

Chapter 36

Donna Haraway: The Digital Cyborg Assemblage and the New Digital Health Technologies

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This chapter introduces the work of the influential American feminist techno-science studies writer Donna Haraway and shows how it may be used to theorise the new digital technologies used in the health and medical sphere. Haraway's concept of the cyborg has particularly inspired cultural theorists who have written about the implications of technologies for human embodiment and subjectivity. She argues that all individuals in contemporary Western societies have become cyborgs (a term that melds 'cybernetic' and 'organism') in their interaction with technologies, blurring the distinction between human and machine. She further uses concept of the cyborg as a metaphor for political contestation and action.

Haraway's writings on the cyborg and her other work extending these ideas have been particularly influential in theorising the interaction of the human and the non-human in sociology, science and technology studies, feminist theory, cultural studies and race/ethnicity studies. Her ideas are introduced in this chapter to demonstrate the continuing relevance of this work for contemporary theorising in relation to the new digital technologies that are currently being positioned as offering innovative ways of promoting health, improving healthcare delivery and reducing healthcare expenditure. Human bodies now interact with medical technologies in a variety of ways, not only using comparatively old-fashioned technologies such as limb prosthetics, heart pacemakers, hearing aids, insulin pumps and the like, but more recently by digital technologies embedded with tiny sensors and data-processors. Many functions of the body can now be monitored, recorded and rendered into data using these new digital health technologies. These data can be readily downloaded into a digital database and interpreted using complex algorithms to produce statistics on one individual or thousands of users. Some digital devices, such as smartphones, may easily be carried around as part of everyday life; other, even smaller devices may worn on or even inserted within the body or swallowed.

Digital technologies are employed in telemedical systems as part of self-care and self-monitoring regimes for people with chronic medical conditions. They are also adopted voluntarily by individuals keen to track their biometric data in the interests of learning more about their bodies as part of attaining optimal health, in what is termed 'self-tracking', 'body-hacking' or 'the quantified self'.

In this chapter, I discuss aspects of digital technologies as they are employed in medicine and health promotion through the lens of the ideas of Donna Haraway. I begin with an overview of Haraway's work, and then focus on her writings on the cyborg. Then follows an account of the new digital health technologies and discussion of how the concept of the cyborg and other aspects of Haraway's thought may be used to theorise the role, influence, possibilities and limitations of these technologies for conceptualising health, medicine, illness, disease and the body/self in the Web 2.0 era.

Biography

Donna Haraway is an American scholar, born in Denver, Colorado, 1944, who has become renowned for her writings in science and technology studies, particularly in relation to post-Marxist feminism and human and non-human relations. She sometimes uses the term 'techno-biopolitics' to describe what she writes about and also characterises herself as an historian of science. Haraway is now retired from the position in the History of Consciousness Department at the University of California, Santa Cruz: a post she held for many years. She retains the title of Distinguished Professor Emerita at that university.

Haraway was brought up as a committed adherent to the Roman Catholic faith (although she relinquished her religious belief as an adult) and her academic training was in philosophy, theology, biology and literature (Schneider 2005). Haraway has remarked in many forums that this combination of influences has contributed to her work in profound ways, giving her a unique intellectual perspective as an historian of science. She contends that her training in biology has contributed to her perspective on bodies as not just signs or symbols, as a focus on semiotics or discourse may have it, but as fleshly objects with distinct histories (Haraway in Gane 2006). Haraway has also been influenced in her own thinking by prominent science and technology theorists such as Bruno Latour (Haraway in Schneider 2005). Her work draws upon and contributes to cultural studies as well as feminist theory and race/ethnicity studies, all of which she views as interrelating to the others as part of a 'knotted analytical practice' (Haraway 1994).

