receptive, empty, awaiting inscription and control (Rogers, 2010; Sofia, 2000). Yet the medium will inevitably leave its noisy impression on sonic content. For the audiophile, the best medium would be no medium. As this is a material impossibility, the ‘best’ sound technologies are those that reproduce the live event with little discernable change; they pay fidelity to the imagined original sound. In auditory cultures organised around audiophilic notions of fidelity, then, the sonic medium—the means of reproduction—should work to provide an illusion of its own absence, in spite of its necessity. Babypod, likewise, minimises the audibility and affectivity of the containing technology that is the pregnant person’s body and in doing so exemplifies the paradoxical predicament of the sonic medium: to be there but sound not there, to be essential yet sound absent.

In rendering the uterus a passive container, a resonant chamber to be filled with sound, uterine audiophilia erases not only the pregnant person but also a wider matrix of reproductive relations that constitutes uterine space. Calling for feminists to pay greater attention to pregnancy, Stabile

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20 Babypod, What is Babypod?’ [https://babypod.net/en/what-is-babypod/](https://babypod.net/en/what-is-babypod/) [last accessed 20/01/2020)
argues that one of the most significant challenges lies in distinguishing the pregnant body from the maternal body. However, both pregnancy and mothering need to be denaturalised as forms of work: ‘Although feminists must insist that pregnancy is not identical with mothering, they must also insist that both are ‘biosocial’ experiences—that pregnancy, like mothering, is something that occurs within a specific social, economic, cultural and historical environment and that the experience of pregnancy, as such, is structured by social relations. It is work that women may not, or may decide to undertake.’ (Stabile, 1992: 199) In describing pregnancy as work, Stabile gestures towards a rich lineage of feminist activism and theorisation of socially reproductive labour that has sought to account for the ways in which the production and reproduction of ‘life’ is enmeshed with the reproduction of capitalism. Frequently feminised and unevenly distributed in accordance with racial distinctions, socially reproductive labour pertains to activities, relations and provisions that serve to make and remake labouring populations, as well as those who are excluded from waged work. This includes education and care work, child-birth and child-rearing. Crucially, the uneven distribution of these activities is often concealed—naturalised as acts of love, necessity or biological destiny (Bhattachayra, 2017; Federici, 2012; Fortunati, 1995; Mies, 2014). However, where accounts of reproductive labour from the 1970s are typically modelled on the Fordist family wage, capitalism’s aforementioned entry to the home and reproductive body in its search for surplus value means that many socially reproductive activities now directly mediated by the market (Endnotes, 2013). Pregnancy, for example, has become increasingly market-mediated with the growth of the reproductive technologies industries.

A consideration of gestation from the perspective of socially reproductive labour further complicates the foetus-gestator relationship. Contra the reliance upon the womb as an ahistoric, universal and pre-social figuration that is autonomous from a broader matrix of biochemical, material, political and historical relations, pregnancy-as-reproductive-labour directs attention to that which lies behind this lost sonic paradise, to augment Reynolds’ descriptor: the labour, bodies, infrastructures and relations of containment, maintenance and facilitation that lie behind the production and reproduction of seemingly ethereal sonic ambiances. The notion that gestation is entangled with socially reproductive labour, however, is simultaneously gestured toward and muffled by the prenatal sound systems. On the one hand, they tend to repeat conservative imaginations of the pregnant body as passive container or environment, positing the uterus as a space to be filled with sound, or erased as a noisy barrier to the foetal ‘listening’ experience. Yet on the other, in seeking an audio-affective intervention into gestation as a means of shaping and enhancing the foetal listener in order to give them the best chance of success,
Prenatal sound systems make apparent the capitalist entanglement of biological reproduction as the (re)production of life and reproductive labour as the (re)production of labour-power, labouring (future) subjects and social inequality.

There are, therefore, important differences between the uterine audiophilia of the gestational metaphors of Reynolds and Schafer, and the uterine audiophilia of prenatal sound systems. Where both draw upon pregnancy’s association with sound, gestational metaphors see sound as facilitating a nostalgic and romantic return to a lost paradise, an originary listening space, prenatal speakers are future-facing, attempting to accelerate the development of the pre-born future-child. Likewise, while both work to erase the pregnant person and assert foetal personhood via their capacity to act as a listener, their figurations of uterine spaces differ. Where gestational metaphors typically present uterine space as an ahistorical benevolent environment, prenatal sound systems present uterine space as a ‘perfect classroom’: a (reproductive) workplace.

**Conclusion: bio-social-sonic reproduction**
Prenatal sound systems’ simultaneous invocation of maternal responsibility – manifest as an obligation to use sound to shape, enhance and invest in foetal life so as to prepare for a competitive future – and passivity – manifest in the reduction of the pregnant person’s body to a listening environment – may appear paradoxical. However, rather than concluding that reproductive sound technologies simply pay testament to the contradictory demands that characterise contemporary motherhood, I want to suggest that prenatal sound systems are an important reminder of the coherence between social conservativism and neoliberal capitalism. Prenatal sound systems make apparent what is missing from accounts of sonic media that equate neoliberalism with individualisation: namely, that personal responsibility is often expanded to maternal-familial responsibility. It is the family, furthermore, that has frequently enabled neoliberals and conservatives to reconcile their differences: both approach family responsibility as a source of economic security. (Cooper, 2017: 73) The uterine audiophilia of prenatal sound systems ascribes personhood to the malleable foetal ‘listener’ based on their capacity to perceive sound; and renders the pregnant body a resonant chamber and source of noise. Consequently, it amplifies the persistence of conservative figurations of the pregnant body and gestational labour amidst the seemingly new maternal identities and practices facilitated by neoliberal capitalism. (Tyler, 2011)
Prenatal sound systems also make audible the coherences between biosocial and sonic reproduction: as reproductive sound technologies, Babypod and Babyplus integrate the reproduction of sound and music with the reproduction of life (via gestational labour) and the reproduction of (racialised and gendered) socioeconomic inequality. However, in my examination of their auditory technopolitics, I have not offered comment on how users themselves engage with and understand these reproductive sound technologies. Indeed, Danya McLeod’s ‘Uterine Concert Hall’ performance project, which uses the Babypod speaker to transform the artist’s body into a concert hall in order to ‘queer the uterus as a viable physical space’ suggests that prenatal sound systems may be deployed in ways that disrupt the uterine audiophilia that informs their design and circulation as cultural artefacts. Rather, by situating prenatal sound systems in relation to technologies of audio-affective attunement, fidelity discourse and the financialisation of life itself, I have sought to amplify the imbrication of auditory culture, gender, technology and the politics of (bio-social-sonic) reproduction.

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