Does Africa Dream of Androids?

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This paper is part of a broader investigation into the intersection of disability and technology in African societies. The paper will focus specifically on Nigerian cultures, exploring the social experience of disabled persons with respect to their use of available technologies in navigating a space within their respective cultures. The paper will first deal with the technologies available to disabled people in pre-colonial West Africa as suggested by archaeological and literary evidence, go on to analyse how changes in economic and cultural systems brought about by colonialism and the post-colonial state, shifted the roles and technologies available to disabled people. The paper argues that the African cyborg has been an inspiration for new technologies, and an agent of technological and social change. Simultaneously, increased connectivity has enabled indigenous technologists to more quickly share and develop ideas. It has also empowered new generations of technologists with the potential to radically improve disabled access to areas of public life. The paper concludes that as a focus of metaphysical anxieties, the cyborg has evolved to something approximating the New African, someone who can defy boundaries to achieve an act worthy of herself and the her community – an agent of revolution and social change rather than a passive recipient of imposed technologies.

Keywords: Intersectionality; technology; disability; cyborg; Nigeria.

Introduction: Does Africa Dream of Androids?

From community centres for IT education and development[1], to accessible alternative energy solutions[2] and annual Maker Faires[3] attracting amateur and professional technologists from across the continent, the growth of technological enterprise and active networks of inventors, technologists and entrepreneurs in Africa, gives a tantalising glimpse into Africa's technological future.

Such developments make a welcome change. The evolution of technological innovation within the African continent can often be seen as unsophisticated and piecemeal, a phenomenon often interpreted as occurring due to a lack, be that of resources or

industrialisation. Terminology such as 'informal', 'Maker' and 'DIY' does not fully encompass the reality of the process of technological innovation, organised development and the adapting of technology to various African contexts that is constantly happening. Instead, there is a tendency to view African technological culture as another victim of neo-imperialist cultural violence.

Indeed, the colonialist gaze when pointed at African technological culture has often served to downplay innovation, and by implication the existence of social structures that enable such innovation (e.g. urbanisation[4]-[5] (Gibbs, 1962; O'Neill, 2011), guilds (Davids 2003; Epstein 1998; Raji & Abejide, 2013), colleges, etc). Instead, to quote Schmidt, the colonialist gaze of Enlightenment thought tended to view 'African technological history as one lacking any achievement worthy of scientific interest' (Schmidt, 1996: 1) where indigenous technological cultures were seen as 'a primitive expression of technological life … [representing] a survival of European production as it would have been several thousand years ago' (Schmidt, 1996: 3). According to Schmidt, physical evidence suggesting technological development and experimentation within African societies was instead often interpreted as evidence of temporal homogeneity, external influences (see for example Goody's (1971) 'Technology, Tradition and the State in Africa' where developments in African technology are primarily attributed to Mediterranean influences), or as a deficiency in a systematically developed technological culture. As Schmidt goes on to say, '...the accepted history of African … technology ha[s] obscured and even erased evidence of such technological success' (Schmidt, 1996: 1).

If one is to consider the future trajectory of African technology, it is important to consider the wider technological culture in its own right – not one that is lacking or the result of the imposition of colonialism, but instead as a continuation of an intrinsically African technological culture, where outside influences are absorbed into an autonomous and autonomously evolving, technological culture, and are not just forcibly imposed discontinuities. Furthermore, if one is to consider the future interactions between people and technology within Africa, then it is necessary to have some understanding of what technology has represented for African cultures of the past and how these views have evolved into the present.

Of particular interest is the way that underrepresented groups such as disabled people have made use of technology throughout history. After all, the technological development that one sees in contemporary African countries is not occurring in a vacuum. New politics and ideologies are forming, not just copies of movements in the First World, but evolving philosophies that, although happy to absorb useful concepts from without their specific contexts, nonetheless stress continuity with the numerous African cultures and traditions that interact with, feed back into and evolve alongside each other. There is one group in particular

that stands to make significant gains from the new technology and ideologies around the use of technology that are currently being developed, and that is the disabled population, who, according to the United Nations (UN)[4] have a total population of some 80 million in Africa, with over 12 million located in Nigeria alone (Akhidenor, 2007). The African cyborg is thus an ideal lens for analysing the intersections of society, technology, culture and disability.

