



**Disaster-Resilience in the Network Age
Access-Denial and the Rise
of Cyber-Humanitarianism**

Mark Duffield

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ABSTRACT

This working paper explores the rise of cyber-humanitarianism, that is, the increasing reliance of remote and smart Net-based technologies in humanitarian management. It does this by charting how the understanding of disaster has shifted from modernist concerns to protect from external disaster events to present-day attempts to modulate internal social and economic processes that strengthen the disaster-resilience of vulnerable populations. The paper argues that resilience, reflecting its conversation with neoliberalism, has a double-truth structure. In response to increased perceptions of risk, far from embracing future uncertainty as aid policy advocates, aid managers are reducing their own exposure by retreating into gated aid-complexes. Where resilience is applied to international aid workers, it focuses on narcissistic and subjective forms of care-of-the self, now an essential characteristic of life in the bunker. In overcoming the growing problem of access denial and remoteness within disaster zones, cyber-humanitarianism is explored in terms of its overcoming terrestrial barriers while simultaneously making possible hyper-bunkered forms of aid management driven by an uncritical technological-determinist vision of modulating the moods, expectations and actions of remote disaster-affected populations. The paper makes special reference to the genealogy of the refugee camp and illustrates the development of machine-thinking with reference to Sudan's Darfur crisis.

I. PROTECT AND SURVIVE

If it were possible to teleport the leading disaster experts and practitioners of the 1970s into the present, today's approach to risk and survivability would probably appear rather fanciful, if not, morally dubious. Exploring the difference in how disasters were understood then and now is important and provides a metaphor for how politics has changed more widely. In order to flag this distinction, the terms *liberal* or *modernist* as opposed to *neo-liberal* or *post-modernist* are used loosely and interchangeably as descriptive labels denoting contrasting commitments to comprehensive planning and social protection, as opposed to market decentralisation, self-management and resilience. In analysing the historic shift toward disaster-resilience, the paper traces the importance of a technological-determinist cyber-humanitarianism to the completion of this neoliberal project.

The dominant approach to emergency in the 1970s was based upon modernist assumptions regarding security, and their corresponding technologies of rescue and protection. Disasters were not, as they are today, seen as a necessary outcome of the anthropocentric blurring of the human activity into the environment as a force of nature (Folke 2006). Rather than being the outcome of radical interconnectivity, natural disasters were understood to be more or less random accidents or unusual occurrences that originated *outside* of normal society (Hewitt 1983). While it was assumed that societies would eventually return to normal after a disaster event, the aim of humanitarian rescue was to temporarily wall-off, or otherwise place some protective barrier or form of quarantine, between the disaster event and normal society. This could have involved the large-scale relocation of vulnerable populations; the construction

of major flood or avalanche defences, or similar engineering programmes; mass civil defence provision; society-wide vaccination campaigns; an international quarantine approach to disease control and, in the Third World, a camp-based refugee regime.

According to Kenneth Hewitt's (1983) celebrated critique of the modernist approach, it had three main components. First, the belief that geo-physical processes and their impacts could be predicted by science; second, that you could plan comprehensively, engineer protection and respond managerially to contain or minimise these impacts; finally, that you could create a centralised rescue capacity based on a hierarchy of relief organizations, including the logistical and managerial capacities of national militaries. While well reflected in the organisation of civil defence against nuclear attack, especially in the Soviet Union, this modernist approach found practical expression in the West, for example, with the emergence of comprehensive *all-hazard* public rescue organizations and capacities in the USA and Europe from the 1970s (Davis 2007).

