

The Sonic Aesthetics of the Industrial: Re-Constructing Yesterday's Soundscape for Today's Alienation and Tomorrow's Dystopia

Philip Tagg, Karen E. Collins

(Institute of Popular Music, University of Liverpool)

Introduction

In this paper we seek to explain connections between a particular genre of music and the attitudes of groups associated with that music in relation to their collective experience of contemporary society in the industrialised 'first' world. Since, for reasons which will become clear, we are unable to draw precise conclusions about the ideological potential of the music, its originators and users, we present this paper as a small contribution to our understanding of music's importance in the construction of shared ideas, attitudes and values in today's society. Many of the obstructions to such method development (and this is the main reason for the necessity of a paper such as this) arise from the disciplinary Tower of Babel in our institutions of research and education where music, musicology, acoustic physics, acoustic ecology, moral philosophy, political philosophy, anthropology, sociology, psychology, media studies, art history, etc., to name just a few subjects providing information and approaches essential to understanding our topic, are housed in different departments and faculties, or appear as separate modules on the curriculum. Clearly, there is no way in which we can put this epistemologically atomised state of affairs to right in a single conference paper. However, we do hope to demonstrate how a particular kind of music can be studied as a set of socially and ideologically meaningful practices. Moreover, since this a Soundscape Studies Conference, we shall concentrate on how particular types of sound inform that music and the social and ideological action embedded in it.

It is perhaps wise, before presenting our main account, to motivate our choice of topic, to summarise our underlying hypotheses and to provide a few methodological pointers.

We have chosen this topic because: [i] one of us is a fan writing a doctoral thesis about the industrial genre; [ii] due to advances in sound technology (notably the sampler and synthesizer) industrial music draws extensively, as we shall see, on sounds that in conventional aesthetic terms would hardly qualify as 'musical': such use of 'extramusical' sound could provide valuable insights into relations between the soundscape and music; [iii] the music has considerable contemporary relevance to the lives of many young people in the industrialised world.

This third reason is also at the basis of our underlying hypothesis that industrial music expresses *in sonic terms* dissatisfaction with the society in which its community of musicians and fans are forced to find strategies for survival. 'Forced' is the operative word here, for among recurrent verbal expressions of alienation in recent popular culture, including music, we find feeling like a machine, being treated like a cog *in* a machine, or raging *against* the machine of contemporary society.¹ Of course, this notion of the machine as an inexorable force is nothing new in our culture: Roget's Thesaurus puts

'machine' as keyword under 'involuntariness' and offers 'automatic', 'sub-jected', 'controlled', 'cornered', 'drudgery', 'labourer', 'dogsbody', 'slave', 'robot', 'puppet' and 'pawn' as associated concepts. The question is: how is such alienation encoded in sonic and musical terms? Are we to expect screams of protest and self-celebration to pierce the background din of society's machine, as with heavy metal (Tagg, 1990), or is the human individual incorporated as part of the ongoing machinery in the industrial genre, as seems to have been the case with techno from the early 1990s (Tagg, 1994)?

In order to answer these questions we shall draw on two ideas developed in earlier work. We shall firstly assume there to be congruence between the figure/ground dualism of visual arts and that of melody/accompaniment in Western music (Tagg, 1979, 1990, 1994) and, secondly, that one of the most semiotically charged ways in which music relates to the world outside its own discourse is *anaphonically* (Tagg, 1992).² In this paper we will only be dealing with sonic anaphones, i.e. with musical elements of musical structure which relate directly to sounds that are in themselves not necessarily musical and to the connotations of those sounds independent of a strictly musical context. We hold, moreover, that music has consistently been affected by contemporary soundscapes, ranging from Schubert's babbling brooks or Beethoven's 'Pastoral Symphony' storm to Jimi Hendrix's B52 bombers (Tagg, 1992). Another premise is that musical origination is also affected by the social climates and cultural predispositions of both composer/musician and audience, i.e. that soundscapes in music can reflect ideals and anxieties of the times in which they were created. There is strong evidence of this in the soundscape of recent dystopian films which have exerted major influence on the industrial genre.