The cyborg, shortened for 'cybernetic organism', has been located as the focus of a radical re-imagination of gender, sexuality and politics (Haraway, 1995), as well as anxiety about the place of humanity in a post-industrial society (Moody, 1997). Although the cyborg has been adequately used to discuss the human person interacting with technology, appropriation by an ableist perspective, has in some ways dulled the edge off the hybridized creature. A clear example is the seminal work by Haraway (1991: 150), where the cyborg is presented as a 'fiction mapping social and bodily reality', and is envisioned primarily as a metaphor.

Originally coined in 1960 by Manfred E. Clines and Nathan S. Kline to describe a vision of humanity merged with technology (Brown, 1999), when reduced to metaphor, the cyborg becomes equally a problematic as when it is the standardised trope of science fiction, where the cyborg depicts what is – from an abled perspective – a ruined humanity that requires technology to exist on an equal footing in the world they inhabit. One of the intentions of this paper is to illustrate how, on the contrary to Haraway for whom the cyborg has no origin (Haraway, 1995), the material cyborg's origin lies in its very humanity or, depending on the dominant social views of the disabled person, its lack thereof.

What is often disguised by the facade of the cyber aesthetic of science fiction such as Ridley Scott's 'Blade Runner', William Gibson's 'Neuromancer' and various other works of cyberpunk science fiction – as well as the circumstances surrounding the genesis of the term which in some ways reveals a modernist perspective seduced by the superficial glitter of what was then novel techno-gadgetry – is that this mingling of human and machine is not modern or post-modern. Instead it has been a part of the human and especially the disabled experience from the beginning of human existence. As long as technology has been available, the disabled person has used it to navigate a space within her environment, social or natural, a point reiterated in Cromby and Standen's (1999: 99) essay, 'Cyborgs and Stigma: Technology, Disability and Subjectivity' where they write:

> ...[D]espite the apparent novelty of the cyborg metaphor, we should remember that people with disabilities first encountered many of the issues posed by the cyborg of humanity... in practice rather than in academic debate when the first spectacles, hearing aids and wooden legs were used.

Hence one could argue that there is an implicit ableism in certain discourse surrounding the

cyborg, which lies in the willingness to appropriate the cyborg simply as metaphor, rather than an actuality not just of all humanity, but in particular of a substantial section whose voice is often left unheard.

Behind the facade of these narratives – the colonialist and the futurist – lies a common reality, the union of which is the focus of this paper. Here, the cyborg is used to describe the disabled person using technology to navigate a cultural, religious, social and economic space within her socio-cultural matrix.

In this paper, I will be exploring and analysing the role of the cyborg in West African thought and the impact on the development of assistive technologies in an effort to shed light on the technological culture, the means and processes of innovation and the insight these can provide not only into ideas about disability, but more importantly into the ways the disabled person exploits the technological capabilities for her own use. In other words, the analysis intends to explore that which 'emerges in relations amongst science, technology, culture and politics' (Bayer, 1999: 119).

Due to the scale of the investigation, the focus of the paper will be on the technological cultures found within the myriad ethnic groups of Nigeria. However, examples from other West African nations will be used to provide a broader historical context and justification for particular lines of investigation. The body of the paper will be split into three sections covering particular eras of social history, what I call the pre-colonial – 'The Naked Cyborg'; the colonial – 'The Baptised Cyborg'; and the post-industrial – 'The Black Supercrip'.