In the erstwhile Third World, the 1970s also saw the emergence of the contemporary, UN-led international humanitarian system (Kent 1987). At the time, an important technology of humanitarian rescue was the *refugee camp*. In Africa the refugee camp typified the modernist approach to disaster. It operated to physically separate the refugees from society as integral to their protection and rehabilitation. The camp literally walled-off the politics of forced-displacement from normal society. The Organisation of African Union's (OAU) 1969 Refugee Convention, for example, for the first time formally conferred a *humanitarian* status on refugees, with its offer of asylum and support from UNHCR, in exchange for their renouncement of the politics of their

displacement (Karadawi 1999). The camp provided a disciplinary diagram for the rational administration of relief and rehabilitation to these new humanitarian subjects. Contrary to today's concerns with the increasing securitization and militarisation (Kahn 2008), until the 1980s it was still common to see the refugee camp as a developmental institution (Chimni 1999). Reflecting the more open international refugee regime of the time, refugees appeared as a potential labour resource for the receiving country, especially, in the development of state-backed commercial agriculture. As sites of education and other services, many of the global-South's future political leaders would trace their beginnings to the opportunities then afforded the refugee.

2. INTERNALISING DISASTER

The modernist belief that disasters lay outside society was already breaking down in the 1970s. The rejection of traditional Red Cross-style battle-field neutrality by the break-away Médecins sans Frontières (MSF) during the Biafra civil war of the late 1960s (Magone, Weissman, and Neuman 2011) was part of a growing willingness to translate disaster events into their local humanitarian effects. The new ability of the international telecommunications industry to reveal these effects to a public audience was important in cultivating a non-state humanitarian imperative (Whitaker 1983). This inward shift also drew upon the discovery of vulnerability as a measure of risk exposure (Baird et al. 1975). Statistically, the apparent steady rise in the number of people affected by disaster did not necessarily result from an increase in disaster events. Attention was drawn to the relative positions of socio-economic advantage and disadvantage

arising from differences of wealth, gender, age, education, employment and geography that rendered particular groups more or less open to disaster events (Wisner et al. 2004). Moreover, rather than promote development, capitalism was making more people vulnerable rather than less. Instead of being outside normal society, internal socio-economic differences in wealth and advantage not only feed into disaster events but, importantly, provided the vectors through which their effects were unequally felt among the populace (Hewitt 1983).

During the 1970s, vulnerability carried a critical social-democratic, if not Marxist, edge (Spiz 1978). In destroying the viability of subsistence agriculture, which itself fed into rapid and unplanned urbanisation, capitalism was producing an expanding world of vulnerability as a condition of its continued existence (Amin 1974). Such views fed into Third World agitation for global economic reform (Duffield 2001). By the early 1980s, however, vulnerability as capitalist critique was being eclipsed by a rising neoliberal sensibility in development policy. Rather than vulnerability being a consequence of capitalist dispossession, it was increasingly understood in more subjective terms. In particular, the importance of the *choices* made by the poor in shaping eventual outcomes attracted increasing attention (Booth 1993). The question of social capital, and the way in which the poor manage human and natural resources came into view. The meaning of vulnerability shifted from victimhood deserving protection to defining an essentially entrepreneurial-self able, potentially at least, to manage the effects of disaster and learn from them (Anderson and Woodrow 1989).

This emergent neoliberal sensibility was systematised and deepened through cross fertilisation from the environmental movement.

Through its very inventiveness and past success in asserting its control over nature, humanity now finds itself in a desperate struggle with its own anthropocentric feedback loops, radical uncertainties and manufactured risk (Giddens 2009). The marginalisation of protection as a result of the environmental absorption of human sentiment and activity, has been significantly deepened by the effortless colonisation of social, managerial and economic policy by resilience-thinking (Walker and Cooper 2011). Especially, the 1970s ecological understanding of resilience as the adaptive potential of all living-systems, human and non-human, to survive perturbation and external shocks (Holling 1973). While not always called *resilience* in the policy literature – this has been a relatively recent act of consolidation – resilience-thinking has had a major impact on humanitarian policy, turning it away from external protection to a disaster management more concerned with modulating life-processes and promoting internal adaptation (Cannon and Müller-Mahn 2010).

