2004

The Body and Technology in Popular Culture

Przemyslaw Psuj

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The Body and Technology in Popular Culture
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Edith Cowan University
11 August 2004
USE OF THESIS

The Use of Thesis statement is not included in this version of the thesis.
ABSTRACT:

The human experience of the world today is increasingly adapted and understood via technological terms and systems. This thesis analyses and examines the ways in which technology today impacts upon the human body and its capacities in the area of subculture and music. Also considered are the implications of this notion for the future. Primarily my study stems from theory proposed by Donna Haraway (1985) and her image of the cyborg and its inherently hybrid nature. Picking up on this point, I will look specifically at the existence and representation of the hybrid body in popular culture. Some critics fear a technological takeover resulting in a supremacy over the body; Horkheimer and Adorno (1944) make the criticism that technology is the tool of domination over the body and culture. In contrast, Redhead (1997) and Best (1997) suggest that the splice of human and 'machine' is necessary for the future survival of the body, and that this survival is most often found in sub-cultures using similar technology as elements of popular culture. Indeed technology is viewed as an enhancement to the body. At the same time this thesis does not cry “all hail technology”, but examines the approaches taken to the body by technology in various aspects of popular culture on a case-by-case basis. In other words, both the pitfalls and benefits are considered in each respective instance.
I certify that this thesis does not, to the best of my knowledge and belief:

(i) incorporate without acknowledgement any material previously submitted for a degree or diploma in any institution of higher education;
(ii) contain any material previously published or written by another person except where due reference is made in the text; or
(iii) contain any defamatory material.

11 August 2004
Przemyslaw Psuj

The author would like to thank Dr. Susan Ash for her help and perseverance and his family and wife for their continued support and encouragement.
# Table of Contents

<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Title Page</td>
</tr>
<tr>
<td>2</td>
<td>Abstract</td>
</tr>
<tr>
<td>3</td>
<td>Access Declaration and Acknowledgments</td>
</tr>
<tr>
<td>4</td>
<td>Contents</td>
</tr>
<tr>
<td>5</td>
<td>Introduction</td>
</tr>
<tr>
<td>8</td>
<td>Chapter One: Cybernetic Politics in Pop Culture</td>
</tr>
<tr>
<td>13</td>
<td>(ii) “They say it got smart” (The Terminator, 1984) - Science Fiction and Techno Anxiety.</td>
</tr>
<tr>
<td>17</td>
<td>(iii) Horkheimer and Adorno, “Culture Industry as Mass Deception”.</td>
</tr>
<tr>
<td>19</td>
<td>(iv) “No hope but what we make for ourselves”, (Terminator 2, 1991) – Haraway suggests the cyborg be celebrated.</td>
</tr>
<tr>
<td>19</td>
<td>(v) Steve Redhead - “Clubcultures”.</td>
</tr>
<tr>
<td>23</td>
<td>Chapter Two: Commodification of the Body in Pop Culture</td>
</tr>
<tr>
<td>29</td>
<td>(i) Introduction to Vocal and Tonal Enhancement.</td>
</tr>
<tr>
<td>29</td>
<td>(ii) “Live” Performance.</td>
</tr>
<tr>
<td>33</td>
<td>Chapter Three: Underground Dance Music Culture</td>
</tr>
<tr>
<td>35</td>
<td>(i) Advances in Technology for Independent Musicians.</td>
</tr>
<tr>
<td>38</td>
<td>(ii) Negotiating Cybernetic Politics Between ‘Cultures’.</td>
</tr>
<tr>
<td>42</td>
<td>(iii) Technology Manifest in Dance Music Culture.</td>
</tr>
<tr>
<td>44</td>
<td>(iv) Cultural Exchange Programming.</td>
</tr>
<tr>
<td>44</td>
<td>Concluding Remarks</td>
</tr>
<tr>
<td>45</td>
<td>Bibliography</td>
</tr>
</tbody>
</table>
Introduction:

The primary goal of this thesis is to explore the relationship between the body and technology in popular culture, specifically music culture. This thesis is largely based on the early work of Donna Haraway (1985) and her essay "A Cyborg Manifesto". Although this piece is now dated, its relevance is maintained by the sheer size and influence of technology in pop-culture. Chapter 1 introduces the theories and reviews how overarching ideas develop. Initially the term cyborg is located and identified as relevant to the argument, therefore the dualistic idea of the relationship between the body and technology and the way in which that dualism is evident in popular culture. Culturally this idea is evident in popular science fiction film, such as The Terminator (1984). This film literally demonstrates the kind of anxieties about technology that Haraway (1985) discusses in her theory: a dehumanisation of the body by technology. Similarly the even earlier work of Horkheimer and Adorno (1944) comes to the fore in the particular context of music culture. They suggest that technology is aligned closely with a rationale of economic domination, and therefore a domination of bodily traits/ideals such as choice and spontaneity.

In counterpoint to ideas of technology as a threat, Haraway (1985) suggests that technology is itself arbitrary, its benefit or detriment to humanity is only limited by the way it is used, and therefore must not be inherently linked to a 'demise' of the body. Indeed she suggests that the body/technology hybrid can be positive and beneficial. Stemming from this point, Best (1997) and Redhead (1997) locate this argument within the context of music sub-culture; specifically dance music culture. They identify the terms pop and sub and differentiate between them. They then go on to illustrate that sub is in fact a kind of resistance to pop, and that technology is in this instance used as a tool of that resistance. Thus the enhancement of the body by technology in underground dance music culture serves to empower that body, not dominate it; be it performer or audience. Best (1997) also highlights the notion that there is always an exchange between sub and pop music culture and that both spheres actually benefit each other mutually.
Chapter 2 examines instances of technology in pop music culture, particularly as it is used to promote the body as a medium for sales of pop music. The overarching idea of vocal and tonal enhancement is introduced and discussed, as are specific examples of modern technology used to achieve this enhancement. Madonna is used as an example of an artist that utilizes such enhancement to obtain a particular result and impact from her music. The idea is also introduced that live performance is affected depending on how much technology has influenced the initial music creation process. Further examples of Madonna’s Drowned World Tour demonstrate just how closely her body is linked to technology during a ‘live’ performance. Finally Chapter 2 discusses the marketing ‘package’ that is pop music, and how technology is used to enhance the sound of artists and the way they look in video clips, photos, etc. To this end Horkheimer and Adorno’s (1944) theory emerges as wholly relevant - the body becomes incidental to achieve a sound and image that is sellable.

Chapter 3 looks at technology and its application in underground dance music culture. Primarily this sub culture has flourished as a result of advances in technology for independent musicians. For example such developments as analogue to digital interfacing have resulted in enhanced accessibility and production capacities for a single producer. While a studio of synthesisers and drum machines is well out of price range for the average musician, computer software has allowed almost universal access to electronic music production. This in turn has resulted in a great flow of ideas and creativity. Furthermore, the aesthetic in underground dance music differs from that of pop music. The music is primarily created for dancing - not for image. The example of Anthony Rother in live performance is given as a contrast to Madonna. The focus of his performance is on the music, not on the artist. Indeed the world underground dance music differs in aesthetic from that of pop by its very structure. Largely proliferated by the Internet, this subculture is made of small independent labels, each with a different creative vision of music. Thus, there is greater scope for individuality and experimentation. Importantly, however, pop and sub are not regarded as polar opposites, but rather as mutual beneficiaries. This is illustrated by the example of Madonna’s use of Mirwais, a long time member of the dance music underground, to produce her album.
Technology thus becomes the tool through which music continually advances and evolves, be it for a pop aesthetic or one of sub culture.
Chapter 1: Cybernetic Politics in Popculture


‘Duality’ is a key idea in analysing the relationship between the body and technology. Haraway (1985) has argued that this relationship, both materially and conceptually, constitutes what can be called a cybernetic organism- or cyborg. At first glance the term cyborg draws an immediate association with popular science fiction. However, what may appear at first to be a narrow and shallow semantic scope is in fact a broad and incisive theoretical approach. Haraway’s (1985) early work is “an effort to build an ironic political myth faithful to feminism, socialism, and materialism” (p. 149). In the process of this effort, she examines the material relationship between the body and technology. Even though Haraway’s essay is early, the ideas are not stale. Its relevance is maintained by recent cultural trends such as interactive television and world events such as the war on terror. Indeed in Haraway’s “A Cyborg Manifesto”, the cyborg is defined as a “creature of social reality” (p. 149). Certainly in Western culture, human engagement with technology is evident almost anywhere one may look. For example, most new cars produced today come with computer-controlled systems management, computer navigational aids and various other electric machinations designed to enhance the body’s driving experience. Glasson (2003) for example reports that car manufacturer BMW is carrying out tests where cars are ‘communicating’ driving conditions (road, weather) to each other. One prominent example of technology coupled closely with the body is nanotechnology, which is the ability to manipulate biological organisms at a molecular level. In medicine this manifests in elements of stem cell research (www.nano.org.uk).