The Naked Cyborg

What does it mean to say that we are all cyborgs? Implicit in this statement is an understanding of what some might describe as humanity's innate dependence on technology. Homo Sapiens, the naked ape, has always used technologies, both material (e.g. from flint knives to computers) and immaterial (e.g. from taboos to complex legal systems) to supplement the individual human being. In the same way that artefacts reveal everyday life and cultural understandings, the use, development and techniques used to create technology can convey something of the metaphysical framework of the society they were made to serve. This is a point conveyed in Heidegger's (1977) 'The Question Concerning Technology', where technology is understood, according to Brown (1999: 157), as the practice 'which reveals things for what they are'. Once this revelatory act is complete, the technological object can then become either a 'supreme danger' or a 'saving power', to quote from an analysis by Sutherlin, 'depending on whether humans are able to maintain objectivity in their relation to technology' (Sutherlin, 2012: 6).

Technology involves the meeting of imagination and nature, and enables humans to reify a view of the world, to bring out an ontology of environment and thus 'assure an objectificatory function' (Perez, 1999: 48). Assistive technology does much the same, revealing ontologies of the human form, a placing of the disabled body into its idealised type where the ideal may be one conjured up from social, cultural, ritualistic or economic paradigms.

In the context of African technology, the cyborg is a meeting place between ontologies of nature and ontologies of the body. This innately humanist approach to technology is exemplified by the explicit mingling of humanity and machine seen in the reproductive symbolism associated with the iron making process where one finds 'representations of the furnace as the womb of a fecund woman who gives birth to an iron child' and 'a panoply of associated symbolism such as ... blow pipes as phalluses, bellows as testicles and slag as birth placenta' (Schmidt, 1996: 11). Technology is thus seen as a child of humanity and this lack of anxiety with regards to technology and its social role, expressed elsewhere by Luddite and Romantic alike, reflects a more wholesome view of technology, a view perhaps due to the lack of a socially destabilising experience similar to that contemporary to the industrial revolution in the wake of the cultural disruption caused by shifts in populations (from rural to urban centres) and social values (from familial to organic); the growth of extreme poverty and widening divisions between the classes (Sutherlin, 2012).

Archaeologists have dated the iron technology of the Nok culture centred around Jos, Bauchi, Daima, Kano and Zaria to about 500 BC (Onipede, 2010). Iron was produced and used around the Kanji dam in what is now the Niger State of Nigeria, around the 2nd century BC and there are older dates, reaching back to the middle of the second millennium BC (de Maret & Thiry, 1996) such as at Obobogo, Cameroon which have been dated to 950 BC ± 100 and 1675 BC ± 165 (Maret, 1982, 1985). Evidence for an organised and thriving technological culture can also be found in colonial sources that report specialized 'iron villages' where inhabitants devoted their time to mining and smelting iron which would then be exported to neighbouring towns and villages, some of whom would have had their own production speciality (Onipede, 2010). One German arriving in Banjeli in 1885, compared the noise and heat from the metropolis of furnaces to the industry in his native town of Ruhr. By 1895 the number of working furnaces was estimated to be in the hundreds (von Doering, 1895), the scale of the industry leading to a high degree of regional specialisation where individual villages specialised in the various stages and different kinds of metallurgical processes (Goucher and Herbert, 1996).

The blacksmiths of South Eastern Nkwerre (a town forty kilometres North-East of Owerre, the capital of Imo State, Nigeria) were famed throughout Igboland for their expertise, and made ironmongery on a large scale for the local populace. Their ability to absorb foreign technologies was particularly demonstrated in their production of *egbe cham* or flint guns