Haraway has a distinctive writing style that makes constant use of metaphor, the vernacular, the poetic, story-telling and her own personal experiences, at the same time as employing sophisticated and original philosophical insights into the nature of the human and the non-human and the many complexities

and ambiguities that exist between these categories. She is the author of six books (Haraway 1976, 1989, 1991b, 1997, 2003, 2008). She has also published a collection of her articles and essays (2004) and a book-length interview with Thyrza Nicols Goodeve (Haraway and Goodeve 2000). Several other interviews or conversations with Haraway have been published as academic journal articles or book chapters. These are useful sources of clarification and further exposition of her thought (see, for example, Bhavnani and Haraway 1994; Schneider 2005; Gane 2006; Williams 2009).

The various topical areas addressed by Haraway in these works and others attest to the primary focus on her theory: to draw attention to the blurriness of boundaries between categories such as human/non-human, human/animal, human/machine, living/dead, mind/body, nature/culture and female/male. Haraway's writings on the cyborg are the central focus of this chapter. Her essay 'Manifesto for cyborgs: science, technology, and socialist feminism' (1985) is a particularly influential piece of writing, having been re-published in collected works a number of times in later years and in revised form in *Simians, Cyborgs and Women* (1991b). (I refer to this revised version throughout this chapter rather than the original.)

Haraway also often refers to her concept of the cyborg in her later books, where it continues to work for her as a way of thinking through the complexities of the ontology of human and non-human actors and possibilities for political action. In fact most of the scholarship throughout Haraway's career contributes to her project to call into question the fixed or essential nature of identity and embodiment. The themes of humans, animals and technologies and their intersections dominate her writing.

Haraway's cyborg theory

Haraway did not coin the term 'cyborg'. It was first used in a 1960 article by two NASA engineering researchers, Clynes and Kline, writing about the concept of the cybernetic organism in the context of adapting to space travel (Haraway 1995). Clynes and Kline referred to the cyborg as 'self-regulating man-machine systems' (quoted in Haraway 1995:xv). Their definition included the idea that the cyborg is a human who 'deliberately incorporates exogenous components extending the self-regulatory control function of the organism in order to adapt it to new environments' and that these components may include 'suitable biochemical, physiological, and electronic modifications' (quoted in Appleby 2002:104). Haraway took up the term 'cyborg' in her own writing to denote what she originally described as 'a cybernetic organism, a hybrid of machine and organism, a creature of social reality as well as a creature of fiction' (1991b:149). However, as I point out below, her conceptualisation of the cyborg has changed in more recent writings.

In her 'cyborg manifesto' essay, Haraway argues that there are two types of cyborg that operate at different ontological levels. The cyborg is represented both as a metaphorical and a literal configuration of human bodies and new technologies; or as she puts it, the cyborg is 'a creature of social reality as well as a creature of fiction' (Haraway 1991b:149). One type is the material cyborg that is configured via the military-industrial-entertainment complex: the cyborg of science fiction films, the warrior macho human-machine, the medicalised body that is normalised by technologies and earns profits for pharmaceutical and medical device companies. The second type is the metaphorical cyborg, or the 'creature of fiction': the figure that challenges assumptions and binaries, that is politically disruptive, progressive and oppositional in its hybridity and liminality.

One of Haraway's oft-quoted phrases is that 'we are all chimeras, theorised and fabricated hybrids of machine and organism; in short, we are cyborgs. The cyborg is our ontology; it gives us our politics' (1991b:150). Here she is trying to express the idea that no human bodies/selves are stable or natural. Rather, we are multiple bodies and multiple selves, depending on the context in which we find ourselves and the other bodies and non-human entities with which we interact. Haraway contends that human bodies cannot easily be categorised as one thing or another in a static binary opposition; nor can technologies be singled out as separate entities from the human. Each contributes to the other: we understand our bodies/selves through technologies and our bodies/selves give meaning and configure technologies through the enactments of everyday life.

Haraway's concept of the cyborg brings the body and its permutations, differences and ambiguities, as well as its performative configurations, into focus as an object for political critique and action. She argues for a view of the subject/body that is inevitably split and contradictory, providing for ambivalence and ambiguity, and she sees this approach as important for feminist and technoscientific critique (1991a, 1991b). As she notes, 'If the cyborg is anything at all, it is self-difference' (1991a:22).