These examples briefly touch upon the variety of material contexts within which the cybernetic relationship is evident. However, it is the conceptual impact of the relationship between the body and technology that must be grasped if we are to understand our own development as beings in a social world. Understanding this

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1 Both are detailed later on in this essay.
cybernetic relationship is to be aware that "the boundary between science-fiction and social reality is an optical illusion" (Haraway, 1985 p 149) - therefore it is a construct. In essence then the cyborg operates as a unified existential being and as with any living and developing being, there are a myriad of facets that come together to construct the 'whole'. Some of these may be contradictory but all add to the lived experience of that being. Haraway (1985) further defines the cyborg as "lived social relations, our most important political construction, a world-changing fiction" (p149). Her example of this construct is "women’s movements that have constructed ‘women’s experience’" (Haraway, 1985, p149). She goes on to say that this 'experience' is crucial politically because "liberation rests on the construction of the consciousness...of apprehension, and so of possibility" (Haraway, 1985, p149). What this means is that the conceptual construction of material relationships changes what counts as lived experience and subsequently influences the politics of social reality. A woman can either perceive imaginary oppression or that perception may be factually valid; the important issue is perception for that leads to reaction. While Haraway uses the example of women’s movements the concept equally applies to all of us in the context of the cybernetic relationship. The cyborg is no longer a product of science fiction alone (where the theme of technological apocalypse is common). Now at the beginning of the new millennium, the body’s (human) consummation with technology changes what counts as experience for every-body. In other words, “we are [all] cyborgs” (Haraway, 1985, p150).

My argument considers two such body and technology hybrids. The first being the body in performance/creation and the second is that of the body as viewer/audience. I will argue that in both instances technology is integrated with the body. It facilitates experience and it certainly changes what counts as experience for that body. Technology enhances the body’s capabilities and perceptions and subsequently the lived experience of reality changes. More specifically, we may continue to understand this notion in terms of “ambiguous [distinctions] between natural and artificial, mind and body, self developing and externally designed” (Haraway, 1985 p 152). In these terms then the notion of the body and technology becomes politically infused and the subsequently emergent factors must be, and are, addressed next.
II: “They say it got smart” (The Terminator, 1984) - Science Fiction and Techno Anxiety.

Haraway referred to the cyborg as “a creature of social reality as well as a creature of fiction” [emphasis added] (1985, p149). This is important to note because the representation of cyborgs/technology in popular science fiction has amassed to construct a very prominent perception of the dangerous nature of technological development, including the possibility of a domination of the human race – even to the point of extinction. In a sense the throng of apocalyptic science-fiction films have almost come to create a theoretical standpoint in their own right. In realizing this, Haraway’s (1985) work is inextricably bound up with science-fiction films’ techno-apocalypse when she points out that “the relation between organism and machine has been a border war” (p 150), although the notion of “optical illusion” (Haraway, 1985, p 149) is directly illustrated in the medium of film.

The very mention of war carries with it the notion of struggle and therefore politics. The politics dealt with in science fiction films are invariably politics of domination - a situation where one species seeks to control another, or where technology overwhelms the human - this is the ‘border war’. A specific example of a film with just such a scenario is The Terminator (1984). Produced around the very time of Haraway’s seminal essay on the cyborg, the film is at times a literal representation of some of the points raised in “A Cyborg Manifesto”. The basic premise of the film is that a war rages between man and machine in the year 2024; a cyborg is then sent back in time to kill the mother of John Connor, leader of the human resistance. Of key importance to note in the film is the fact that the beginning of this war is due to political defence policies. A company, Cyberdyne Systems Inc., develops a national defence computer system, known as Skynet, that eventually becomes self-aware and as the film’s hero explains, “it saw all people as a threat, not just the ones on the other side”. The Skynet system then launches a nuclear missile and the subsequent retaliation causes a nuclear holocaust. In this way humankind was to be exterminated.
Although *The Terminator* is fiction, it illuminates strong connections with actual anxieties that developed about the dependence and trust we place on technology. Haraway (1985) pointed out that at the time of her writing, the United States government set aside $84 billion for C3I (command-control-communication-intelligence) in the national defence budget. With such astronomical amounts being poured into the technology and development of war, the anxieties in science-fiction film about where technology would lead to were not unfounded. This was a time of intense Cold War politics between East and West and the Star Wars Program where a domination of space and the inherent technology was a domination of the other. In such a context it is clear that fiction is not so far removed from reality, and that fiction in the context of this paper has a very significant effect on the perception of lived human experience alongside technology.

This scenario manifested more clearly at the beginning of the 1990's during the Gulf War. Cutting edge technology was employed first hand both in battle and to transmit images of the conflict directly into the living room of anyone with a television. Moreover these images consisted of American cruise missiles strapped with camera technology to demonstrate the icy precision of weapons fathered by extensive technological research. The images provided by those on-board cameras illustrate the detached, clinical nature of this technology. The missiles did not require direct human hand-eye coordination; termed 'smart-bombs' they were able to hit targets without prior visual contact (Thornborough, 1992, p 53). Furthermore the images themselves were colourless, being transmitted in black and white - a missile careens into a building and the viewer does not see the aftermath but only a second or two of white noise on the screen. Technology in the Gulf War demonstrated clearly the capability to make a bloody conflict seem a mere formality; the body became detached in this conflict - the soldiers (performers), on both sides, were rarely seen on television - only as planes, tanks, missiles or shadowy green figures illuminated through the technology of night-vision cameras. Similarly the viewer at home becomes detached from the reality of war, technology is used to portray horrendous tragedy as a group of surgical military manoeuvres. Haraway (1985) pre-empted this
scenario by referring to modern warfare as a "cyborg orgy" (p150). Indeed during Operation Desert Storm coalition forces are estimated to have "expend[ed] an average of £6 million worth of air-delivered munitions an hour" (Thornborough, 1992, p 64).

It is further important to note exactly how this 'border war' has developed in more recent times, particularly between the West and what has become 'the other side'- The Middle East. The huge gap in the prominence of technology between these cultures, as demonstrated in the Gulf War, has led to deadly oppositional force against the West, primarily America, by certain Middle Eastern cultures. This opposition has often manifested as terrorist activity and the most recent, perhaps largest ever, terrorist attack was of course the September Eleventh World Trade Towers attack in New York. This attack highlighted the fact that despite the far superior technological capabilities of the West, in the sense of weapon detection technology at airports, global monitoring of terrorist activities and terrorist identities, and highly developed counter-terrorism response contingencies, the hijack and destruction of three domestic American passenger jets and the fall of the World Trade Towers was achieved by the use of box cutters. Anxiety about technology in this sense stems from the, apparently, false sense of security and trust we place in it. This anxiety was validated by the events that transpired. It also becomes glaringly obvious that technology, and the claims it is used to marginalise the other (Kamalipour, 1995, pxx) can result in an even greater apprehension about its applications because it leads to conflict amongst ourselves. Technology, in this instance, was not the enemy but rather those who wielded it.

Although Haraway noted science fiction film's influence on anxieties between humans and technology, the key point she made is that these politics are not as far removed from the individual, as are matters like defence budgets and the Star Wars program. What emerges is an understanding that it is our very bodies that are involved first hand with technology. It is the subtle alterations and enhancements to our bodies in the above named spheres of bodily endeavour (the performer, the audience) that constitute the actual politics of domination. Indeed Haraway (1985) posits that cyborg politics constitute "territories of production, reproduction, and imagination" (p150). Thus
it is clear that beyond the fictional construction that technology operates as a threat to humankind comes the realization that the individual body must negotiate its relationship with technology daily. It is therefore important to explore how such politics are played out on this more micro scale. To this end it is necessary to extrapolate the 'territories' named above; culture is such a territory.

III: Horkheimer and Adorno, “Culture Industry as Mass Deception”.

To facilitate such an exploration of cybernetic politics, it is necessary to align technology in this context with economic operations. Horkheimer and Adorno (1944) argued that culture is an industry and so therefore all aspects of culture, especially mainstream culture, are subject to economic forces. Horkheimer and Adorno (1944) went on to argue that technology is the tool by which mass culture “impresses the same stamp on everything” (p1037). This translates into the premise that the domination of the body by technology in performance and reception is achieved with economic sensibilities in mind. To ground this position further, one must understand that the basic premise of good economics is the generation of sales in whatever medium one is working in. This directly relates to the argument being posited. In the context of this thesis, the body as an element in musical culture also becomes subject to such forces. For example, in order to be economically successful, the body in performance must find a formula or structure that is appealing to a large audience, hence the association with the mainstream. Once achieved, this formula forms the foundation for "standardization and mass production" (Horkheimer & Adorno, 1944, p1037). Technology is the key part of this formula because it can level the playing field in terms of a given performer's 'talent'.

Consistent sales success correlates directly to consistent sound or trends in sound; a large record company then actively searches for a body with the right image for marketability. If necessary the 'sound' of that performer can be technologically processed and engineered to fit the already successful structure. This scenario was exemplified by the Australian television series Popstars2 – aired on Channel Seven. In this case auditions were carried out nation wide and a selected group of individuals were voted on by judges

2 In fact part of an international trend to churn out 'stars'. 
from within the recording industry to succeed in this ‘talent quest’. Clearly by carrying out this process on television the focus was on visual image rather than musical ability. In fact more time was devoted to dance routines and marketing contestants’ personality ahead of musical ability during the entire series. This is due to the fact that the technology to manufacture success was already programmed to mould the winner, whoever it may be, into the correct sound format. This is not to say that individuals do not have talent. These contestants may have “belong[ed] to the [music] industry long before it display[ed] them; otherwise they would not be so eager to fit in” (Horkheimer & Adorno, 1944, p1037). In this sense the performing body makes concessions in order to gain initial exposure to the public and may later deviate from the format. For instance members of Bardot, the girl group that emerged from the first series are already spinning off into individual careers.