from the middle of the 17ᵗʰ century (Osuala, 2012). By the late 19ᵗʰ century, these had evolved into canons of varying complexity from the *mkponala* (a small indigenous canon) to the *egbe-ndu w*hich was of more technically challenging design. If she did exist, the African cyborg is to be found amongst the ashes of the old blacksmiths' forge, hidden between the stanzas of the ritual songs honouring the ancestral technologists and inventors (Goucher & Herbert 1996: 44) sung to coax the underlying potential of the metal ore to reveal itself as it is smelted and forged. The scale of the various technological cultures combined with a dominant, parent-child idealisation of human relations with technology suggests a pan-ethnic culture at least theoretically able to give rise to, and accommodate the cyborg. In the histories of Mali, for example, we see a figure similar to the archetypal cyborg of science fiction in the great King of Mande oral history, Sunjata, crippled from birth and born of a disabled mother (Rutledge, 2013). Much like the cyborgian superhero of comic book lore, here is a character who 'resists the consequences of boundary transgression' (Heggs, 1999: 185) by overcoming the difficulties of nascent assistive technologies and conflicts with an ableist society to become a great military leader. In one version originating from Gambia, we are told that when he was of age to start walking, the leader of the Griots were told to 'forge iron that he might rise up' (Duran, 1999: 61). The inspiration for these callipers is revealed when the storyteller informs us that such ironwork was available for those who break their legs (Miles, 2001), a small insight revealing so much potential in interactions between the precolonial African disabled person and the contemporary technology.

I have yet to find any similar characters within the range of Nigerian mythologies and histories, but this is not surprising due to the volume of mythologies and the fact that oral histories are easily lost after cultural trauma. There are other problematics to be considered, including those related to class, which affect whose stories are told and handed down. Sunjata as a prince with the privileges of his class and under the social pressure to fulfil his role as a warrior would have had greater access to any technologies that would have enabled him to do so. Furthermore, owing to his position in society, his story is more likely to have been told. The imperatives of a society would also dictate the opportunities for technological innovation. Some societies may not have even had visible, disabled members with congenital impairments if they had had them exposed at birth, for example. Poorer members of settled and urbanised peoples and those members of castes who were dedicated to shrines (e.g. the *osu* caste in Igbo society) might also not have benefitted from any available technology. In such cases, issues very similar to those in contemporary discourse relating to the accessibility of technology arise due to intersections of class and disability in pre-colonial societies.

Instead, one does find the disabled person interacting with ritualistic technologies of magic and prophecy. As Turner examines in his paper on social metaphors, '[t]he dominant concerns and anxieties of society tend to be translated into disturbed images of the body' (Turner, 2003: 1) and this can be seen in some of the origin myths, such as one related from the

Yoruba culture where disabled people are described as being formed by a drunken god, called Obatala (Soyinka, 1995). This problematic mythological representation of disabled people can be seen to represent an abled anxiety of the capriciousness of both natural forces and divine intervention, able to render them in a similar state.

There are, however, vastly differing views of disability. On the one hand there is a widely - but by no means solely - held view of the physically disabled as a sign of divine displeasure, or the work of malicious forces. In cultures where disability is attributed to witchcraft and punishment for breaking of taboo, this negative association can lead to a desire to be disassociated from such obvious signs of judgement (Wa Munyi, 2012), which could negatively impact the development of assistive technologies. This is especially evident in cultures where we find the concept of health and wellbeing intrinsically linked with morality such as the example provided by Iroegbu (2009) where in Igbo, the term *agwu* (which is the personification of healing and medicine), is analysed as derived from the word *agwa*, a term encompassing ideas concerning manner and behaviour (Iroegbu, 2009).

It is important to note that other cultures saw disabled people as being protected by specific deities and spirits (Wa Munyi, 2012). Amongst ethnic groups such as the Dahomey (residing in present day Republic of Benin), disabled children were believed to be specially protected by supernatural forces (Wa Munyi, 2012), and in civic society, the disabled person would have had specific roles to play, including those of seers, priests and constables (Wa Munyi, 2012; Okeke-Oti, 2010). Thus the cyborg's role as intermediary between gods and man was not always as brutal and unwilling sacrifice or a discarded scapegoat. Within Igbo culture, we see what were described as 'dwarves', taking roles as priests, seers and guardians of shrines. Although believed to be formed by an inebriated god, in Yoruba cosmologies disabled people are referred to as 'Eni Orisa' or 'divine beings', becoming the closest allies to the very god who created them (Kehinde, 2008: 9). In folklore, the young are taught not to mock the disabled person such as in the Nigerian folktale of 'The Price of Jealousy' (Insaidoo, 2011: 37).