Haraway is not anti-technology; nor is she anti-science (her doctoral thesis was in biology). She acknowledges that she has an ambivalent attitude to technoscience (or a 'simultaneity of love and rage', as she puts it) (Haraway in Williams 2009:139). However, she views technoscience as participating in a culture in which science is viewed as offering salvation for the messiness, suffering and disease to which humanity is exposed. While the cyborg is the product of technoscience, its transgressive liminality also poses a challenge to the myths of technoscience: its project to establish the perfect, whole body and to reproduce cultural binary oppositions as if they are essential and natural (Haraway 1991b). Haraway's cyborg theory, therefore, offers a way of valorising the monstrous, hybrid, disabled, mutated or otherwise 'imperfect' or 'unwhole' body (Gottlieb 2000) and is relevant to other types of social and cultural differences.

Many scholars interested in the social and cultural analysis of health and medicine have found Haraway's cyborg theory to be a fruitful and intriguing approach. Her writings have been taken up by other writers to analyse a diverse range of biotechnologies, medical issues and health conditions, including Prozac (Lewis 2003), disability (Gottlieb 2000), menopause (Leng 1996), female reproduction (Handlarski 2010), foetal surgery (Casper 1995) and stem cells (Jetté et al. 2007). However, as with any other cultural theorist, Haraway also has her critics. Her writings can be difficult to penetrate at times, in her love of the poetic turn of phrase and the metaphor. Some critics have challenged Haraway's model of the disruptive, transgressive cyborg by suggesting that it has not been used to effect political change or to support difference, and that instead the figure of the cyborg has continued to be used as a symbol for the escape from the body and as representing aggressive masculinised technophilia (Squires 2000; Jensen 2008). The novelty of Haraway's concept of the cyborg in cultural theory has also been called into question (Jensen 2008). Other critics have contended that stating that 'we are all cyborgs' is in itself the kind of essentialism that Haraway is attempting to avoid, and find her definition of the cyborg confused (Soper 1999).

Many of the critiques above focus on the material rather than the metaphorical interpretation of the cyborg. Haraway herself has expressed concern about how her cyborg theorising has been simplified in some approaches to hardly more than 'blissed out techno-bunny babbling' and that its radical political project has often been overlooked (Haraway in Schneider 2005:118). I would contend that Haraway's cyborg theory has much to offer a continuing critique of essentialism and dualism as it is expressed in relation to the body. As I observed earlier, Haraway's perspective can be taken up in relation to many kinds of social or cultural difference. By acknowledging human difference, her cyborg theory has contributed to feminist critiques of essentialism, and has also been taken up by scholars interested in sexual identity, ethnic/racial difference and post-colonial politics (Bhavnani and Haraway 1994; Handlarski 2010).

Particularly relevant to the concerns of this chapter, Haraway's cyborg theory also constitutes a major contribution to contemporary theorising about the interaction of human flesh and technology. The concept of the assemblage has been used increasingly in socio-material theory to encapsulate the idea that human bodies are complex and dynamic configurations of flesh, others' bodies, discourses, practices, ideas and material objects. This perspective is also found in Haraway's work, particularly her more recent formulations of the cyborg. In an article published in 2012, Haraway notes that she no longer views cyborgs as machine-organism hybrids 'or indeed hybrids at all', but rather as 'imploded entities, dense material semiotic "things" ... articulated string figures of ontologically heterogeneous, historically situated, materially rich, virally proliferating relatings of particular sorts' (2012:301). Haraway's

reference to 'string figures' relates to the cat's cradle game, played using string manipulated on the hands to produce complicated patterns, and which can be swapped from one pair of hands to another as part of sharing the creation. She employs this metaphor in her later work as a means of emphasising the intertwinings, complicated patternings, knottings, webbings and collaborations of technoscience and the bodily assemblages it configures (for example, Haraway 1994, 2008; Haraway and Goodeve 2000). I would argue that in bringing together the concept of the assemblage with that of the cyborg, the term 'cyborg assemblage' may usefully be adopted to highlight the socio-material theoretical underpinnings and the constantly changing character of this phenomenon.