Initially it may seem as if the performing body benefits from such technological processing in the form of invariably short-lived fame and success. However, it must be remembered that just like the technology it is ‘benefiting’ from, this performing body is a “function of today’s economy” (Horkheimer & Adorno, 1944, p1037). Conversely, technology’s domination of the receptive body (audience) in mainstream culture is more overt in intent because “it is claimed that these standards [discussed above] were based in the first place on consumers needs” (Horkheimer & Adorno, 1944, p1037). These needs are made to sound as if they are natural but the term ‘need’ may very well be replaced with the term want - a want based on the coercion that comes with omniscient, dominant advertising. Even in this case corporations may argue that want is a result of free choice but this argument falls apart when the technology used to suppress bodily spontaneity and individuality by such corporations is examined. At the forefront of this suppression lies communication technology, which provides for the illusion of participation and exchange between those with vested economic interest and the audience.

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3 Subsequent series to the first one involved viewer voting.
4 Performers in the pop group Bardot do not play instruments but only contribute vocally. Their musical ability in this sense is limited by the fact that someone else will play or programme music for them. Indeed listening to the ‘sound’ of Bardot it is strikingly similar to other commercially successful all-female pop groups (e.g All Saints).
5 Beverly Best (1997) elaborates on this type of negotiated subject position which is referred to later on in this thesis.
Therefore the body as viewer is in fact no longer free to decide what type of entertainment is most appealing, referring specifically to type of music or television programming. Technology has fostered the massive permeation of advertising into the everyday functioning of the viewing (therefore consuming) body. At the time of Horkheimer and Adorno’s work (1944), the radio broadcast was already a common and popular medium. Television has since grown into a cornerstone of modern living in western culture and the advent of personal computers and the internet has proven the most powerful yet of ‘personal’ technological tools. Horkheimer and Adorno (1944) importantly note “the basis on which technology acquires power over society is the power of those whose economic hold over society is greatest [and that] a technological rationale is a rationale of domination itself” (p. 1037). Thus coupling economic power with cutting-edge technology allows corporations to expose their product to vast numbers of viewers and in a manner that is highly appealing. Expensive and slick advertising campaigns are designed so that the viewer is attracted to them and will settle for nothing less stimulating in the future. Such campaigns coupled with on-line surveys, feedback sections, and phone-in competitions give the illusion that the individual body matters in the overall course and concern of the particular corporation. Yet it is the repetition of form and structure in all aspects of mainstream culture that “can always be found to be cyclically recurrent” (Horkheimer & Adorno, 1944, p.1039). Therefore the fact remains that the viewer is subject to limits placed upon him/her, not individual free choice.

The fact that there is any choice between different formats and structures of different mediums is part of a larger paradigm that amounts to an even greater economic stronghold over society by technology. The on-line surveys named above not only create an illusion but also serve as an important resource for gathering information on consumer trends. Once again it must be made clear that this is not for the benefit of the individual

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6 The Internet, however, has no locus of control and therefore allows for subversion as much as domination. This idea is discussed in detail below.
7 Pepsi, for example, recorded their own Shakira concert to endorse their product (www.pepsi.com).
8 Pepsi sponsors official giveaways during Video Hits.
9 Video Hits has an interactive Top Ten vote whereby the viewer selects their top ten songs. The irony is that the song-list is preselected and so free choice is in fact an illusion. This is evident by watching any edition of the show.
body, but is a technological aid for the corporation in “classifying, organizing, and labelling consumers” (Horkheimer & Adorno, 1944, p1038). Based on the information that is gathered, new structures or additions to old structures are developed, again this is strictly for the purpose of increasing sales - not choice. 

For example a broadcasting corporation will own a radio station broadcasting more dated music aimed at an older audience, with decade specific segments, for example the seventies. The same company will also own another station appealing to a younger demographic, however, the actual format and structure of the station will be identical to that of the affiliate station - there may be a segment devoted to the newest pop releases. This is actually the case with the Austereo network (www.austereo.com.au), which in Perth runs both 94.5 FM and 92.9 FM - for older and younger audiences respectively. To add to this there will be advertising on both stations about products or television programs that the corporation produce, own or be contractually affiliated with; each appealing to a different demographic. In this sense “everybody must behave (as if spontaneously) in accordance with his [or her] previously determined and indexed level, and choose the category of mass product turned out for his type” (Horkheimer & Adorno, 1944, p1038, emphasis added). Nowadays this type of concentrated thrust resounds through the interconnection of all forms of communication technology. Therefore radio stations will advertise affiliate television programs, web sites will be set up for both and deals between corporations will be made for sponsorship rights to big broadcast events. Technology thus keeps the economic wheel greased and the bodies of the audience inundated with mediocrity. This is in fact the case with the Big Brother series broadcast on Network Ten with 'official' updates on radio stations belonging to the Austereo network (www.bigbrother.com.au). Indeed Network Ten (www.ten.com.au) owns the majority of Eyecorp (www.eyecorp.com.au) an advertising company that in turn is an affiliate of the Austereo network - this association becomes clear by visiting any of these websites.

Choice turns out to be an inadvertent by-product of increasing sales. It will be shown that it may lead people to resistant pockets within mainstream culture.
As Horkheimer and Adorno (1944) argue, "something is provided for all so that none may escape" (p1038), thus illustrating clearly the method of major economic agencies in the ‘culture industry’ to co-opt elements outside of mainstream culture and gear those elements toward sales. By picking up on cultural movements and trends, for example hip-hop music, the appeal of the corporation’s product is widened and just as with already successful formats the full force of technology is applied to mass produce those new trends, engineer and enhance new artists, and then to market them inexhaustibly. The body as performer and as viewer is thus both deceptive and deceived respectively, though the end result is the same - domination of the body by technology. The body as performer is enhanced by technology, for example vocal range and clarity can be electronically engineered, but it is engineered to fit a mould therefore bodily individuality is crushed. Similarly the viewer perceives the performer as real, the standard of performance as penultimate, and any aspirations of achieving that standard of success seem unattainable. A strong example of this can be seen in current day pop music where the endless array of ‘artists’, by sheer weight of numbers, is cause enough for an aspiring singer to question their natural ability and become disillusioned. The extent to which technology is used in pop music to enhance performance is often obscured, thus creating the illusion of raw talent. Therefore by believing in the reality of a ‘pop’ star the above-mentioned singer’s aspirations can be crushed. Furthermore the perennial succession of ‘new talent’ via television, radio and Internet floods the individual will with a need to stay in the cultural loop of ‘what is hot and what is not’ and official endorsements of merchandise of all kinds. Across all entertainment media there is a clearly discernible united front to market the latest ‘stars’ and their endorsements.

IV: “No hope but what we make for ourselves”, (Terminator 2, 1991) - Haraway suggests the cyborg be celebrated.

Despite such cybernetic political and economic issues of domination, in our time and space the nature of technology reveals itself as a double-edged blade. Haraway (1985) pointed out that “The cyborg [is] a fiction mapping our social and bodily reality

11 A detailed textual analysis further on will demonstrate this.
12 This is certainly not to say that artists with popular appeal do not have talent.
13 Pepsi is currently endorsed by Britney Spears, Shakira and in the past by Michael Jackson.
and as an imaginative resource suggesting some very fruitful couplings" (p 150). Thus when the body as performer/audience recognizes these illusory properties of technology in relation to itself there is the genesis of a shift in the way that cybernetic politics are negotiated. This further translates into the realization "for pleasure in the confusion of boundaries and for responsibility in their construction" (Haraway, 1985, p150). What has now emerged are two different core conceptualisations of technology in relation to the body. The first, as discussed above, conceives of technology and the body linked together as construct (the cybernetic organism), so much so that the supposed insidious nature of technology toward the body is in fact hidden from it. Yet technology itself is arbitrary. I argue that it is the purpose for using that technology that makes it regressive (dominating the body in mainstream culture, as argued above) or resistant (as in counter-culture, discussed below). To clarify, any interaction by the body with technology is cybernetic; thus we are all cyborgs in that sense, but the latter conceptualisation is the awareness that the body and technology hybrid is a construct and therefore open to modification. Therefore the advancement/proliferation of technology in society does not entail an automatic dehumanisation but can actually be resistant and emphasise bodily (human) aesthetics.