Dystopia and industrial music

Dystopia, as a means of projecting fears about the present society on to visions of the future, has existed nearly as long as its optimistic counterpart, utopia. However, during the twentieth century, particularly after the detonation of the atomic bomb, dystopias became prevalent in Western society and utopian visions of the future have since almost disappeared. Dystopian films since about the 1970s have frequently been set in a post-apocalyptic world of industrialised urban decay. This aesthetic of the decommissioned industrial factory is so prevalent in many dystopian films that, for example, 1989's *Gunhed* (set in 2038 in a computer-chip manufacturing plant) fea-

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1. The band Rage Against the Machine produced three famous CDs: *Rage Against the Machine* (Epic 1992), *Evil Empire* (Epic 1996) and *The Battle of Los Angeles* (Sony 1999). Rage Against the Machine's music is more as a mixture of punk, hip-hop and thrash metal than industrial, but the rage is unmistakably similar. Other apposite titles in pop history are Pink Floyd's *Welcome to the Machine* (EMI/Harvest 1975), Motorhead's *Orgasmatron* (GWR/Roadrunner 1986) and Heaven 17's *Crushed By The Wheels Of Industry* (Virgin 1987).
 2. Analogous with 'analogy', *anaphone* means another way of *sounding*, rather than verbalising, the same thing. It is a (set of) musical structures which relate through isomorphism or synaesthetic homology to either [1] paramusical sound – sonic anaphone, and/or [2] paramusical movement – kinetic anaphone, and/or [3] paramusical touch – tactile anaphone. In Peirce's terms all three types of anaphone would be classifiable as icons, [1] as 'image' (isomorphic and using the same sense — sound), [2] and [3] as 'diagrams' or 'metaphors' (Martínez 1997: 113, ff.). Since [2] and [3] can in fact be considered isomorphic more by cultural convention and analogy than in objective terms (not least because any homology is expressed through another sense or through a different set of signs), it may be wise to consider them more as indices (Karbušický 1987, *passim*).

tured puddles on the floor, oil canals, steam pouring from visible piping, metal rung-ladders along elevator-like shafts, chains hanging from ceilings and meat hooks. The corresponding soundscape is, of course, characterised by a mixture of hissing, whooshing, spitting, spluttering, banging, clanking, rasping, grating, grinding and scraping.

Rushing and Frenz (1995: 145), characterised the scenario of *Blade Runner* (1982) as follows.

'This is a film that seems to have been shot inside a dumpster. The city rots with the waste products of its overtechnologized, overcommercialized culture'.

Of *Terminator's* future, they write (1995: 166):

'scenery...is another scrap heap of waste materials from the past', a 'landscape of discarded metal and human bones'.

These settings, like those of *Mad Max*, *Hardware*, *Running Man*, *Tetsuo*, *Rollerball*, *1984*, *Brazil*, *Twelve Monkeys*, and many similar blue-filter dystopias offer us similar visions of the future as a post-apocalyptic disposal site for decaying and now defunct or obsolete technology. The sonic characteristics of these scenarios are also marked by metallic noises: banging, clanking, grating, etc.

It is interesting to note that technology has typically been one of the primary causes of the apocalypse in many of these films, and, while still relying on technology, it is the more manually operated old technology that becomes the tool of choice for the survivors, while modern technology is absent or shown discarded.³ Similarly, the sounds and soundscapes in these projected futures, rather than being those of the high-tech cheerful bleeping of modern-day computer and electronics equipment, are, as already mentioned, most often low-tech loud metallic clanking, hydraulic pumps, hissing steam, mains hum and electric drones.