The digitised cyborg assemblage

Now, over half a century on from Clynes and Kline's invention of the concept of the cyborg and their pioneering experiments attempting to construct 'man-machine systems', the new digital health technologies have become very close to their original vision. While the cyborg of science fiction – the Terminator figure that is more machine than human, robotic, lacking human emotions – has yet to eventuate, the kind of cyborg first envisaged by Clynes and Kline has become a reality. The cyborg assemblage, understood as a melding of body with technologies that are able to provide cybernetic (feedback) mechanisms, is now configured via the new digital health technologies. This digital cyborg assemblage is not the organism with super-human powers that is so beloved of science fiction fantasy as portrayed in popular culture. Nor is it the disembodied, virtual avatar that moves around cyberspace with little thought of its fleshly reality. Rather, it is the ordinary person who uses digital technologies to monitor her or his bodily functioning or movements or perform medical self-care tasks.

Twenty years ago, four types of cyborg technologies in relation to the human body were identified: those that are restorative (restoring lost functions or limbs), normalising (re-establishing normal functioning), reconfiguring (constructing new combinations of humans and technologies) and enhancing (extending human capabilities) (Gray et al. 1995). The new ubiquitous digital health technologies are capable of all these functions, but also perform others: specifically surveillance, monitoring and communication. In addition to smartphones, digital technologies include devices that may be worn upon the body, such as smartwatches, wristbands, headbands, augmented eyewear (Google Glass), laminated strips and clothing, as well as tiny devices that may be implanted or inserted into the body or swallowed, monitoring the body from within. These devices have embedded sensors that can record biometric data which are then sent wirelessly to other digital technologies for storing and algorithmic processing.

Thousands of apps (the shortened term for ‘applications’) for smartphones and tablet computers are now available that assist with uploading and interpreting the data collected by body sensor devices, or which can be used to manually upload data about one’s bodily functions and activities. Such body functions and indicators as blood glucose, body temperature, heart function, breathing rate, body weight and fat levels, blood chemistry, blood flow volume, the electrical activity of muscles, lung function, physical movement patterns and activity levels, mood, pain and even brain activity can all be monitored using digital devices. The data collected can then be uploaded to apps or websites by users for their own monitoring purposes, rendered into visual form such as graphs and tables and transmitted to their healthcare providers or shared with others via social media platforms or patient support websites.

The techno-utopian visions of what biotechnologies can offer humans identified in Haraway’s writings in the 1980s are clearly evident in contemporary representations of digital health technologies. These devices and the data that they are able to gather are viewed as having great potential for improving human health and reducing healthcare costs (Swan 2009, 2012; Topol 2012). As an article published on the *Scientific American* website claims, these devices represent ‘[t]he wearable, implantable, personalised future of medicine’ (Reed 2013). It is routinely suggested in the medical and health promotion literature that these technologies provide particular opportunities for people from disadvantaged socio-economic groups or those who live in rural or remote regions or in developing countries, where healthcare provision may be limited, thus supposedly overcoming geographical and socio-economic barriers to healthcare access (Chib 2013).

The new digital health technologies contribute to the creation of a new form of patient – the ‘digitally engaged patient’ (Lupton 2013a). This idealised patient builds upon a growing orientation in healthcare since the 1970s in developed societies to viewing patients as ‘informed’ and ‘empowered’ consumers, willing and able to challenge medical authority and participate as partners in their own healthcare (Henwood et al. 2003; Bury and Taylor 2008). The newest manifestation of this ‘empowered’ patient is portrayed as an individual who undertakes to engage in healthcare and health promotion as an ‘engaged’, ‘incentivised’ or ‘activated’ participant who seeks to ‘digitise’ herself or himself (Topol 2012) as part of ‘personalised preventive medicine’ (Swan 2009). Information as it is realised in digital data is represented as the dominant means by which disease and early mortality can be conquered and states of good health achieved and maintained.