Indeed Haraway (1985) went on to argue "the cyborg has no origin story in the Western sense" (p150); therefore the body's relationship with technology is not innate. It does not stem from a "myth of original unity" (Haraway, 1985, p151), which ultimately means that the body places on technology its own desires and makes it work for its purposes - it can be modified to suit its own desires. I have briefly illustrated how some uses of technology have manifested in domination of the body in various spheres of cultures (technology in warfare), and the body as performer and viewer in mainstream culture. However, the use of technology can "lead to subversion" (Haraway, 1985, p151) of the illusion that shrouds mainstream culture. Technology in the hands of the individual body can "subvert the apocalypse of returning to nuclear dust in the manic compulsion to name the Enemy" (Haraway, 1985, p151).
This scenario is exemplified by the accessibility of technology such as the Internet, which can facilitate expression of individual ideas that often are in contrast to the interests of mainstream culture (in the sense of providing something outside the standard structure). For example, musicians not accepted on major corporate labels can use the Internet as an outlet for their sound. This can be achieved by setting up a website with personal bios, audio samples songs, touring dates and releases (www.predicaments.com). This in turn provides an option for an audience to be able to move away from what the mainstream is offering. This also leads into the wider theory of sub and counter cultures discussed next.

V: Steve Redhead - "Clubcultures".

It is in the study of popular culture that cybernetic politics are consciously restructured through a seemingly endless array of 'sub' and 'counter' cultural movements. It is of key importance to note that these subcultures are to be differentiated from pop-culture. That is, pop-culture refers to the mainstream collection of structures carrying with it notions of “domination, exploitation and cultural imperialism” (Best, 1997, p19). However, cultural studies “must allow spaces for possible resistance” (Best, 1997, p19), and this is the space more often occupied by subcultures. The discussion above has named the forces at work in pop-culture - resulting in it being “just a matter of style and sale” (Frith & Savage, 1997, p8), where in fact the style must be so correctly formatted so to appeal to the widest possible audience – ultimately ending in mass consumption. Style is also an important component of sub-cultural texts, but it invariably manifests in a way that is dissident to the form taken by the mainstream. This in itself is a political statement or commentary by individuals within a particular subculture demonstrating their stance away from the mainstream.

However, the differentiation between pop's regression and sub's resistance is not so clearly defined. Beverly Best (1997) argues that there is “always in some way a negotiation between culture industries, mainstream or micro” (p18). As I argue above, mainstream culture obligates itself with co-opting sub cultural movements for the purpose of capitalizing on the other, yet because of this fact sub-cultural texts appear to operate on
the same level as that of the pop (commercial) texts. Acknowledging this fact, however, does not discredit the oppositional voice of that particular subculture. This is true because the very "incitement to discourse" is in fact an instance of resistance (Redhead, cited in Best, 1997, p.21). In more specific terms this means that even though in the long-term subcultural expression can become a commodity, via co-option, it does not draw away from the short-term "disruptive impact" of that expression (Frith, n.d., cited in Best 1997, p.19).

The negotiation between sub and pop culture is in fact what gives subculture the momentum to become significantly dissident to the mainstream. In fact what seems to be a theoretically problematic contradiction does in fact provide grounds for opposition. Spivak (1990) argues that opposition can become effective within the mainstream power network by "abandon[ing] the quest for 'pure', coherent positions in both theory and practice" (cited in Best, 1997, p.22). This realization is parallel to the suggestion made by Haraway regarding the illusory nature of technology in creating a seemingly unified whole. Remembering that the relationship between the body and technology is an arbitrary one, subculture can then also appropriate and modify technology for its own purpose. Electronic musicians can for example use the same programs (or variants of them) not to mould or copy themselves into a commercially viable format but to aid in their own artistic expression, creating instances of music that are produced first and foremost for the body. Dance music subculture is an expression of just how important the body is. Particular musical texts in this subculture are made for the bodily aesthetics of rhythmic movement and of sustained aural stimulation. The "fruitful coupling" (Haraway, 1983, p.150) suggested earlier is, in this instance, expressed in both arenas of bodily endeavour - creative and receptive, both for the performer and the dancing receiver.

Best (1997) further points out that the "uses of sounds and instruments, rhythm, phrasing, time signature, sampling, structure, lyrical content" must be accounted for when considering "the politics of production and reception of music" (p.18). The perennial surge of advancement in music production technology has enabled a greater scope of experimentation in all of these elements; the creating/performing body has therefore, in a variety of ways, been enhanced in its capacities, for example one person being able to use
software to control all instrumentation to create a song\textsuperscript{14}. Moreover technology, having provided a means for creative experimentation, incites discourse that is concerned with the politics of its own position. A ‘dance’ track is not concerned with popularity in a commercial context; its success lies in the fact that it can make a single or collective body move. The mainstream may pick up on this element and capitalize on it, but this will in turn benefit the subculture from which the track originated by exposing the new sound and format to an audience that otherwise would not be aware of it. It is precisely this type of exchange and negotiation that Best (1997) is referring to, the common ground being technology, which enables the exposure of both pop and more ‘underground’ examples of music.

In the same way the mainstream co-opts elements of subcultural movements, those movements can co-opt elements of pop culture into their textual ranks. Indeed Best (1997) notes the case-in-point of a musician that has “creatively deviated from the conventionally ‘sellable’ structure... or in the lyrical content... has parodied... conventional subject matter” (pp 22-23). This directly relates to Best’s earlier mention of sampling technology, which allows the creative body to cut and paste elements of more commercial music and make them work toward a more bodily aesthetic. For example New York DJ Junior Vasquez used a sample of a Madonna song without consent in a dance track. He subsequently received a message on his answering machine from Madonna herself threatening legal action. The message was then in turn sampled and used in another track (\textit{Hang the DJ}, 1998). The receptive body (audience) acknowledges this type of ‘re-mixing’ and thus there is an exchange and understanding within the dance subculture of what this track might mean in a culturally political sense. The exchange is concurrently occurring between producer and audience, and pop and sub culture. Whereas the original Madonna song held the audience as passive, the ‘remix’ has actively engaged the listener. The original song’s modification through technology demands participation of the receptive body through dance. The situation has in effect been reversed for now the negotiation between the mainstream and the subculture has benefited the former, a re-mixed track perpetuates the success of the original song but in a format that appeals to an

\textsuperscript{14} Detailed examples are given in Chapter Three of this thesis.
audience it otherwise would not have. Thus technology is the tool used for co-option that in turn allows the body to negotiate its own subject position according to its own desires.

Referring back to Haraway (1983) it thus becomes evident that the body's cybernetic relationship with technology does hold the potential to "subvert the apocalypse" (p151) foretold in fiction, partially played out in modern war and prevalent in mainstream consumer culture. The potential lies in the body's awareness of its own subject position, be it performer or viewer, part of the mainstream or subculture. Haraway (1983) stated that cyborgs are the "illegitimate offspring of militarism and...capitalism [but that]... illegitimate offspring are often exceedingly unfaithful to their origins" (p151). This unfaithfulness is oppositional discourse and it is the body's use of technology to enhance its own capacities and to negotiate its own subject position. To examine these notions and those of the theories presented above it is essential to examine the texts found in both pop and sub culture. For this purpose an analysis of music culture will follow and how the cybernetic relationship between the body and technology works in that culture will become more defined.
Chapter: 2 Commodification of the Body in Pop Culture

I: Introduction to Vocal and Tonal Enhancement

Vocal and tonal experimentation in music technology has long existed as a source of sound enhancement and creative inspiration. Walsh (2001) states that from the "early days of putting stereo sound to vinyl, musicians, engineers and equipment manufacturers have searched for methods to manipulate what comes from the speakers" (p88). Sound effects of course exist for enhancing the quality and effect of sound, making it better, different, unique - appealing. The discussion of sound effects in this paper is in specific reference to the way they are used in conjunction with bodily (eg, vocal) performance. However, to enter into a discussion about vocal and tonal enhancement and its impact on music culture one must be aware of its origins. Vocal processing was first experimented with for purposes other than music. Homer Dudley, a research physicist, was the first to invent a machine used for analysing and simulating speech (Walsh, 2001). Known as a vocoder (voice operated recorder) its "application was as a research tool" (Walsh, 2001 p89) for vocal compression over telephone lines - thus to enhance vocal clarity and amplitude. Walsh (2001) notes that it is through an association of Dudley's that the vocoder was first considered as an instrument for variable tone generation. Werner Myer-Eppler, another physicist, wrote "Electronic Tone Generation, Electronic Music and Synthetic Speech" in 1949 - the year after Dudley introduced the vocoder to him. This is thought to be the first use of the term electronic music (Walsh, 2001).

The history of the vocoder does not show an immediate leap into music production. Vail (2000) notes that it took four decades from its initial development until the vocoder was established as a musical application. Aikin (2000) states that despite the time it has had to develop, the concept and functioning of the vocoder remains straightforward. A brief examination of how a vocoder functions illuminates just how intimate the cybernetic relationship is between the performer and the vocoder. The key concept of the vocoder sees it "splitting a[n input] signal up into a number of narrow

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15 More sophisticated examples of vocal processing are discussed in detail later on.
frequency bands, process[ing] the bands separately and then mix[ing] them again into a single composite signal at the output" (Aikin, 2000 p44).