Although many different songs and even some styles of music have adopted a sense of this heavy machine aesthetic, it is most prevalent in a contemporary music genre called 'industrial'. Originally using the actual machinery and later advancing to synthesisers, samplers and electronic percussion as the technology developed, industrial music, as its name might suggest, is built around samples of mechanical, electric and industrial machinery.⁴ The style has even developed its own devoted community of fans, and although industrial remains for the most part in 'the underground', several bands (Nine Inch Nails and Front 242, for example) have achieved a considerable degree of mainstream success. We have chosen this genre because of its use of both sonic anaphone and concrete sounds in the creation of a soundscape that is both real — in the sense that it contains real sounds from outside conventional musical discourse — and fictional — in the sense that those real sounds, treated, configured and combined within the music, do not exist in that form as a whole *except as music*.

Not surprisingly, industrial music has a strong link with dystopian films and literature. In the genre's infancy Genesis P-Orridge, in a 1976 concert press

3. This is possibly due to the fact that many are set in a post-nuclear world, which would likely have wiped out most electricity, reducing survivors to fossil-fuel and manually operated machinery. Witness for example the old-style gauges and gears of *Twelve Monkeys*, or the clunky heavy robots of *Gunhed*, harkening back to earlier dystopian films like *Metropolis* (1926) and *Modern Times* (1936).
4. In a survey of 2000 songs that, according to fanzines, belong to the genre, 1920 contained industrial (heavy industry), man-made (clanks, etc.), and/or mechanical (light industry) sounds.

release for his industrial band Throbbing Gristle wrote:

'Imagine walking down blurred streets of havoc, post-civilisation, stray dogs eating refuse, wind creeping across tendrils...It's the death factory society, hypnotic, mechanical grinding, music of hopelessness. Film music to cover the holocaust... The music of 1984...' (cited in Ford, 1999: 6.17).

Since that time, the genre has maintained the negative imagery of a science-fiction future of industrialised urban decay to express feelings of alienation, dehumanisation and lack of control in today's society.

Industrial artists frequently name themselves, their albums or their songs after science fiction themes and dystopian movies and books: *Cyberpunk Fiction*, 'Soylent Green', 'Ultraviolence', 'Big Brother', 'Replicants', THX1138, *Count Zero*, etc. Industrial artists have also taken part in the soundtracks to such films as *Freejack*, *Johnny Mnemonic*, *The Matrix* and *Tetsuo*. There have also been dystopian concept albums put out by industrial artists — Project Pitchfork's *Eon: Eon*, or Covenant's *Dreams of a Cryotank*, for example. There is even a label devoted to industrial music called Dystopian Records, which has put out such compilations as *Dystopian Visions*. Even the 'Industrial 101' web page⁵ for introducing fans to the industrial culture lists essential viewing as *Tetsuo*, *Twelve Monkeys* and *Blade Runner*. Several journalists have even called industrial music 'cyberpunk', after the science fiction literary movement.⁶

Industrial music's lyrics⁷ reflect science fiction imagery and sentiments of alienation, frequently coupled with a critique of the current Western hegemonic culture, particularly critical of the growing power of corporations. From Throbbing Gristle's 'Ministry of Antisocial Insecurity' to the satirical promise of Snog's *Buy Me, I'll Change Your Life*, such sentiments tie in perfectly with the dystopian critique of present-day society set into a land- and soundscape of the future.

Sonically, the setting is created through a variety of means. An extensive database⁸ put together mainly by the news group *rec.music.industrial* listing sources of movie samples used by many industrial bands revealed that Front Line Assembly, Skinny Puppy, Front 242 and Clock DVA (to name but a few of the more popular artists) are all enthusiasts of such films as *Videodrome*, *Twelve Monkeys*, *1984*, *Hardware*, *Blade Runner*, *THX 1138* and similar technological dystopias.⁹ Samples of both sounds and dialogue from such films are then appropriated and stylised in the music, occasionally distorted, repeated, and juxtaposed with others, or with the voices of political and religious leaders.