3. EMPTYING THE CAMPS

These developments can be traced, for example, in the way we now understand famine. Until the 1970s, it was common to regard famine as a macro-economic problem, in particular, the result of an absolute shortage of food. The work of Amartya Sen (1981) was instrumental in changing this view. It strengthened the shift in the understanding of vulnerability towards privileging variable micro-economic factors like social capital and natural endowment for defining an individual's ability, despite famine conditions, to access the food that *invariably* is available at a price in the market place. Famine was redef-

ined in relation to ideas of entitlement and empowerment (Edkins 2000). Rather than victimhood, the accent was now on what disaster-affected populations could do for themselves. Research on famine in Sudan's Darfur province in the mid-1980s, for example, discovered that humanitarian assistance supplied only twelve-per cent of the food consumed by the drought-affected rural population (de Waal 1988, 1989). The remainder was provided by individual and household coping strategies. For example, labour migration, loans from relatives, sale of livestock and other assets, and the consumption of wild foods.

The discovery that individual coping strategies are more important for survival than organised famine relief encouraged research on livelihoods, and livelihood systems. Especially, how they adapt and change through the agency of the disaster-affected communities themselves. By the end of the 1980s, disaster management in Sudan, for example, had been reinterpreted as a means of supporting these livelihood strategies. The experience of Oxfam in the arid Red Sea Hills, for example, suggested that food aid, rather than as a means of saving life, was better interpreted as an economic-transfer due to its ability to offset a need for recurrent stress-sales of livestock. Through encouraging herd regeneration, targeted food aid could support life while *simultaneously* contributing to the goal of sustainable development (Walker 1987). Save the Children's experience in Darfur suggested that the viability of rural subsistence had entered a state of permanent emergency. Since food insecurity was now normal rather than exceptional, disaster management should be decentralised, as modernist top-down approaches undermined the effective operation of local-level coping mechanisms. Process-oriented relief management coupled with enabling market reforms was advocated

as the best policy to maximise the adaptive potential of the disaster-affected's own livelihood strategies (Eldridge and Rydjiski 1988).

Understanding the internal connections between society, the environment and disaster underpinned an appreciation that disasters also encouraged social adaptation and new forms of self-organisation. As a modernist technology of rescue and protection, these shifts coincided and merged into a disavowal of the refugee camp. By the end of the 1970s, an institution, the camp entered a period of sustained critique (for literature review see, Harrell-Bond 1998). The top-down distribution of relief created dependency among recipients and stifled innovation. Separated from society, camps prevented refugees from using the skills and experience they did have. They also created a parallel infrastructure of service provision that eroded government capacity. Taken together, such factors worked against market integration as they prevented refugees from exercising choice and being responsible for their own self-management (Ibid). Reflecting the eclipse of a modernist *disciplinary society* in the global-North (Deleuze 1995), and the corresponding dismantling of the nineteenth century system of mental asylums and other places of institutional remove, the discovery that people's life and livelihood choices are more important for survival than organised relief, justified the ideological emptying of the refugee camp of any progressive or developmental content. While the need for camps endures, since the 1980s, as international asylum regimes hardened into a system of exclusion (Crisp 2003; Huysmans 2000), camps for refugees and the internally displaced have progressively become securitized international no-go areas (Loescher and Milner 2004).

By the end of the Cold War, rather than supporting rescue and protection, disaster

management was more concerned with the modulation of social and economic processes in the interests of promoting adaptive coping strategies. The modernist view that disasters were essentially preventable accidents occurring outside normal society had been replaced by the prospect of adapting to the reality of internal permanent emergency (Duffield 1993). In reinforcing this inward anthropocentric turn, in the Horn of Africa at least, complexity theory had begun to make its presence felt (Hutchinson 1991). Rather than dispossession, permanent emergency arises from an unstable social-ecological interface that is being repeatedly compromised by human activity. In taking account of the nonlinear and oscillating nature of adaptive coping strategies, international aid agencies were advised to embrace *chaos* management (Ibid). In shifting from modernism to post-modernism, disaster studies had by now shed the social-democratic or Marxist leanings it may have had. Henceforth, disaster management would develop as part of what Mirowski (2013: 73-75) calls the Neoliberal Thought Collective.