In spite of this variation, one can see a commonality in the way cyborgs are held as representing more than the sum of their shortcomings. They are portents, signifiers of an existential battle that is played out between man and gods, within the individual human person between the 'natural' animal,(dominated by external forces), and the 'civilised' person, the transgressive co-creator, the latter, (in many ways typified by the blacksmiths who were themselves desexualised, forbidden as they were from sexual intercourse during the smelting process (Goucher & Herbert, 1996)), who impregnate iron ore with fire, charcoal, incantations and potions to birth steel (Goucher & Herbert, 1996: 45). The African cyborg is a battlefield, a child of Heidegger's *technē* and a revelation of the monism that makes up humanity, caught between heaven and earth; a union of the cosmos and machinery.

The Baptised Cyborg

With the arrival of Islam from the north, and Christianity predominantly in the south by the early to mid 1800s, the cyborg begins to represent a different existential crisis in societies now under injunctions of charity towards not only disabled people (e.g. Sura 24:61, Sura 30:39) but also those who under traditional philosophies would have been excluded from the main fabric of society. In some cases, particularly in the post-pagan, Christianised context, the cyborg is no longer a signifier of personal wrongdoing, but simply one example amongst many of the inherent warping of nature associated with Original Sin; in the Islamic context, disability becomes '... one's allotment in this world, just as being wealthy or having a special skill is the result of Allah's will' (Renne, 2013: 70).

In cultures prohibited from practices such as exposure or sacrificing of disabled infants and persons, there is evidence that disabled people formed their own active subcultures. Research done by Elisha Renne (2006; 2013) has shown that *Kungiyar Guragu* guilds amongst the Hausa of Northern Nigeria, had a significant role in providing emotional and financial support for local disabled people. In 'Disability and Well-Being in Northern Nigeria', Renne describes several meetings he attended where issues of employment and training for members and other disabled persons were addressed, including one that took place in 2009 where it was decided who should have access to a new tricycle (a *keke guragu*) specially designed with disabled users in mind. Here we see, what I might describe as the cyborg-collective as an aware and responsive client, perhaps suggesting the role these and similar guilds could have played in developing assistive technologies in pre-colonial Nigeria.

The presence of these self supporting communities that spread across the country in urban centres from Kano and Kajuna to Lagos, shows a reality that resists the easy narrative of the disabled person as victim. Instead it demonstrates autonomy and self-organisation within the disabled community (Renne, 2006). With the advance of technology, the African cyborg is able to extend her reach across countries and continents, eagerly exploiting new resources to ally with other cyborgs, reminiscent of the cyber warriors of All New Gen (VNS Matrix 2007) battling the colonization of cyberspace by the Big Daddy Mainframe 'as a virus attempting to corrupt and pervert the dominant order through acts of subversion' (Brown, 1999: 156). Using the technology produced by exclusionary social orders (colonialist, racist, ableist, cultural and religious), the African cyborg 'disrupts the functioning by establishing a … different relationship to the spaces opened by technology' (Brown, 1999: 156), in this case, by establishing means of education, employment, mobility and emotional support as a source of self improvement and self empowerment.