As part of the focus on the information or data that digital devices and software can collect on the human body, the digital cyborg assemblage produced is another version of what Haraway described as a combination of ‘text, machine, body, and metaphor – all theorised and engaged in practice in terms

of communications' (1991b:212). In her 'cyborg manifesto' essay, Haraway makes some comments about the ways in which communication and biotechnologies are central to concepts of bodies and selves, embodying new forms of social relations and ways of thinking about the body. These include understanding bodies (and indeed the world) as a problem of data coding. Haraway develops these thoughts further in another essay, entitled 'The biopolitics of postmodern bodies: constitutions of self in immune system discourse', first published in 1989 and reprinted in *Simians, Cyborgs and Women*. In this essay she asserts that in the context of contemporary immune discourse in Western cultures, '[t]he biomedical-biotechnical body is a semiotic system, a complex meaning-producing field' (1991b:211). Disease has become viewed as 'a subspecies of information malfunction or communications pathology; disease is a process of misrecognition or transgression of the boundaries of a strategic assemblage called self' (1991b:212).

This notion of the body as a system of data codes and disease as information malfunction is central to contemporary discourses on digital health technologies. These technologies are represented as providing ways for people to overcome their bodies' ills (current or potential) by providing them with the capacity to gain self-knowledge of their bodies via the data produced: indeed, even before disease makes itself known through symptoms or signs. Digital data and the algorithmic calculations that make sense of these data and provide recommendations ('exercise more', 'test your blood glucose levels', 'eat less', 'visit your doctor') are viewed as objective and pure sources of knowledge of disease and the body. The apparently clean orderliness of digital data appears able to contain and control the inherent and mysterious tendency towards disorder (disease, disability, pollution and early death) of the human body.

Here the concept of the digital cyborg assemblage harkens back to the science fictional cyborg or the disembodied fantasies of cyberspace by evoking the pleasures and potential of using technologies to discipline the body and transcend the ills of the flesh. Yet paradoxically, as part of this project of disciplining and transcending the flesh, digital health technologies also bring the body sharply back into focus (Lupton 2012, 2013c). Now, more than ever, digital technologies have made it possible to peer inside the body, to monitor its functions and render them into visual form. The digital cyborg assemblage in the context of medicine and health promotion is focused on monitoring the signs and signals of the body, its patterns and its data. These technologies make their users constantly aware of the fleshly nature of their bodies: how high their blood pressure or glucose levels are, how happy they feel, how many steps they have walked that day. They therefore promote a self-reflexive, hyper-awareness of the body and its weaknesses and frailties as well as its strengths and capabilities (Lupton 2012, 2013a, 2013c).

The digital cyborg assemblage that is configured via these technologies is truly a cybernetic organism in its attempts to create a closed regulatory system, in which data are produced which then affect behaviours that then create further data and so on. Self-knowledge, as an integral dimension of taking responsibility for maximising one's good health, is part of this system. These technologies also provide the means by which this information may be shared across an unprecedented number of viewers using social media. Users can tweet their daily statistics to their followers, or upload them to Facebook, and by doing so invite their followers and friends to participate in their self-examination and self-surveillance strategies.

Willing and unwilling digital cyborgs

The digital cyborg assemblage as it is portrayed in discourses on 'digitising the self' as part of achieving efficient medical care or promoting health is not the radical, split subject proposed in Haraway's writings. On the contrary, it is inherently conservative, well-behaved, civilised, seeking perfectibility and wholeness, championed in the interests of self-knowledge and personal and fiscal responsibility. There is little that is transgressive or disruptive about this idealised body, despite common references to digital health as 'revolutionary' and 'creatively destructive' of the dominant medical paradigm (Swan 2012; Topol 2012). We see in the figure of the digital cyborg assemblage in the context of medicine and health an urge towards a single, unified body, a body that is configured and intimately understood by data and self-knowledge. This concept of the body is a central underpinning of medicine and health promotion: indeed, the tasks of these fields are to reunify or discipline bodies that are viewed as unruly, out of control, impure and unregulated; whether this is because of disease or illness or because the bodies' owners lack appropriate self-discipline (Crawford 1980; Lupton 1995; Petersen and Lupton 1996; Bunton and Coveney 2011).