Other than cinematic samples, the most common non-musical sounds found in industrial music can be separated into four categories: factory and industrial sounds (steam-hammers, hydraulics, etc.), other mechanical sounds (hand drills, gears spinning, etc.), 'man-made' sounds (metallic clanks,

5. <http://www.sonic-boom.com/industrial> 15/01/00

6. Characterised by the work of William Gibson's *Neuromancer*, for example. The literary genre is a 1980s-90s scientific dystopian style that merged the high-tech 'cybernetic' world with that of the street punk. See for example Göransson, 1992.

7. An analysis of four hundred songs revealed approximately 30% of the main themes in the lyrics dealt with alienation, and another 25% dealt with direct criticism of present political structures.

8. Hypertext: <http://www.sloth.org>

9. This is in addition to a large proportion of samples from political speeches and horror films, although the most frequently cited sources were typically technological dystopias and other science fiction (32% of 860 samples identified).

etc.), and electric sounds (mains hum, electric drones, etc.). These types of sounds for the most part can typically be heard elsewhere in only three common settings; [a] construction [b] factory, manufacturing or industry work, and [c] films or television. As no musicians or fans of the style indicated they worked in construction, production, or factories, and nearly all indicated tertiary education levels and middle-class backgrounds,¹⁰ it follows that most of those that create or listen to this music are making visual-aural associations with these sounds through film or television imagery. The visual-aural chain of connotations then goes back not one generation, to the actual machinery, but at least two generations, to the associations with the film, as well as, perhaps, to other connotations which led the film's sound technicians to use those sounds.

If, therefore, the soundscape being created represents a fictional one to those who create and listen to the music, and the only real purpose in creating a fictional world would be to escape from the real one, then the fact that industrial musicians and sound technicians are at least in part re-creating an *old* soundscape adds another dimension, and we must ask why they are using this past low technology and not that of the present-day soundscape to represent bleak visions of the future.

It may be useful to look at 'utopian' songs as a way of extrapolating differences between the two aesthetics. Most of today's TV viewers and filmgoers associate utopia with instrumental 'space' music, like that heard in *Star Wars* (Collins, 2000). It makes sense then that dystopias are sonically grounded on Earth, which offers little escape or expansion.

A comparison between about twenty electronic utopian and dystopian songs¹¹ revealed that dystopian songs featured much stronger sounds in the lower middle, bass and contrabass registers than did their utopian counterparts. The former were characterised by the sound of old machines, electrical mains hum, clanking and thunderous clashing sounds, a few combining these with higher-tech sounds. Several of the industrial songs included a guitar, which was typically played like a machine — power chords delivered with repetitive down-strokes. Nearly every dystopian song employed male vocals, often distorted and in a monotone style, singing barely discernible lyrics. Most of the songs had samples interrupting the flow of the structure. Some included animal sounds or wailing and screaming in the background, others contained a low-pitched death-knell, and a few had air raid sirens.

By contrast, the utopian songs were more likely to have female vocalists, fewer instruments, and were clearer in sound, with very little distortion. The paramusical sounds could be characterised by hand-claps, 'blips', 'bleeps' and laser sounds. Several included non-electronic instruments (or at least synthesised versions of), typically pianos and flutes rather than guitars.

Putting the information together with the visual imagery of dystopian films, a comparison chart was compiled of the differences between the imagery and techniques of utopian and dystopian works (see Table 1).

10. In a survey posted to several news groups, with about 100 respondents in November and December 2000. In actual fact, few Westerners work in production at all any more (see Klein 2000).

11. For matters of time, songs were restricted to being of an electronically generated nature (industrial, techno, trance, etc.) and made in the last ten years. Therefore, of course, not all dystopian and utopian works fall into these categories. However those examined tended to follow this trend.