This example of the vocoder immediately highlights Haraway's above argument regarding the interaction of the human with technology and of course the borders and territories that are transgressed. Breaking down the technical jargon in Aikin's description, it becomes apparent that the human element in the process becomes inextricably fused, even replaced by the mechanic process; indeed it is the catalyst for it. The very purpose of the vocoder is to analyse and process the voice as an element of physics. Two people speaking to each other listen and hear tone and emphasis. The voice (input signal) conveys abstract emotive content that is interpreted by recognising these properties. The vocoder as a machine understands the voice (input signal) as a "number of narrow frequency bands" (quoted above); measures it in waves of pitch (speed) and amplitude (volume) and processes that data by filtering it, amplifying it and providing mechanical control over it (with a mixture of knobs, faders and switches). Once the initial analysis is complete the vocoder is "finished with the speech signal...it can be discarded" (Aikin, 2000 p47). The result is an output signal that has 'imprinted' the physics of human speech but altered its fundamental physical features, and as such, the output of the vocoder is a highly mechanized, entirely synthetic hybrid sound (Aikin, 2000).

The voice in this instance is certainly dehumanised but we must recall Haraway's above notion that technology is arbitrary. The resulting sound of the human voice is merely the functional purpose of the vocoder. Indeed all vocal and tonal processing exists to enhance the auditory experience - not to replace the original source. It therefore lies in the hands of the individual as to the extent and intent of the processing. We can now see how the use of such technology is thus often defined by cultural trends at the time. Walsh (2000) cites musician Peter Frampton's use of a device similar to a vocoder called a Talk Box. The Talk Box "uses the mouth as an additional sound chamber" (Walsh, 2000 p89) via a tube running up and along the microphone. The voice signal going through the tube (as air is pushed from the lungs) then moves to a speaker cabinet connected with the guitar amplifier; "the Talk Box replaces the air from the lungs with the sound of the
guitar, creating a hybrid sound of words and musical notes' (Walsh, 2000 p90). Frampton was making music utilizing this technology in the 1970’s, an era of music still heavily influenced by the 'acid' sound of the late sixties. Bands that pioneered this type of sound include The Doors whose music and concerts endeavoured to replicate and induce the LSD (acid) experience (Rocco, 1997). Speaking in terms of culture, it can then be said that such technology was used to warp generic tones and vocal sounds to heighten the experience of hallucinogenic drugs, commonly said to be able to open the human mind to a greater experience of the world around it. Artists using technology to facilitate such an experience as LSD provides (notorious in the media as promoting ideas that are anti-establishment) clearly demonstrate Haraway's idea of technology as an arbitrary cultural fact, not as an innate menace to humanity. It is important to note at this point that the connection of drugs to technology is purely incidental. Other sub-cultural movements, opposing the use of drugs, show that technology can be used to innovate. For example Hip-Hop music is a form of expression by the marginalised Afro-American race whose community was and still is plagued with the problem of drugs and the violence they cause (Poschardt, 1998). Access to technology has allowed an outlet for individuals opposed to a self-destructive lifestyle 16.

However, with the years of development in music technology and the continual rise of the pop-music industry, we come to modern day music culture. Certainly in this sphere of the musical world there are clearly defined aspects of Horkheimer and Adorno's culture as an industry. The choices for sound by artists/performers are sometimes not governed by creative aspirations or artistic ideals but rather, as Horkheimer and Adorno suggest above, by economic - or 'pop sensibility'. Sound and voice manipulation have in some instances become coincidental to the final product - an aesthetically corrective procedure as it were. One example of a heavily technologically processed album that has been marketed as a more 'grass roots' approach is Music by Madonna. In an article concerning the production of the album Rideout (2001) writes that despite "the down-home title, acoustic guitar tracks, and Stetson [hat] on the cover...this chart toppin’...pop masterpiece...has a serious high-tech pedigree" (pp30-1). In describing some of the

16 The use of technology in hip-hop culture is discussed in detail further on.
technology used on the album Rideout (2001) notes that Mirwais, the producer, used a program "for hard pitch correction" (p33) called Auto-Tune. This particular program was used on Madonna's voice; "To make it work, though, she had to sing a little out of tune and without vibrato" (Mirwais, cited in Rideout, 2001 p33). Mirwais (cited in Rideout, 2001) goes on to describe Auto-Tune as the "vocoder of the twenty first century [because] it keeps the characteristic of the voice. Recalling the above description of how a vocoder works we know that the output signal is a synthetic reconstruction of the original sound. In the case of Auto-Tune the cybernetic hybrid of human and machine is quite seamless- even to the point of being deceptive (especially to the audience). The very sound of the voice after being processed by Auto-Tune is, as Haraway suggests, illusory because in the context of the album (simple, 'country' values), it is portrayed as being natural.

The use of Auto-Tune was not, however, as one-dimensional as so far stated; Mirwais also sliced up Madonna's vocal track into individual syllables and further applied his "Auto-Tune surgery" (Rideout, 2001 p34). He explains how he uses "forty tracks of audio just on one vocal track...each has a different level and treatment" (Mirwais, cited in Rideout, 2001 p34). On the track titled 'Music' this manifests as a stuttering effect on Madonna's vocal, making it sound as if the compact disc was damaged and skipping. This is a much more overt demonstration of just how much technology has infiltrated the human element on this album. Furthermore Mirwais (cited in Rideout, 2001) describes how he listened to Madonna's voice recorded without any effects added and how her reaction was being "scared of it" (p35). Madonna then asked for the effects to be put back on; "She likes a lot of reverb and delay [making the vocal sound much fuller and more powerful]" (Mirwais, cited in Rideout, 2001 p35). Eventually her voice was left naked on that particular track yet this was seen as the "most experimental thing on the album" (Mirwais, cited in Rideout, 2001 p35). Indeed, in the context of the album's simplistic marketing (cover, title) this is ironic, but it also illustrates that experimentation with technology in music is not limited to subculture. Madonna, in this instance, has effectively turned her back on the standards she has set with previous songs. By not processing her voice on this song Madonna has negotiated
her position in the cybernetic relationship whilst simultaneously transgressing the borders of the pop format. The significance of this negotiation lies in the fact that Mirwais, a long time member of the electronic music underground, has acknowledged her creativity. In doing so the “pure, coherent positions” noted by Spivak (1990, cited in Best, 1997, p22) are in fact abandoned in both pop and subculture and thus there is a progression in the proliferation of creativity and exchange in wider music culture.

This clearly demonstrates just how intricately cybernetic the body’s coupling with technology has become in music production. It is a given that any vocal must be processed and effected; not even the artist is able to accept their own nature. This analysis of how Madonna’s voice was processed must not, however, be interpreted as a judgement on her abilities as a musical artist, to enter into a scoreboard-type discussion of which singers have the best ability (in regard to range etc.) is entirely beside the point. The preceding example does, however, provide an important and tangible foothold on the above points made by Horkheimer and Adorno (1944), in particular how artists “belong to the industry long before it displays them: otherwise they would not be so eager to fit in” (p1037). In terms of pop-music Madonna is an artist “who has morphed career longevity into an art form” (Cooper, 2003 p42); longevity in fact holding a mythical status in mainstream/pop music because it is notorious for the ‘one-hit-wonder’ phenomenon. When considering the effects that were used by Mirwais and considering how powerful they are in creating and formatting a sound it becomes glaringly obvious how technology becomes a tool for standardisation. By wanting to fit in an artist makes the personal choice to conform to the will of their record label, distributor or otherwise. Madonna, through longevity, has become somewhat of an exception, in some cases ignoring pop trends to capitalize on those within subculture, as working with Mirwais demonstrates.

This kind of standardisation is best exemplified by the advent of all-boy and all-girl groups of the early nineties right up until this very day. The band New Kids on the Block had major success in the early nineties by presenting a dynamic of five all male group members that had no other instrumentation other than vocals. Drum machines,
synthesisers or musicians not listed as members of the band, created the music. At the time they created hysteria amongst young teenage girls that was similar to that at the time of The Beatles' success. The heavily processed sound was, however, far removed from that of the latter and coupled with heavily choreographed dance routines this became a standard for many groups to follow. Almost immediately it seemed as though a string of copycat groups were assembled or 'discovered', for example Take That (from which Robbie Williams launched his solo career), MN8 and up until present there are also N'Sync (Justin Timberlake's former group), Boyzone, Westlife and Blue. All of these boy bands have, as Horkheimer and Adorno suggest, the same general characteristics-similar rhythms, similar tempos, similar choreography in dance routines and indeed listening to their sound it is hard for the impartial listener to distinguish between them. Indeed it is only the details of the groups that are interchangeable (Horkheimer & Adorno, 1944), they are engineered to sound and look just as the 'successful' group before them did.

The same 'copycat spectrum' applies to the all-girl groups beginning with the monumental pop success of the Spice Girls. Again the characteristics are the same but details are interchangeable (such as gender) and therefore other bands like All Saints, Atomic Kitten and Sugar Babes continue the mimicry discussed above. The use of technology to format this type of sound is directly related to the will of large record corporations to dominate the market. The obvious interchangeability of these pop groups highlights the rationale of domination as noted by Horkheimer and Adorno (1944, p1039). With the power of such programs as Auto-Tune at their disposal record companies may indeed hold talent as a point of coincidence, just as Mirwais demonstrated it possible to surgically manipulate a sound to any desired effect, the examples above tell of how that manipulation via technology can dominate individual spontaneity and imagination to generate economic success. The most extreme example of this kind of mimicry was alluded to earlier in the example of television series such as Popstars and the more recent Australian Idol. The full force of media technology was in this instance used to 'create' an all-girl band. In subsequent series, under the banner of viewer voting, it was made to seem as though this was what the listening audience wanted
As Horkheimer and Adorno (1944) suggest, "standards...based on consumers needs" (p1037).