However, with these very resources came other developments at the expense of indigenous technology. Even before the advent of European colonialism, shifts in identity with the arrival

of Islam in some areas of West Africa led to the gradual stifling of technological innovation. Those peoples who had retained their ancestral faiths did not have access to materials due to disturbed trade routes and being outside the new kinship borders. This is explained in 'Competition and Change in Two Traditional African Iron Industries' (David & Robertson, 1996) dealing with competition between Muslim and Montagnard blacksmiths in the Mandara region of North Cameroon. With the advent of British colonial rule, many of the ruling classes stood to gain more from aligning themselves with colonial interests. In the Northern caliphate, this enabled the class divisions to be further deepened, allowing local rulers to be instrumental in the decline of indigenous industry, encouraging a dependence on imported British goods as opposed to supporting indigenous manufacture (Kohnert, 1986). Although the colonised disabled person could potentially have access to new resources such as Western education (Akhidenor, 2007) courtesy of charitable institutions (although this varied, with a greater number of such institutions in the more heavily proselytized South (Erivwo, 1979)) and basic social services, the very means by which they could access this resource was the same that inhibited their access to, and the development of, local technology.

If we take the case of blacksmiths, we find that some of the guild activity - such as the initiation and graduation of an apprentice - would be ordered around ritualistic, animist, beliefs. Converts to Christianity, for example, would often choose their new faith over any attachment to what could be perceived as paganism (Osuala, 2012). Thus the indigenous schools and technological centres saw a decline in influence as their adherents diminished and a new religious order prevailed.

As well as shifts in religious belief, there were also political and colonial pressures that contributed to the decline in indigenous technology. Whereas in the pre-colonial era, many kingdoms and peoples of West Africa had identifiable industries and technologies ranging from blacksmithing and ivory carving to large scale weaving (including indigenous silks and cottons) and brewery, during the colonial period we find that there was little planning for the technological development of West African states, and in some cases a deliberate stifling of indigenous technology (Ekundare, 1973; Faleye, 2013). Opportunities for industrialising already existing processes in cloth production and metal working were frequently missed due to a lack of capital and interest (McKinney & Eicher, 2009) and otherwise discouraged for fear of competition with British exports (Ekundare, 1973). The colonial welfare plan implemented by the British colonial government from 1946 to 1955 did not address the technology and manufacturing sector of the Nigerian economy, exemplifying the attitude of the imperial authorities to the economic and social progress of their colonies. These remissions would only be identified and tackled through the establishing of the Federal Ministry of Planning (Onipede, 2012) following independence.

What industrialisation was allowed would have been influenced by the Taylorist view of the labouring body (Sey, 1999) which would have served to further alienate disabled people as unfit for an industrial labour force, echoing the trend that followed industrialisation elsewhere including in Europe with Oliver (1993) highlighting the gradual exclusion of the disabled from the capitalist workforce in 19th century Britain (Oliver, 1993). From the indigenous population were brought forth clerks and local administrators to supply the workforce for a new bureaucracy, a process which gave rise to civic roles whose patterns were based on those from the originating colonial society (Ekundare, 1973). To quote Lord Lugard, Governor-General of Nigeria from 1914 to 1919, 'the chief function of government primary and secondary schools among primitive communities [was] to train ... boys from the village schools as teachers for those schools, as clerks for the local native courts, and as interpreters' (Uwaifo & Uddin, 2009: 109). Those with the aptitude in fields such as engineering would have been educated in technical colleges like the Yaba Higher College (est. 1947), but trained for middle-level skills of benefit to colonial interests rather than to create and develop technology within their communities.

The subscription to newly imposed value systems may have diminished the authority of contemporary indigenous values to maintain more positive roles for the cyborg, particularly those found within a non-Christian religious context. This made it easier for the disabled person to be ignored and relegated to the outskirts of society, an object of charitable enterprise (Akhidenor, 2007; Ojile 2000; Senu-Oke, 2011). This state of existence would only be exacerbated through the decades of political unrest and civil war following independence.

The Black Supercrip

In the wake of the chronic underdevelopment that followed the initially much enthused adoption of strategies such as the 'Monrovia Strategy' in July 1979 and the 'Lagos Plan of Action for the Economic Development of Africa 1989-2000' in April 1980, political leaders throughout West Africa undertook new plans of action to tackle the restrictions to indigenous scientific and technological development. These obstacles included a reliance on foreign aid as well as a lack of sufficiently trained workers to occupy key roles in industry. An increasing focus on the longer term view, with additional stress on ongoing assessment to continually validate success, began to replace the short term planning that had previously dominated.