'Digitally engaged' lay people, in 'digitising' or 'quantifying' themselves, are conforming to the idealised citizen of neoliberalism: the individual who voluntarily takes up the imperatives of health in her or his interests rather than being coerced to do so (Lupton 1995, 2012, 2013a; Petersen and Lupton 1996). Those who use these technologies also participate in the promotion of the healthiest discourse, in which good health is valued above many other priorities and those who take up this discourse are represented as ideal citizens (Crawford 1980). Digital health technologies are represented in this discourse as allowing citizens to participate in the assumed shared ideal of good health above all by providing the tools to facilitate responsibility for one's health. They are portrayed as enhancement technologies, able to correct apparent deficits in the body by providing information and thus extending the capabilities of the

body to monitor itself and allowing users to represent themselves as capable, responsible, illness-avoiding subjects.

The ideal digital cyborg assemblage domesticates digital technologies, incorporates them into its body unproblematically. It hardly sees itself as a cyborg, although others might. Instead the digital cyborg simply views these technologies as part of its everyday world, its usual habits and its mode of operating. Some people find the opportunity to track their biometrics using digital devices or to use telemedicine at home a comforting means of taking control over their bodies (Lupton 2013b). That is not to say, however, that people are always willing to take up the practices of 'digitising' the self that are championed in digital health discourses. Several sociologists of science and technology have drawn attention to the lived realities of using digital technologies in the home as part of telecare arrangements. They have highlighted the emotional and physical dimensions patients experience of bringing the clinic into the home, of having to continually use technologies to check their blood glucose levels, heart function or body weight. Using self-monitoring and self-care technologies can be hard work and force people with chronic illness to constantly be aware of their bodies when they may prefer to forget that they are ill (Oudshoorn 2008, 2011; Mol 2009; Hortensius et al. 2012; Mort et al. 2013). Some patients prefer face-to-face interactions with their healthcare providers rather than digitally mediated encounters or self-care strategies. Some find the responsibility of self-monitoring and self-care overwhelming, and simply wish to allow their healthcare provider to take control (May et al. 2009). Patients may also challenge healthcare providers' encouragement to engage in self-monitoring and self-disciplining strategies predicated on internal motivation, and call on their providers to be more involved in helping them achieve health-related goals (Pii and Villadsen 2013). Yet there may be little choice offered to people who are released from hospital with telecare plans in place (Mort et al. 2013) or who are coerced by their health insurers' financial penalties to engage in self-tracking as part of preventive health ('wellness') programmes (Zulman et al. 2013).

Even if digital health technologies are taken up willingly or voluntarily, there are moments when users become aware of their dependence on technologies, or find the devices annoying or difficult to use, or lose interest in them. For example, some people using self-tracking digital devices have reported finding them cumbersome or frustrating, or worrying that engaging in self-tracking promotes an overly anxious or obsessive approach to their bodies, or have observed that they simply have become bored with using them (Lupton 2013b).

A significant proportion of people simply lack access to the requisite technologies. A Pew Research Center report published in 2013, for example, found that 15 per cent of Americans do not use the Internet, and a further 9 per cent did use it but did not have Internet access at home. Older Americans and those with lower levels of education and income, in particular, were less likely to

use the Internet than other Americans (Zickuhr 2013). These findings are supported by other studies in the United States (Bobkowsky and Smith 2013) and elsewhere (Fuchs and Horak 2008; Halford and Savage 2010; Frederico et al. 2012) that demonstrate that social disadvantage and geographical location are significant factors in shaping access to digital health technologies and the ways in which they are used.