II: "Live" Performance.

These examples only represent particular aspects of the cybernetic relationship. Studio production may be the birthplace of the cyborg in music culture but in live performance this hybrid moves into another dimension of interaction. Live performance provides immediacy to the body as listener, as audience. To see the dynamics of what was created in the studio be played out on stage creates an even greater lived experience of the cybernetic world. In continuing the Madonna example, Rule and Krogh (2002) followed the production of her Drowned World Tour, the tour directly following the Music album. The article goes into great depth on just how the musical accompaniment to a "show broken up into four distinct mini-operas" (McHugh, 2001 p4) was handled but what emerges is the theme that Madonna on-stage is a cyborg. From her vocals to the music to the theatrical extravagance of her stage show every human ability she possesses is enhanced and aided by technology.

In recalling how much processing was applied to the Madonna's vocals in the studio the only possible way to recreate those effects live is via computer technology. In effect this puts into question just how 'live' the performance is. During a show as large as the Drowned World Tour it is reasonable to expect some minor hiccups in the process of the performance yet Michael McKnight, musical programmer of the show states that there were "no horror stories to tell...Everything has gone like clockwork" (cited in Rule & Krogh, 2002 p33). This is largely due to the automated structure of the show. Even months before the first performance, musical sequences were arranged and dance routines were choreographed. Indeed the biggest task in musical rehearsal was not actual practise but rather "which parts would be delegated to sequences or backing audio tracks" (Rule & Krogh, 2002 p33). Furthermore keyboardist Stuart Price (cited in Rule & Krogh, 2002) comments that no one on the tour believed they could "recreate tight, mechanical, electronic patterns live" (p34). This in fact would not be true to the original, electronic method in which the music was made. The point here is that by using technology to
create something it automatically becomes necessary to recreate it. Even with a drummer and two guitarists on stage, there were multiple sequenced loops and pre-recorded patterns to enhance those on-stage performances (Rule & Krogh, 2002).

This automation and control was not only limited to the instruments; more significantly Madonna herself was intimately hooked into a technological loop that aided and enhanced her performance. For example there were triggers that allowed for certain effects to occur at the touch of a button - the stuttering effect noted earlier (Rule & Krogh, 2002), and even such simple gadgets as inner ear monitors that allowed lyrics and lines to feed to Madonna as "sometimes she forgets where she is in a song" (McKnight, cited in Rule & Krogh, 2002 p36). All this machinery and electronics come together to create an image of infallibility, an attribute befitting what in essence is a cybernetic organism performing on stage. In addition to Madonna's machinated vocal prowess in this particular show, she has the ability to fly via steel cables and perch in a two-story aluminium tree (McHugh, 2001). Once more then we see the enhancement of what is humanly possible through technology. If the perspective of the body as viewer/listener is taken the witnessing of these events aurally and visually makes them 'real', technology has facilitated an experience that enhances the reality of what is humanly possible.

It is important to distinguish at this point the difference between overt theatrics such as flying through the air and the more subtle uses of technology to control the performance of the music. While it is clear that machinery is used for the former, the technology used for the latter is more deceptive to the listener. For instance, the audience is generally unaware of the extent of electronic control over the music. Even though it may be clear that not all the musicians are on stage the extent of automation goes deeper than that. The synthesisers, for example, are "automated for each song" (Brown, cited in Rule & Krogh, 2002 p37) and pushing one button will change everything on the more complicated tracks - "so it's just simple button pushes" (Brown, cited in Rule & Krogh, 2002 p37). The fact that there is so much automation in the show means that there is little room for spontaneity, "Within the first couple of weeks, everything has to be locked in. The choreography, video, lighting..." (McKnight, cited in Rule & Krogh, 2002 p35).
Thus all bodily performance is programmed and sequenced to a format; each cyborg performs his function to the standard that has been “chiselled in stone” (Rule & Krogh, 2002 p35).

Therefore the concept of standardisation is also applicable to live performance. Just as sound was copied from one group to another so is the concept of an extravagant pop concert or indeed ‘show’. Madonna’s Drowned World Tour “was a smashing success. It sold out everywhere it played [and] fans were paying hundreds of dollars for tickets on the second hand market” (Rule & Krogh, 2002 p33). It is clear then why other pop/mainstream acts maintain as strong a technological rationale over ‘live’ performance as did Madonna - there are huge profits to be made. The concept of putting on an extravagant show illuminates the practise that is pop music culture. The focus is not solely on the music but on the image that goes with it. The universally proclaimed King of Pop Michael Jackson underlines this; it was he who broke ground with the concept of music video and turned it into what is the most powerful form of media technology in generating economic success. Programs such as MTV (Music TeleVision) show film clips that cost as much to make as short films. The whole point of these film clips is to portray the star as an object of desire (achieved via lighting, makeup and even image editing such as airbrushing). Although marketing sexuality is outside the scope of this thesis it is a noteworthy facet to the issues discussed thus far. Brittany Spears, for example, sexualises the schoolgirl image in the film clip for “One More Time”, or consider the film clip for Christina Aguilera’s “Dirty”, where she performs in extremely minimal clothing and is dancing in an orgy of bodies. There are many more such examples of marketing a sexual image. In addition there is also the issue of corporate sponsorship, for instance Pepsi has for many years employed the biggest pop stars to market their product - names include Michael Jackson, Brittany Spears and Shakira.

It thus becomes clear that the use of technology in mainstream music culture is aesthetically based around generating sales as opposing fostering the creative process. From the techniques used in studio production to alter bodily performance right through to multimedia technology for use in mass marketing, the aesthetic is the image of
popularity, the image of infallibility, the image of desirability and perfection. Technology in its full spectrum mediates the body in ways that aid the proliferation of this image. Individuality is suppressed, both for the body as performer and as listener/viewer.
Chapter 3 Underground Dance Music Culture

I: Advances in Technology for Independent Musicians

If the study of culture "must allow spaces for possible resistance" (Best, 1997 p19) we must take a closer look at the aesthetics involved in sub-cultural movements. The way in which the body has negotiated with technology has resulted in a tremendously vast creative history. Also the amount of technology now available on an individual level is what drives the progressive thinking behind musical sub-cultures. The purpose for examining technology at this level is two-fold; one is that it highlights Haraway's (1985) argument that "The cyborg is a fiction mapping our social and bodily reality and as an imaginative resource suggesting some very fruitful couplings" (p150), and secondly it draws attention to the fact that the lines between pop and sub cultures are, in most instances, not so clearly defined. The fact that there is an exchange between the two further highlights the arbitrary nature of technology. The end result from the use of that technology by individuals in a sub-culture is often vastly different in terms of aesthetic.

The reasons for the difference in aesthetic between pop and sub culture are quite simple when considered in terms Horkheimer and Adorno’s theory. In the specific instance of dance music culture, the advent of affordable music technology has lead in many circumstances to a use that is not related to selling records, thus allowing the opportunity for more experimental thinking in musical terms. In a most basic sense, the invention of electronic sequencers and drum machines was the first step toward enhancing the individual’s ability to create music. Poschardt (1998) notes how DJ Grandmaster Flash had made use of a ‘beat box’ (drum computer) to add beat sequences to his DJ sets. The beat box had originally been used by a percussionist friend to help him practice keeping time. Thus it is clear how technology in this instance enhances the body with an ability it did not otherwise have. Indeed, musical instrument manufacturer Roland went on to invent drum machines that are still the basis for rhythm construction in most of the dance music that has been and is produced today. Technology has, however, even advanced the format of these machines (in the form of computer software), making them even more accessible to the individual. Websites, for example, provide users with a
library containing tens of thousands of audio samples of drums, synthesisers and sound FX, all free and regularly updated (www.onaloguesamples.com). Just as Mirwais described the Auto-Tune programme as being a more modern version of the vocoder, so the transfer of synthesiser and drum machine technology from an analogue to digital interface has once again increased the capacity of the body to interact with that technology.

The most comprehensive example of this type of technology is a musical programme called Reason by Propellerheads Software (www.propellerheads.se). Reason is a program that combines many pieces of musical hardware (electronic instrumentation) and portrays those pieces in a digital format. Thus, when the programme is opened on the screen of a personal computer, one can see a digital representation of a fourteen channel input mixing desk, a 'subtractor' synthesiser, a 'matrix' pattern sequencer and a 'redrum' drum machine. In addition, effects machines such as compressors, filters, reverb and flange, which in hardware format, would run into the multiple thousands of dollars, while within this format cost less than one thousand. Furthermore, this was only version one of the Reason programme as subsequent instalments have seen the addition of another 'Maelstrom' synthesiser, a vocoder and several more advanced effects control units. Thus it is clear that with the advancement of digital technology, the body's capacity to create seems not only within reach but encouraged to flourish. Reason is just one example of how the body's capacity to create is enhanced by technology, sitting at a desk the body has access to an entire musical studio - one in which the sound is not in any way inferior to one with actual hardware. This is proven by the program set-up options that allow you to select the quality of sound output by setting the sample rate. Compact Disc quality is 44,000 kHz sample rate and depending on the power of CPU in the computer the output quality of the program can be set as high as 48,000kHz. What this effectively means is that the quality of sound can at the very least match a standard Compact Disc. The digital interface of Reason even provides the body with the ability to alter the connection and wiring of the machines by giving a representation of the rear view of the set-up. Simply by clicking the mouse, one can re-route cables to various inputs and outputs to create different sounds. This clearly highlights the notion that technology is intimately linked
with the body's desire and its imagination. Even on a more basic level, it is easy to see just how much the body is enhanced by technology such as Reason. The individual has the ability now to construct rhythms that keep perfect time and make use of around sixty-four sampled drum kits at one time, and also to play multiple complex melodies at any one time. Thus it is because of technology that the body has been given extensive creative control over the music creation process, and this capacity will only increase in the future just as we have arrived at our current advancements.