The dependence on foreign technology and funds was addressed by the New Partnership for Africa's Development, or NEPAD, agreement one of whose overall objectives was to bridge the technological divide between Africa and the rest of the world, recognising that information and communication technologies are critical to development. This shift in focus can be seen as a reflection of changes within the wider population where the rise in

communication technology such as mobile phones has offered citizens a way of bridging the divide of geography, culture and language to engage in social development.

For all the gestures made by the Nigerian government, in reality very little has been achieved. Frustration with the lack of progress and endemic corruption has provided an impetus for people to provide their own solutions as evidenced by the number of successful technology based startups growing throughout the country. These include projects like Paradigm Initiative[6] which teaches computer skills to impoverished teenagers; Co-Creation Hub[7], a space for innovators to create, meet and share ideas for the benefit of the general populace and the newly developed Tech Neighbourhood in Lagos, which will provide services such as free broadband internet to the locality (Atagana, 2013). There are numerous examples of indigenous computing technology of similar quality but cheaper than those produced abroad, a potential solution to the low level of PC ownership in Nigeria[8] (about 4.5% own a PC, according to a recent NBS, National Business Information Modelling Survey). Increasing attention is being paid to open software development[9]-[10] which can improve accessibility in a range of areas, from encouraging local political and social involvement to enhancing students' learning experience.

Local technological development can also be seen in the growth of the 'Maker Faire' where local engineers and technologists, both professional and amateur, showcase their independently developed technology. This movement is borne from an industrially impoverished context where the informal 'Maker' economy is a necessity rather than a curiosity. The first Maker Faire Africa took place in Accra, 2009 and since then it has been a beacon for independent creative technologists from across the continent to meet and use the opportunity to exchange new ideas and techniques (Maker Faire Accra 2013).

It is here that one can see the birth of home grown solutions providing accessible transportation and suitable machinery for the disabled craftsperson[11]. Cyber waste facilities like the Agbogbloshie site in Ghana often source cheap electrical goods for the refurbished and second hand market. Supplying basic components for the engineer, it is redolent of the post-industrial cyberpunk lifestyle so vividly depicted in works such as Gibson's 'Neuromancer' and Blomkamp's 'District 9' (Moody, 1997). The poor industrial framework which so crippled development in the early stages of independence now enables local engineers and enthusiasts to hack foreign technology to meet their own needs and markets, unburdened by the outdated relics of an industrial past (Ekundare, 1973; Moody, 1997; Oteng-Ababio, 2012). This is not to imply that there are no potential problems. The asymmetric development of technology and the lack of legal frameworks provides opportunities for exploitation of local people by corporations and research institutions. It will not do to romanticise the impact of the growing informal economy, lest one forgets its origins lie in a historical social injustice and the absence of regulated and sustainable economic

growth. Without these means, it is not hard to envisage a return to the cycle of exploitation, unequal development and increasing poverty. It is also important not to forget the mounting problem of e-waste dumping that inevitably happens in the global South with serious environmental and other consequences.

Nigerians of all abilities have shown an increasing awareness regarding the psychosocial and structural needs of disabled citizens (Akhidenor, 2007), documented in newspapers, blogs[12] and forum discussions (Anuba, 2012; Akinremi, 2012). This is an important transition in a country where many associate disability with punishment for sin, although research by Okunade (1981) and Enwemeka (1982) have shown negative associations with disability are also held amongst population clusters with comparatively higher levels of literacy and Western education, hence demonstrating the wide variation of attitudes within cultural borders as much as between them. Such attitudes, although changing, have been shown in other countries to hinder access to resources such as education, combining with poverty to create a toxic environment for the disabled person (Grech, 2008). They also contribute to the comparative lack of effort put into developing resources that would enable further education and employment (Ademokoya & Stowe, 2007; Akhidenor, 2007; Ademokoya, 2008; Okeke-Oti, 2010).