Table 1 A comparison of Utopian and Dystopian Trends in Imagery and Sounds

Utopia	Dystopia
Rational, logical bright, day time, sunny light colourful; reds, yellows, bright far-future/hyper-modern simple, clean cityscapes geometric shapes laboratory/science/transportation/commercial extra-terrestrial simple/few layers hand-claps, ahhh-haaas precise, distinct, crisp electronic/synthetic/digital pianos, flutes very little echo/ no perceived echo whistles, chirpy sounds female high pitch soft melodic/harmonic/chromatic	emotional, natural dark, night time, foggy/misty/rainy heavy muted, earth tones, grey-blues near-future/present-past messy, dirty individual factories and corporations organic shapes factory/war/military and surveillance subterranean, terranean chaotic/many layers/complex animal/human voices, screams/wailing imprecise, distorted, rough metallic/electric/analogue guitars echoes, hollow sirens, death-knells, hisses, drones male low pitch loud monotone/percussive/noise

Connotations of the industrial soundscape

Vocals

One clear structural trait of industrial music is that, in line with most techno (Tagg, 1994), there is little or no melody. The figure/ground relationship is not so much one in which the vocal line (the music's most obviously identifiable human strand because, if nothing else, it utters words) has disappeared altogether or is cut up into short sampled loops; no, although rarely sung, industrial vocal lines usually consist of complete phrases but tend to merge into the total texture of the music. Even so, individual words and phrases are no less audible than in, say, thrash metal. Almost all vocals are delivered by men and subjected to distortion, sometimes of standard fuzz type, sometimes filtered and/or phased to create the effect of substandard electronic sound equipment or of robotic speech. Although many devotees report on the importance of the vocals as being just another instrument in the mix¹² — and there is little doubt that the low male register and sonic mechanisation of the voice contribute to the merging effect just mentioned — it is possible to hear the distorted, rasping, growling timbre of industrial vocal lines as indicative of anger and urgency.¹³ Masami Akita of the Japanese industrial band Merzbow puts the matter in the following terms

'Sometimes, I would like to kill the much too noisy Japanese by my own Noise. The effects of Japanese culture are too much noise everywhere. I want to make silence by my Noise.' (Hensley, 2000; 34)

However, if a battle between individual human and the din of machines is taking place in industrial music, there is little evidence of the human winning out in sonic terms.

12. For example, "Industrial music, to me, is about texture, and distorted lyrics or harshly expressed lyrics sung in German add to the texture in a musical way, rather than a poetic one" (fan comment, January 2001).

13. A reception test carried out by Lacasse (2000) demonstrated that vocal tracks treated with distortion were heard as much angrier than those subjected to other sonic manipulation or than those subjected to no treatment at all.

Machines

Perhaps one of the first important things to note is that the dystopia represented is man-made, of human construction, and therefore it only follows that the sounds are not natural sounds, but those of human invention. Schafer too found that most sonic associations with ugliness are those of technology (1978: 60). Indeed, with the exception of noises of natural danger such as earthquakes, volcanic eruptions, thunderstorms etc., it is the noise of human society gone mad that causes the greatest fear: the din of war, the grating of sharp metal, etc.¹⁴ These sounds are visceral. The problem with today's machines of socio-economic power is, however, that they lack that viscosity: the beeps and clicks of the computers that represent oppression in our world just don't make noises commensurate with the violence of the system in which they function. This observation requires some explanation.

Whereas in the past, people one-upped their neighbours on who had the bigger car, the bigger power drill, the bigger motorcycle engine, etc., the trend in recent technology has been towards smallness, and now one-upmanship is played out in terms of who has the smaller mobile phone, the smaller laptop computer, the smaller watch. The implications of this smallness are that not only are the parts kept invisible, lacking physicality, but they also tend to be quieter. It's well known of course that loudness gets attention (it is the squeaky wheel that gets the oil, after all). The use of loud sounds therefore is most likely because of the associations of power attached to them: screaming, shouting, walking around with a large ghetto-blaster, riding a loud motorcycle, or similar activities of high-volume are empowering because one is controlling the acoustic environment (Tagg, 1992).

