POSTHUMAN GLOSSARY

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the seat of an F-117 stealth bomber witnessing in detail how a laser-guided bomb descends on its target. This kind of top-down, abstract electronic imagery would become emblematic in later US or NATO-led wars in Kosovo, Afghanistan, Iraq, Syria and Libya. For those not directly at the receiving end of armed aggression, warfare has become *play-stationized*.

The new technologies of remote control and technological warfare are increasingly based on remote knowledge, relying heavily on cyber-intelligence and meta-data (tracking the movement of individuals through their mobile phone use). Global Pulse (UN project in Africa), Nexus 7 (US military counter-insurgency in Afghanistan), Frontex (EU external border surveillance) and Eurodac (EU internal control of irregular migrants) all use geospatial technologies to map and draw up security governance. Current surveillance technologies are much more subtle and sophisticated than ever before and rely on selective rather than generalized forms of control. An example of this is the way in which the EU makes use of satellites with synthetic radar equipment that are able to trace and track immigrants long before they have reached European borders. This way, fresh forms of exclusion are produced which not only cut off targeted groups from social participation but do so in ways that are at times scarcely visible to the larger public.

This form of 'permanent war', in seeking to normalize itself, is in constant need of legitimation. It needs 'weak citizenship' (Boal et al. 2005). It depends on audiences' passive consumption of sanitized images of war and the eternal evil enemy. The only possibility for war to transform is if dominant imaginaries and discourses begin to crumble, and doubt creeps in. Discourses of war are rarely fully hegemonic: there is always some room for counter-realities. The ways in which the small Serbian youth movement Otpor! engaged in discursive practices of resistance against the Milosevic regime in the late 1990s, mainly by means of symbolic inversion, satire and ridicule, and the dissemination and performance of 'non-violent imaginaries', are a miniature example of how a dominant discourse can be 'toppled'. The de-legitimation of violence, its conditions of possibility always somehow connected to transformations in political and material structures of domination, is a crucial stage in the weakening of the war machine.

See also Camp; Lampedusa; SS = Security/Surveillance; Violence.

Jolle Demmers

WEARABLE TECHNOLOGY

(Or: 'Science Fashion')

One of the exciting new fields in the creative industry is the integration of fashion and technology. Wiring complex systems of microprocessors, motors, sensors, solar panels, (O)LEDs or interactive interfaces into the fabric, textile or clothing turns them into smart garments that have a certain agency of their own. Designers experiment with these 'smart materials' to create examples like a dress that connects to Twitter, a catsuit that visualizes emotions, a T-shirt that changes colour or trousers that measure the wearer's vital functions. These examples show how '[t]echnology is now evolving faster than fashion trends', as designer Katrina Barillova claims (cited in Quinn 2002: 73). Called 'wearable technology', 'wearable tech' or simply 'wearables', this new field places fashion among the considerations of the posthuman. Some also use the term

'techno-fashion' (Quinn 2002), while others prefer the label of 'fashionable technology' (Seymour 2009, 2010). Given the futuristic look of many designs the term 'cyber-couture' is also fitting (Smelik 2017).

Wearable technology is versatile and can therefore be quite bewildering: it ranges from e-fashion, smart materials, wearable electronics, solar energy and 3D printing to bio-couture and nanotechnology. Smart materials and smart garments can be understood as protecting the body or extending its physical functions. Although cultural anthropology claims that clothes function first and foremost as decoration and adornment, clothes are also an extension of the skin, protecting it against nature and society (see for instance Flügel 1950). Within a context of technology this idea derives from media guru Marshall McLuhan (2002 [1964]: 129–30). At the beginning of the 1960s he suggested that all technology is in fact an extension of the human body. In posthuman times technology is not only a bodily extension, but also involves physical improvement, enhancement and expression. Wearable technology can thus be used to control, improve and enhance human lives and bodies. As Lucy Dunne writes, 'Through technology, garments are now becoming dynamic, responsive, and aware; thus, they are better able to express our individuality and meet our needs and wants' (2011: 616). By wearing them directly on the body, people relate intimately to technical objects and materials. Integrating technology into clothes will therefore have an impact on how humans experience their bodies and, by extension, the self. Or, as Tómicó and Wilde put it: 'Wearables enable the wearer to enact identities' (2015: 1185).

Dressing happens literally on the body; it is an active and embodied practice (Entwistle 2015). Thus the bodily practice of dressing is an important factor in constructing one's identity. The body is not a given, but something to put in shape or dress up for a 'performance of identity' (Smelik 2011). Fashion is thus an important way of performing identity in its many facets. Identity can in this sense be likened to the performance of a constant dress rehearsal (Smelik 2016). Or, to put it differently: our identity is 'wearable'. Technology is indeed one of the major factors in affecting identity and changing the relation to the body, and wearable technology even more so because of its closeness to the body. This is not entirely new because human beings have always been closely connected to technology. The scientist who launched the term 'cyborg' in 1960, Manfred Clynes, says: '*Homo sapiens*, when he puts on a pair of glasses, *has* already changed' (1995: 49, original emphasis). If this is the case for simple lensed glasses, just imagine how the human body and identity change with Google glasses; the new 'geek chic' (Quinn 2002: 97) that Diane Von Furstenberg brought to fashion in 2012. A few decades after Clynes coined the term 'cyborg', Donna Haraway launched the idea of the cyborg as a figure that typically embodies fluid identity, because it has 'made thoroughly ambiguous the difference between natural and artificial, mind and body, self-developing and externally designed, and many other distinctions that used to apply to organisms and machines' (1991 [1985]: 152). This is particularly relevant for wearables, since they shift and push the boundaries between body and technology. As Fortunati, Katz and Riccini. argue, 'the body continually abolishes the border between nature and technology by converting one into the other' (2008: 216). In understanding identity as a bodily practice that is performed time and again, wearable technology offers alternative and new ways of transforming identities. Exploring the wearer's corporeal and

sensorial boundaries, wearable technologies enable the body to perform identity in and through smart clothes.