II: Negotiating cybernetic politics between 'cultures'.

It is now important to consider the cybernetic politics that are engaged because of the availability of these types of technology. First and foremost it must be stated that the focus here is on the way in which dance music culture, in all its forms, has developed alongside technology. Modern dance music has always to a greater or lesser extent been produced via machines and technology. Indeed Poschardt (1998) notes, "since its beginnings, the DJ aesthetic has been closely connected with the development of technology" (p31). It is because of the relatively inexpensive access to the world of music production that has allowed the DJ's to create music with the aesthetic of a dancefloor in mind. When one considers the very structure of dance music as opposed to the general format of a pop song the formats are poles apart. A pop song is created as single moment of music; it has definite and defined structures such as verse and chorus repetition. A dance song is always referred to as a track, referring to the groove impressed into a record, and it is always considered in the context of other tracks. A DJ will mix an entire set of tracks and that set may last twenty minutes or five hours. DJ Danny Tenaglia, for example, once played a fifteen-hour set - now referred to as "legendary" (LaRosa, 2001 p8). Records will be layered over the top of each other, cut together, scratched and blended so that the whole set is greater than the sum of its parts. It is how creatively a DJ will use technology, such as a mixer and multiple turntables, that determines how successful a dance track is (Poschardt, 1998 p31).

When considering the aesthetic of dance music as a subculture, it becomes clear that it began as an instance of antiestablishment rebellion (Redhead, 1997 p124).
Although there are multiple formats of dance music to choose from as an example, one of the most salient is the development of house music in Chicago. Poschardt (1998) notes that The House was a club in Chicago, actually an abandoned warehouse that on weekends catered for all night dance parties where the music never stopped. It was primarily frequented by the gay community, but the ideology behind it was that all boundaries of class, race and sexuality were to be left at the door. The music was there to bring people together into a single mindset, a shared positive experience that celebrated the rhythms of the body and the desires of the flesh. Like rave and other dance cultures, these all night parties were heavily driven by illicit substances, such as ecstasy, speed and cocaine. Hence the very nature of the music becomes that of counter culture, antiestablishment, against the mainstream.

Thus it is clear that the experience of the cyborg in dance music culture is aesthetically different than in pop culture. By examining the evolution in the style of dance music it becomes evident that it is this progression that is important - it is the development of new sounds that is sought after not the mimicry of the past. The genre of dance music known as techno perhaps best sums up the body's intimacy with technology. McCready (cited in Poschardt, 1998) notes that “techno is music made by humans; in its most definitive forms it sounds like it could have been made by machines” (p314). Thus techno is music that is an attempt at pure sound - a vocal sample will be taken and altered so much that it simply loses its definition as a vocal, moving along with the periodic beat of the kick drum it becomes rhythm. Techno originated in what is known as the motor city, Detroit, and artist such as Juan Atkins and Jeff Mills developed this music via synthesiser and drum machine technology to reflect the industrial, mechanised landscape which they inhabited (Barr, 2000). In much the same way as house music, techno aligned itself with a socio-political aesthetic that still today reflects cybernetic politics as posited by Haraway17.

Techno artists see the use of technology by mainstream record companies as a tool for bodily and market domination- a source of mediocrity that regards music as

17 Specifically referring to Haraway's notion of 'lived experience' and the reaction it leads to.
coincidental to making money. A group of Detroit producers banded together to create a label called Underground Resistance (UR). They are described as occupying a “territory that is somewhere between reclusive mystique [and] radical politicisation” (Barr, 2000 p342). For a long time the identities of those involved were unknown, only that they were African American and staunchly opposed to the mediocrity of mainstream music culture. Poschardt (1998) notes how the central ideology of Underground Resistance centres on artist and label owner Mad Mike Banks - who assumes the tactics of the black militant group of the 1960's The Black Panthers. However, while the politics here are based around race, the thrust of the label's ideology has become class driven, and a focus on not ‘selling out’. One example in particular sums up the position of Underground Resistance; a track produced by DJ Rolando titled ‘Knights of the Jaguar’ was a huge underground success - reaching a cult status. Sony officials then sought to license the track from Underground Resistance but were flatly refused; using sampling technology Sony then illegally reproduced the sound of the original track under the title ‘Day of the Jaguar’. After legal action UR then released remixes of the original titled ‘Revenge of the Jaguar’. The record was, however, released with a warning printed on the sleeve that read:

"Please do not purchase this record from any super large commercial chain store. These stores have never supported this type of music and only do so now in order to appear cool and current...Super chain stores have never had the time to focus or search out cutting edge underground music! They can only react once the specialty shops and underground labels have created a market for the music...then they start wanting the music..." (DJ Rolando, 2000).

This statement clearly expounds the ideology behind UR artists and the label. More importantly Best’s (1997) notion of co-option becomes strongly evident. UR recognise this fact when in the same warning they highlight “massive advertising campaigns and pre-fab[ricated] artists” (UR-2000). Thus once mainstream culture has identified a successful niche in the a particular sub culture it then proceeds to co-opt that position by using a massive assault of media technology. Yet despite this fact there has been an
“incitement to discourse” (Redhead, cited in Best, 1997 p21) and therefore the impact of that subculture has been heightened by its broader exposure in mainstream culture.

This discourse has even reached government ranks in some instances. Barr (2000) notes that English parliament passed a “Criminal Justice Bill (later act)” (p25) in 1994 to effectively outlaw rave parties where electronic beat driven music was being played. This was a response to the fact that teenagers at these parties were consuming illicit drugs. The production duo known as Autechre released the Anti EP in response to what they saw as a “draconian” (Barr, 2000 p25) attempt to control individual rights. The EP itself was produced more as an ambient soundtrack, with a deliberate omission of beats. The government’s Act was the incitement to discourse that on subsequent releases saw Autechre demonstrate “a new level of harmony between man and machine” (McIntyre, cited in Barr, 2000 p26). This discourse that began without words, but Acts and beats (or lack thereof), highlights the kind of ‘disruptive impact’ that electronic/dance music can create - significant enough for laws to be passed. A radio presenter even questioned whether the software used to create the music was self-generating (McIntyre, cited in Barr, 2000), which shows that his pre-conceptions about man/music technology were being called into question. As a result of this discourse electronic music motioned to satisfy the emotional senses of the body - a progression of its own aesthetics.

III: Technology manifest in dance music culture.

The exchange between pop and subculture is not always of a strained nature. The former example of Mirwais working with Madonna provides some insight into just how beneficial such an exchange can be. As noted above Mirwais has been involved with music production for many years, yet he has “traditionally shied away from characterizing his music as being targeted for commercial success” (Rideout, 2001 p37). When Madonna’s album Music went to number one in the charts, Mirwais saw it as a “small victory for underground music” (cited in Rideout, 2001 p37). This case ideally sums up Spivak’s (1990) argument regarding the abandonment of “pure, coherent positions” (cited in Best, 1997 p22); in fact it further highlights the notion that it is the negotiation between pop and sub culture that gives momentum to subcultures to be
significantly dissident to the mainstream. Thus the exchange between the two is mutually beneficial\textsuperscript{18}. That is, Madonna is seen as an artist with an expertise at “sensing emerging trends and riding each wave for exactly the right amount of time before jumping to the next” (McHugh, 2001 p21) \textsuperscript{\textregistered} which is what aids Madonna in being able to always dominate the pop market, and technology is the tool that aids in the art of metamorphosis because electronic instrumentation, whilst having a signature sound, is not limited in by its physical structure, as is a guitar for example, therefore it is far more adaptable. This in turn makes the body as cyborg more adaptable.

Furthermore the fact that Mirwais is aware of his own relationship with technology and with the world of pop music highlights his capacity to recognise the rigours of both pop and subculture. For instance he states that in some instances of “electronic music today...the musician is still dominated by the machine” (Mirwais, cited in Rideout, 2001 p37), and goes on to say that it is still important that it is the musician that is in control of the equipment. Thus, just like the pop music world where many limitations are laid upon creativity via technology, it can also be the case in the realm of more underground music. For example Mirwais argues that dance music has in some cases become a “dictatorship of bpm [beats per minute]” (cited in Rideout, 2001 p38), referring to the idea that some producers do not feel their records are as effective in making the body dance unless they are of a particular speed - or format. This argument is similarly made by UR in the sleeve of one of their DJ mixed CD's:

The omissions of house, hip-hop, electro, latin freestyle and many other inner city classics made for throngs of 4/4 beat drunk, rhythmically inept, media controlled audiences that unbelievably have to go to different rooms or venues to hear different rhythms, beats and tempos. And even more unbelievable, this audience to this day is led to believe it is the cutting edge and on it. (UR, n. d.)