Listening to industrial sounds often conjures up the actual machine in the mind's ear/eye of the audience: the parts themselves are more similar to limb-like moving muscles than those of the intricate mobile phone which, in its turn, may be more homologous with our neural system. It is therefore possible then that the sheer physicality of the industrial machine represents a kind of human-ness of working muscle and the power associated with being part of the actual production rather than the abstracted database management and paper-shuffling of modern technology. The modern worker's soundscape (in particular those of the service industry) is by its very nature not conducive to the physical — sonic and gestural — aspects of musical discourse, whereas piledrivers and other older machinery seem to exhibit more tangible or corporeal rhythms and movements that can be mimicked or appropriated by human beings.

14. The Old Testament is full of such sonic references, especially when prophets foretell the doom of decadent society, for example: 'He' [the Lord] 'shall set engines of war against thy walls and with his axes break down thy towers... Thy walls shall shake at the noise of horsemen and of the wheels and of the chariots when He shall enter thy gates... Shall not the isles shake at the sound of thy fall when the wounded cry, when the slaughter is made in the midst of thee?' (Ezekiel 7); 'The whole city shall flee from the noise of bowmen and horsemen' (Jeremiah 4:29); 'Like the noise of chariots on the tops of mountains shall they leap, like the noise of a flame that devoureth the stubble' (Joel 2:5); 'Woe to the bloody city!... The noise of a whip and the noise of the rattling of wheels and of the prancing horses and of the jumping chariots... The horseman lifteth up both the bright sword and the glittering spear: and there is a multitude of slain, a great multitude of carcasses' (Nahum 3:1-3).

Dirty vs. clean, distortion vs. clarity, chaos vs. simplicity

Distortion has a long history of association with dystopia and evil. Dante's description of Hell includes 'voices loud and hoarse' (Canto 3, vs. 20-25).¹⁵ More recently, Lacasse (2000: 158-165) has demonstrated that distortion on the human voice carries connotations of malevolence, instability and unnaturalness. It is possible that our associations with distortion are tied to the fact that emotions such as shouting and crying tend to make the voice go hoarse and distorted, while a clear voice is associated with a mental clarity and calmness. The sounds of disorder similarly have a long history. John Milton describes Hell as 'a universal hubbub wild/ Of stunning sounds and voices all confus'd' (Book 1, verse 951). Such hubbub is likely to be indicative of confusion, riots, and the overloading of the senses. Clarity and cleanliness, on the other hand, are most often seen as a virtue ('cleanliness is next to godliness') and associated with the rational, scientific and disciplined. One possible explanation for the 'cleanliness' in utopian thought is its associations with space as opposed to nature. Western cinematic conceptions of space are typically of clean spaceships and clean inter-planetary living quarters. Nature, as opposed to space is seen as 'dirty'.¹⁶ Cleanliness therefore means the removal of nature and the introduction of technology. This technology is 'good' because it rids us of the nastiness and unpredictability of nature. The introduction of this 'dirt' could represent a destruction of purity, of ideals or of hope.

Sirens, hisses, clanks and low-tech sounds vs. lasers, bleeps and high-tech sounds

Jean-François Lyotard called the industrial 'the inhuman side of the mechanical' (cited in Richter 1965: 107), and this idea seems to hold true for much of the art created in the last century. Even before the Industrial Revolution, Hell was, according to John Milton, filled with the sound of hissing, clanks, thundering, and the grating sounds of metal on metal.¹⁷ These sounds are far more likely to be seen in factories than on space-ships, and are therefore associated with low technology. Clanks and hisses are also more likely to be heard in association with combat, as is witnessed by their inclusion in such television programmes as *Robot Wars*. It is possible that using these sounds is an attempt to take on notions of power and military strength associated with large machinery. High-tech bleeps and laser sounds, commonly the type found in space-related computer games, unlike factory sounds, are more likely to be related to intellectual combat and futuristic escape fantasies being grounded in a less tangible, less physical reality.