Today, a number of designers experiment with the ways in which bodies can be shaped or identities performed beyond our wildest dreams, for example Hussein Chalayan, Iris van Herpen, Pauline van Dongen, Anouk Wipprecht, CuteCircuit, Suzanne Lee, Olek, Helen Storey, etc. They seem to have taken Haraway's plea to heart; an appeal 'for *pleasure* in the confusion of boundaries' (1991 [1985]: 150; original emphasis). Their futuristic designs blur the boundaries between art, fashion, science and technology. They not only share a sculptural, technological and artisanal approach to clothes, but also a fascination for stretching the form and shape of the human body and playing with human identity.

Recent studies in the field of wearable technology provide an overview of techniques and applications (Mattila 2006; Cho 2010), or summarize its developments and actors (Quinn 2002, 2010; Seymour 2009, 2010), but, to date, few studies critically reflect on the socio-cultural dimensions of wearable technology (Toussaint and Smelik 2017). Rather than giving an overview of what is possible in wearable technology, I therefore prefer to draw out some principal characteristics that are relevant for the posthuman: the emphasis on craftsmanship, the importance of materiality and embodiment, and the interplay of identity.

Fashion designers of wearable technology share an intense love for craftsmanship and a hands-on engagement with the materiality of textiles and textures (Smelik 2017). The renewed focus on craftsmanship is closely connected to the technological world we live in. As Richard Sennett writes, 'technical understanding develops through the powers of imagination' (2008: 10). The artisanal qualities that are imbibed in craftsmanship bring the technologies within the grip of our hands, making the high-tech world more human and accessible. Where for Sennett it seems to be impossible or utopian for craftsmen to work with the machines productively (ibid.: 118), fashion designers are keen to combine craftsmanship with technology; it is not a question of one excluding the other – they go hand in hand. This refers back to the original Greek meaning of the word *techne*: art, skill, craft. The focus on craftsmanship betrays a new interest in the materiality of matter in a high-tech world of virtual technologies (Barrett and Bolt 2012). While fashion designers focus first and foremost on the materiality of textiles, and of the technologies involved, they are also interested in the materiality of the human skin and body (Rocamora and Smelik 2016). Moreover, they extend their fascination for matter and materiality to the technologies that they use; they have developed what Sennett calls a 'material consciousness' (2008: 119).

The issue of materiality is paramount here, because matter is precarious in an age of digital and virtual technologies (Bennett and Joyce 2010; Coole and Frost 2010). The notion of materiality allows a focus on the actual matter of technology and how – material – bodies relate, often intimately, to the technical objects that enhance clothes and also the identities of the wearer. There is no doubt that technological innovations will have a deep impact on the meaning and communication of clothes and fashion. If technologically enhanced clothes can measure temperatures, chemical processes or vital functions, sense movement and position, or have expressive qualities, they will change the relation of the wearers to themselves as well as transform the communication to and with others. The fact that the garments are worn on

the body increases the urgency to take into account the body's materiality. One of the present challenges of wearable technology is to bring the designs from out of the labs or off the catwalks into the streets and shops. Only then will the technology become 'wearable'. 'Embodied design' (van Rompay and Hekkert 2001) may help to take this into account more seriously, with a stronger focus on the materiality of the design, the experiences of the physical body, and of the social and cultural context (Hummels and Lévy 2013). Wearable technology should thus develop ways of integrating the body's tactility and sensitivity into the embodied design (Smelik, Toussaint and van Dongen 2016).

Wearable technology extends the possibilities and functions of fashion as an embodied performance of identity. This is where the futuristic designs of 'science fashion', as I propose to call it, can help to shape and change posthuman identities differently. Moving in-between art, fashion, science and technology, fashion designers experiment with the ways in which the posthuman can shape their bodies or perform their identities. Clearly, they move out of the comfort zone or bedroom wardrobes into a fantasy world, where they take pleasure in confusing boundaries between human and cyborg, or human and animal, but also shift ambiguous borders between skin and textile, organic and technological, material and digital. Posthuman science fashion shares a futuristic outlook, opening up a horizon beyond conventional fashion. In their shared fascination for stretching the boundaries of the human body, the designers tempt the wearer to put their identity at play. Fashion designers of wearable technology challenge the potential wearer to engage affectively with the fusion of art, fashion, science and technology, embarking on a transformative process of becoming in the sense of Deleuze and Guattari (1987). Science fashion is thus part and parcel of an open-ended process of becoming-posthuman. The strange shapes and forms of smart textiles and smart materials invite a reflection on new forms of both embodiment and human identity. By reshaping the human body beyond its finite contours, science fashion offers an encounter between art, fashion, science and technology, opening up to a future world where smart garments are merged with human skin, body and identity.

See also Ecologies of Architecture; Mattering; Medianatures; Transcorporeality.

Anneke Smelik