\textsuperscript{18} Mirwais notes that in the USA few people are focussed on electronic music, yet Madonna's album went to number one. He believes this to be “proof...that if people are exposed to this type of music it can succeed” (cited in Rideout, 2001 p37).
This is part of a UR ‘mission statement’ focused on educating an audience as well as entertaining one. It is a statement that parallels that of Mirwais above; to innovate the body must control technology - to be controlled is regressive.

The foremost ideal in dance music subculture is that technology is an aid to creation of new rhythms, sounds and textures and how these new elements will work in direct relation to the body’s aural and rhythmic desires. One artist that has taken these concepts and that of the cyborg to a new level is Anthony Rother. Rother’s musical work draws a definite parallel with Haraway’s ‘Cyborg Manifesto’ in the sense that he literally fuses with his machinery to become cybernetic in performance but also displays a clear self-reflexivity and self-awareness through his lyrical content. Rother creates a style of dance music known as electro, a term that characterises the synthetic nature of the music, yet despite the music being so synthetic, the whole aesthetic of the music is focussed on human nature and how it interacts with technology. The album titled “Simulationzeitalter” (translated “The Age of Simulation”) musically reflects the ambient, deep throbbing of a mother’s womb - the drum kicks and bass lines simulating the beat of the heart. These elements are the very essence of life and here they are being simulated by machinery, this synthetic duality is exacerbated by the use of vocoder vocals. The lyrics heavily shadow the central ideals of the ‘Cyborg Manifesto’, for example in the track ‘Biomechanik’:

Bio mechanics, man brings steel to life.
Thoughts are integral,
The soul is digital.
Bio mechanics, life is coded.
Feelings are generated.
Nature perfected. (Rother, 2000).

Therefore the way in which these concepts are reflected in music ultimately suggests awareness and acceptance on the part of Rother. The irony that ‘body’ music is being made with machines is a fact to be celebrated. In live performance, Rother surrounds
himself with multiple synthesizers, which in turn are connected to mixers, effects units, compressors and amplifiers. Furthermore Rother has a hands free microphone attached to his head so that he can sing through the vocoder; all melodies and chord progressions are played by hand and rhythm changes are accessed manually. Thus at the very centre of this electronic instrumentation stands one man - his body digitally connected to provide 'life' to these machines. It is interesting to note, however, that the focus on Rother in performance is minimal as there is very little lighting focussing directly on him, this is a significant difference in the aesthetic of the pop artist and the artist working in sub culture. By not focussing on the performer the music demands the attention of the audience. The body as listener has to respond to this primary sensory focus. Compare this to a stage show such as Madonna's Drowned World Tour (discussed in Chapter 2) where the audience is darkened and the performer is the centre of focus. Jim Morrison (1969) pre-empted this development in pop music culture when he wrote:

We are content with the “given” in sensation's quest. We have been metamorphosised from a mad body dancing on the hillsides to a pair of eyes staring in the dark. (p9).

Techno has always been a comparatively faceless, nameless music (Beere, 2002) yet one production outfit more than any other has taken this aesthetic to an entirely new level. Drexciya, also hailing from Detroit, have never exposed their identity in any way, shape or form. There are no existing publicity photographs; only the pseudonym Drexciya is given production credits. In fact, it is unclear as to how many actual members are part of Drexciya. In an extremely rare interview by Derek Beere (2002) Drexciya reveal(s) the thinking behind this course of action as being a matter of putting “all the energy into the music and concepts [not the] artist or record label” (p4). In a parallel with Anthony Rother, Drexciya’s entire musical focus is that of water, for every album there is a story of underwater civilisations or more natural events such as storms and tidal waves. It is interesting to note then that in these instances the cyborg is creating attempts to connect with the natural world, using technology to create a language that can only be truly understood by the body. Once again the difference in aesthetic between pop and sub
culture is highlighted: pop music is made for the immediate instant, that is why trends are co-opted and styles not committed to, corporations must follow a business sense and economic gratification. Electronic/dance music also continually evolves but the reasons for evolution are based on resisting trends, and formats that are created are ones previously unchartered - even at the risk of public obscurity.

IV: Cultural exchange programming.

The sheer size of the genre that is electronic/dance music calls into question just how underground or resistive it is. The examples listed above are ones that largely show a strong opposition to commercialism, but as has also been demonstrated, there are those that believe the exchange between mainstream and counter-culture to be a productive one. In many ways dance music culture has borrowed from mainstream culture by the very technology on which it is based. Hip Hop DJ's for example would take popular artists records and sample from them to create a completely new remix. They could hear that there were parts in all music that had moments of true innovation, even if it was only a four bar break down in an entire song. Hip Hop is viewed as a complete lifestyle and its origins, like that of house and techno, although predating them lies in the marginalised black communities of Northern America (Scratch, 2002). In fact Hip Hop is one of the only dance music styles that speaks out against drugs (noted earlier). Drugs are seen as a hindrance in performing to one's full potential, especially if an individual is to master the art of turntablism for example 19. It was a means of expression that was picked up on by the white pop community, indeed Deborah Harry, of eighties pop group Blondie referred to "flashin'" (a slang term for the then embryonic technique of scratching) in the pop song 'Rapture'.

Poschardt (1998) notes that this act was widely respected by most of the Hip Hop community as Harry had “musically reflect[ed] rap [part of hip hop culture] before it had penetrated the mainstream consciousness" (p205). The seeds that were sown then are now even reflected in modern pop charts where Rap and R n' B (extensions of hip hop culture)

19 Turntablism is the art of using the turntable as a musical instrument. This is achieved by mastering various techniques for manipulating records and the turntables themselves (Scratch, 2002).
songs and artists dominate. Madonna has even included a verse of Rap in her latest track 'American Life'. Whilst this is an instance of co-option and technology marginalizing the other, in this case it also assists in the expression of a subculture - the impact that hip hop has had on music culture is almost beyond measurement. Even bands using traditional instrumentation like drums and guitar employ DJ's as an extra band member - utilizing the ability to draw on samples during a performance. These manifestations of what was once a small subculture are testament to how mutually beneficial the exchange between sub and pop culture is. For example artists that have lived Hip Hop all their lives are finally exposed to the wider world, an avenue is provided expression of this lifestyle.

Underlying the whole proliferation of dance music culture is technology. Just as in production of the music, it is the access that the body has to personal computer technology (internet, etc.) that aids in the exchange of ideas and information. For example Anthony Rother and other electro artists run a trans-Atlantic website (www.electroalliance.net) that is mainly a forum for electro artists, DJ's and listeners. Membership is free and there is direct access to exchange ideas with the artists, unlike the relatively slim chances one may have to exchange ideas or chat with Madonna for example. The whole point of this technology is to stir up creativity and the free flow of ideas. This website and others like it (www.electroempire.com) are not sponsored by major corporations; the time, money and effort is a personal one which once again humanises the cybernetic relationship. Much of the communication between artists and labels in dance music is direct because many of the label owners are artists in their own right and hence need to maintain the artistic direction and integrity of their label. Interestingly though there may be not four individual tracks released on a record but four mixes of the same track that is in fact a concession of a commercial nature. One mix may be considered to maintain the labels artistic ideals whereas another mix will appeal to a sales aesthetic, therefore many DJ's may buy it because it works on the dance floor.
CONCLUDING REMARKS:

In the context of recent cultural theory Haraway's (1985) conception of the cyborg resonates even more strongly. The cybernetic relationship is a fiction (Haraway, 1985 p149), one that is not necessarily comprised of cohesive elements. The relationship between the body and technology is thus a construction open to modification. This modification is, as Spivak (1990 cited in Best, 1997 p22) notes, the act of giving up ideologically pure positions, and a construction that allows the exchange of discourse between pop and sub culture. Indeed, as Horkheimer and Adorno (1944) argue, there are rigours in mainstream culture that are rigidly adhered to, rigours that are maintained by a rationale of technology, but these rigours also exist in sub culture, they are merely different, even if by a matter of small degree. Thus it is evident that the way the cyborg operates in sub culture is different from that of pop culture. Ultimately there is a key difference in aesthetic between the two; that is that pop music is largely an example of how technology is used to profit on the body in mainstream culture. Conversely the aesthetic of underground dance music culture is centred on bodily innovation with technology, and more importantly participation. Even the most synthetically produced music is not only linked to, but a direct result of bodily desires, specifically those for movement and for rhythm. In this sense the enhancement of the body in this dance music sub-culture is different in purpose to that of pop music. Of key importance, however, is the notion that these two spheres of music culture are not binary opposites, but rather instances of musical evolution along a spectrum. Although ideologically different these two areas of music culture are always engaged in a discourse that impacts upon the development of music overall\textsuperscript{20}.

\textsuperscript{20} Mirwais producing Madonna's album and UR responding to plagiarism by Sony are just two such examples.
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