Low pitch vs. high pitch, heavy vs. light, male vs. female

Biologically, low sounds affect lower regions of the body than higher

15. This idea is borrowed from Swedish musicologist Jan Ling. 1983. *Europas Musikhistoria- 1730*, Uppsala: Esselte.

16. 'Nature's affective poles of opposition are in technology, in space, in science and in other aspects of advanced civilisation and industry. These latter areas are mainly viewed as negative areas of experience, associated with tension, threat, violence and crime, the objectively progressive and subjectively prestigious or enterprising aspects being outweighed by negative connotations involving fear' (Tagg 1982: 22)

17. Book 1: p. 24 667. 'Clash'd on their sounding shields the din of war' and 876: 'then in the key-hole turns/ Th'intricate wards, and every Bolt and Bar/ Of massy Iron or solid Rock with ease/ Unfast'ns: on a sudden op'n fly/ With Impetuous recoil and jarring sound/ Th'inferral doors, and on their hinges grate/ Harsh Thunder, that the lowest bottom shook/ Of Erebus'. and Book X: 239-508: 'A dismal universal hiss: the sound/ Of public scorn'.

sounds.¹⁸ Low sounds are also synaesthetically heavier sounds.¹⁹ In Western society low sounds tend to be dark, heavy sounds, while light sounds are sharp or shrill and higher in pitch (Tagg, 1979: 173). Indeed, although a stable bass line makes for confident-sounding music, although a sure foundation under our house provides security, although it is reassuring to have a solid ground under our feet, etc., it is nevertheless clear that 'lowness' has negative connotations too. Things 'hit you down below' if very unpleasant or unexpected and we say we feeling 'low' if we are depressed; Hell lies below us, and we bury our dead underground. Light and dark offer similar common associations: darkness is akin to the night-time, caves, subterranean locations and the darkness of winter (Tagg, 1982), and therefore with danger death and the unknown.

Low pitch is associated with threat, terror, fear, and doom, whereas high pitches are associated with activity, lightness and, if consonant, happiness (Tagg, 1979: 179). Heaviness also has a history of negative connotations: problems are said to 'weigh heavy' on one's mind, and heavy objects are more likely to cause damage and personal injury. Theo van Leeuwen (1999: 108) points out that high-pitched sounds are more likely to be produced by small people, small animals, small musical instruments and small engines, and so higher voices are seen as less threatening or dangerous. This could account for the lack of female vocals in the dystopian songs, as female voices are typically unable to maintain the same low pitch range as male.

Monotone vocal/Percussive/Noise vs. Melody/ 'Song'

According to one of the originators of industrial music, the 'rhythms [were] based on conveyor belts, alienating work...industrial music was closest to journalism and to a documentary in black and white of the savage realities of fading capitalism' (Cosey Fanni-Tutti in Ford 1999: 7.18). The structure and the use of noise then are direct statements on the dystopian future we may face. Noise, sometimes defined as unwanted sound, was once called 'a direct call to action' by Richard Hülsebeck (cited in Richter 1965, 70), and there is little doubt of the power it, like volume, holds. Jacques Attali calls noise 'violence... a simulacrum of murder' (1996: 26). Lévi-Strauss found noise-making instruments to be associated with 'death, decomposition, social disorder and cosmic disruption, calling them 'the instruments of darkness' (Toop, 1995: 66). Dissonance is also associated with fright, terror, doubt, confusion, bitterness and fear (Tagg, 1979: 179). Using noise, like using volume, then, is seen as a method of empowering oneself against oppressors.

By contrast, Theo van Leeuwen (1999: 95) found that the sound of joy is characterised by wide pitch ranges and high pitch levels and Tagg (1979: 170) found that consonance has connotations of hope, happiness, light and the sunrise. And to once again compare descriptions of Heaven and Hell, Milton's Heaven included harps that were always tuned (i.e. clearly pitched at distinct notes rather than noises) played in 'charming symphony' and 'melodious'²⁰.