A range of factors, therefore, influence the willingness with which people may embrace the 'digitally engaged patient' ideal or attempt to participate in voluntary self-tracking of biometric data using digital technologies. Socio-demographic status and geographical location are important structuring elements, but so too are people's existing states of health, the extent to which they prefer to engage with technologies rather than healthcare professionals, their familiarity with digital technologies and, importantly, their vulnerabilities and emotional dependencies. As Freund (1998:273) puts it, there are 'seams in the cyborg', or disjunctions or discontinuities where flesh and machine rub up against each other, fail to work together successfully. Human-technological interactions and intersections are not always manageable, despite the constant employing of the discourse of control that pervades discussions of the potential of digital health technologies.

Together bodies/technologies may be erratic and unpredictable. Bodies/selves may be spontaneous, creative, emotional, irrational and irregular (Freund 2004); technologies can be messy, fail to work as expected and confound expectations about offering control of the vagaries of the body (Mol 2009). People do not always conform to the rational imperatives of tight self-discipline and self-control demanded of them in contemporary discourses on risk avoidance, preventive medicine and medical self-care. At least on some occasions, they may prefer the pleasures of lack of containment and loss of control offered by the grotesque body over the disciplines of the regulated civilised body (Lupton 1995, 2013d; Bunton and Coveney 2011). Haraway's figure of the metaphorical cyborg, therefore, in its insistence on resistance, ambivalence and difference, its recognition of imperfections and multiplicities, serves as a challenge to the material cyborg that is idealised in dominant representations of the digitised, responsibilised patient. Both are elements of the digital cyborg assemblage that participates in (or resists) digital health technologies.

Conclusion

I have argued in this chapter that Haraway's cyborg theory offers a unique and intriguing perspective that can be employed to analyse the social and cultural meanings of contemporary digital health technologies; or what I have dubbed 'the digital cyborg assemblage'. Her approach to the cyborg body offers a way both to acknowledge the potentialities of these new technologies but also their

limitations and to express ambivalence towards them without feeling the need to indulge either in technophobia or technophilia, itself the kind of dualism against which Haraway warns. Given the current move in medicine and public health towards digitising the body as part of configuring the responsibilised lay citizen (Lupton 2013a), it is important for sociologists to continue to challenge the discourses that privilege certain types of bodily assemblages. While the digitised cyborg assemblage is inherently conservative, seeking the ideals of wholeness, purity and self-responsibility espoused by medicine and public health, the metaphorical cyborg as articulated in Haraway's work continues to offer a means of disrupting this ideal. Haraway's two-faceted cyborg – the literal and the metaphorical – allows us to recognise the potential of the digital cyborg assemblage for enhancing and improving human well-being, health and medical care while simultaneously maintaining a critical distance, in order to identify the ways in which some social groups or individuals may be coerced, stigmatised or disenfranchised by these technologies and how the rhetoric and practice of digital health serve powerful interests.

The figure of the digital cyborg assemblage as it is championed in digital health discourse may be challenged by Haraway's fictional disruptive cyborg for political purposes. The spirit of this latter cyborg, in calling into question accepted technoscientific and techno-utopian assumptions and truths, in focusing on the operation of power and agency and provoking ambivalence and contestation, conforms closely to the project of a critical sociology of health and medicine. As I observed earlier in this chapter, discourses on the digitally engaged patient/lay person suggest that those who take up the imperatives of digital engagement as part of the project of good health are ideal, responsible citizens. Those people who do not conform to these expectations tend to be marked as lacking knowledge or the ability to engage in self-management and self-enhancement, or as simply not well enough 'incentivised' or 'activated' (Lupton 2013a). Such assumptions are invariably constructed using categories: the technophobic, those on the wrong side of the 'digital divide', the ignorant, those who are too old, too little educated or lacking the language ability to master or attempt use of the new digital technologies. It is these material and diverse aspects of embodiment, and the social and economic inequalities that they perpetuate and in which they participate, that Haraway's cyborg theory is well placed to question and critique.

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