Demands for the government to work more actively in enabling disabled citizens resulted in the Nigerian National Assembly passing a resolution requesting the establishment of the National Commission for Persons with Special Needs, as well as a 2012 bill criminalising discrimination against disabled people (Okeke-Oti, 2010). Advocacy groups collaborated with the National Council for Exceptional Children to raise awareness concerning architectural barriers at public centres, a plea that was carried across to religious bodies such as the Nsukka Diocesan Conference, encouraging them to take a leading role in making accessible environments for disabled persons.

Correspondingly, the African cyborg has shifted to represent not just abled fears about disfigurement and divine wrath, but a signifier of development and modernity. The disabled body has become the site of conflict between the pride of the independent African and shame at the spectre of under-development. Blog comments and forum conversations (alesh4real, 2006)[13]-[14] about disability issues make frequent comparisons to the state of disabled rights in countries such as the UK and South Africa. Nowhere is this new anxiety more evident than in the wake of Nigeria's success at the recent Paralympics (Onyemelukwe-Onuobi, 2012). For many Nigerians, the success did not just show the impact of educating and empowering the disabled person[15]; the sight of the 'black supercrip' outdoing her abled counterpart seemed to kindle a new way of thinking about disability and a new way of imagining the Nigerian of the future. Whilst the supercrip embodies a stereotype of the disabled person achieving success in spite of their personal disability (Silva & Howe, 2012), in this case the achievement was seen

in a wider context, as happening in spite of a national disability, that of systematic corruption and underdevelopment, rather than an individually localised disability. The idealised body (male, able bodied etc.) has been replaced by the woman in her wheelchair, a combination of the quintessential Harawayan and Cyberpunk cyborgs, able to outdo her abled counterparts in contributing to National progress. In this sense, the African cyborg is a very real and thrilling subversion, embodying a transgression of norms associated with gender, sexuality and ability as well as the stereotypical markers of spiritual and physical success.

Conclusion

In spite of the cultural prejudice and social exclusion, whenever possible, the cyborg has eked out a space using the material and immaterial technologies of iron and ritual. A combination of technical ingenuity and shifting cultural ideals have at times united to create an environment conducive to the survival of the African cyborg as often as they have worked against her favour. Rather than a site of simple antagonism between man and machine, in many West African cultures one finds an innately anthropomorphic view of technology not just as a conduit for cultural transmission and expression but also as an innate part, indeed a child of humanity, prefiguring cyborgian concepts that have dominated mainstream imagination in other cultures. This way of thinking about technology has been carried forward into the modern and postmodern contexts as one sees an emphasis not so much on the consumption of new technology, but on educating the general populace to use and create new technologies that will suit their own needs.

As a focus of metaphysical anxieties, the cyborg has evolved from a signifier of personal wrongdoing and divine displeasure, to something approximating the New African, someone who can defy boundaries to achieve an act worthy of herself and her community. The cyborg is an agent of revolution and social change, not just a passive recipient of imposed technologies. She has been shown to have been active in spreading new technology and the means of technological access, such as education and enlightened discourse, to others of her kind, working to change dominant perceptions of disability within her social context. However, while the cyborg is a source of inspiration for indigenous technologists and a cypher for development, and while this is a more welcome way of looking at the disabled person, one can already see the seeds of a new potentially condemnatory paradigm whereby cyborgian worth is measured with respect to how they have contributed to development and national kudos. Nonetheless, it is clear that the African cyborg, as the living union of person and machine, will continue as she always has done: an autonomous, reactive organism, ready to adapt to and foster new ways of thinking about the world inhabited, shaped and imagined by the human mind.

Notes

1Co-Creation Hub, Lagos, http://cchubnigeria.com
2 Solar Kobo, www.solarkobo.com
3 Maker Faire Africa, http://makerfaireafrica.com
4http://www.forum-urban-futures.net/activities/papers/urbanisation-and-development-technology
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