18. Low noises (10-75 hz) have resonant vibration in the chest, throat and nose cavities. For more on the biological, psychological and physiological effects of sound and noise see Kryter 1970

19. The English language is clear about this connection: light is the opposite of both dark and heavy.

Conclusions

One of the main difficulties in explaining why alienation in and dissatisfaction with an oppressive social system whose machines make small, high-pitched sounds should be expressed in such ostensibly out-of-date sonic terms is that the task is multi-disciplinary. However, drawing on insights from a number of disciplines we have at least been able to put forward the following hypotheses as to why the industrial music community has opted for such a contradictory aesthetic.

1. By placing the enactment of their sonic struggle in an industrialised past, they may be staging their musical discourse at that point in history where they locate the start of the modern world, more specifically in the heyday of automation and of F.W. Taylor's principles of Scientific Management. Alternatively, they may be reflecting the automatism of their own job or the emptiness of modern urban life, returning to a time when jobs produced tangible objects.
2. By eliminating the commodity-fetishism of modern life and reducing it to a survivalist essentialism, they are in keeping with the genre's socialist sentiments and beginnings.
3. They may be trying to overcome the oppression of those that they perceive to be in power, more specifically of those who wield power over the means of production, by sonically appropriating, controlling and re-contextualising those sounds.
4. They may be attempting to claim something as their own that modern finance capitalism seems to have either discarded or removed from our midst. The resurrection of ostensibly obsolete technology seems to be an appropriate choice.²¹
5. They may be trying to escape from the purported inexorability and infallibility of today's socially and technologically complex machinery²² into a romanticised yesteryear where a more understandable technology could represent hope for the working class. They may in other words be placing their own struggle in the sonic and historical fiction of a time when social realism was the most recent 'domestic' force against capitalist system.
6. They may be trying to empower themselves through controlling or enacting a sonic metaphor of the destruction wrought by the system we

20. See Milton, Book III: 365-375: 'Then crown'd again their gold'n Harps they took/ Harps ever tuned, that glittering by their side/ Like Quivers hung, and with Preamble sweet/ Of charming symphony they introduce/ Their sacred song, and waken raptures high/ No voice exempt, no voice but well could join/ Melodious part, such concord is in Heav'n'.

21. Manufacturing has of course not ceased. Much of it has just been transferred to 'third' world countries where labour and the lives of workers come cheap, and where labour legislation is even less democratic than in the 'first' world.

22. The inexorability may feel real, especially since the fall of the Berlin wall and the consequent absence of any established geopolitical competition to capitalism, but the infallibility of capitalism victorious is totally illusory simply because the vast majority of the world's population is worse off now than before while a very small minority has become excessively rich. Equally 'infallible' are some of global capitalism's most powerful ideologues who actually believe either that global warming does not exist or that it poses no threat to humanity. They are about as infallible in these beliefs as the church authorities were who, in 1616 and 1633, did not want to believe that the earth goes round the sun (Galileo Galilei's injunction and trial). The ideology of corporate capitalism is riddled with metaphysical dogma of marketing and management in which 'market forces' are often cited like some latter-day substitute for 'fate', 'destiny' or 'the will of God' when it comes to propagating the myth of unquestionable inexorability in the sociopolitical status quo.

live under; or they may be expressing that such destruction is taking/has taken place and they are being 'drowned out' by it.

Some of these hypotheses are in themselves contradictory. Nevertheless, it would have been impossible to even ask these questions, clearly of some importance to no mean number of young people, without considering the social meaning of sounds or without attempting to analyse the way in which such sounds are incorporated into a particular type of musical and social discourse. It is clear that we still have a long way to go in terms of developing methods enabling us to explain these issues properly. However, it should also be clear that the system under which we all live forces people to create strategies for survival and empowerment and that industrial music constitutes one such strategy. Indeed, if, as scholars and educators, we are unable to identify the demons of the iniquitous system we have created, and if we are unable to respect and encourage those who enact a struggle with this system by sticking sonic pins into those demons, we should probably seek alternative employment.

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