4. THE DOUBLE-TRUTH OF RESILIENCE

While having a different function, *uncertainty* occupies a strategic place for both modernism and neoliberalism (O'Malley 2009). For modernism, it was the uncertainty of when, or to whom, a disaster would befall that gave scientific credibility to treating emergencies as more or less random accidents that were, nonetheless, open to computer-driven cryptanalysis, prediction and informed countermeasures to secure infrastructure and populations (Hewitt 1983). However, uncertainty

was not banished. Driven by the increasingly complex, military-based algorithmic modeling tools developed during the Cold War to simulate the environmental effects of atomic warfare (Edwards 2012), it has continued in the current acceptance that disaster events cannot be known with certainty (WEF 2013). Apart from informing conceptions of national security (HMG 2010), in elevating the unknown over the known, radical uncertainty also reflects the Neoliberal Thought Collective tendency to privilege, if not celebrate, ignorance (Mirowski 2013: 78-83). *Future* uncertainty has been used to problematize the historical inevitability of classic *actuarial* risk. That we will all age and die, for example, has been eclipsed by future uncertainty as a life-affirming challenge. At least, that is, as long as one understands that this celebration and prescription is mainly intended for *public* consumption; neoliberalism also has a more esoteric and private playbook (Ibid: 68-72).

In terms of disaster management, since the 1980s, through a combination of structural adjustment and austerity (Cornia 1987; Pierson 1994), affected populations have been progressively freed-up or exposed to the therapeutic potential of making life-defining choices. They have been *made free* to embrace risk and thereby develop foresight and enterprise (O'Malley 2009). Figuratively speaking, they have been expelled from the modernist camps and reintegrated into the *opportunity* and *fitness* landscapes of the global-South's emerging markets. Within the past decade this pre-existing neoliberal turn in aid policy has been systematised and deepened through morphing into *resilience-thinking*. While neoliberalism and resilience are different, they now interconnect as parts of a shared conversation. Having origins in the life sciences, especially, the 1970s radical ecology, resilience has become a *lingua franca* of preparedness,

adaptability and survivability now operating effortlessly across the natural, social and psychological domains. We can now talk in a mutually intelligible way about the resilience of such diverse things as natural habitats, engineered structures or human institutions and individual capacities. Usually understood as an ability to absorb external shock, resilience also implies a capacity to maintain system functionality during periods of stress and rapid change. Many of its social policy adherents, however, including those within the aid industry, would go further. The aim is not just to bounce back from rapid change and external shock; it's to *bounce back better* (DFID 2011).

Following the end of the Cold War, there has been a noticeable blurring of the former modernist dichotomy between *relief* and *development* within disaster management. Traditional relief-development boundaries separating communities directly experiencing disaster events from those vulnerable to future disaster or recovering from past perturbation have blurred as a single resilient *life-cycle*. Modulating this cyclical form of species existence has led to many claims for the utility of merging modernist distinctions (Mitchell and Harris 2012; IPCC 2012; Bahadur, Ibrahim, and Tanner 2010). Educating vulnerable communities in the art of resilient living, not only enables them to better resist external shock, those same resilience techniques of preparedness and adaptation have been argued to be essentially *developmental* in their effects. Because the vulnerable can learn from disaster, individuals have it within them to bounce back better. In neoliberalism's post-security environments of uncertainty and surprise, disaster has become, quite literally, *the new development*.

While resilience and neoliberalism are different, the cost of collaboration, if you will,

has been for resilience to adopt the *double-truth* structure of neoliberalism (Mirowski 2013: 68-72). In relation to disaster as development, for example, that we can detect something new in the longstanding tension within liberalism between *freedom from* and *freedom to* regimes of security (O'Malley 2009). Resilience embodies a new biopolitics that differs from the actuarial and protective biopolitics, first identified by Foucault (Foucault 1998, 2008), that underpins the great modernist project of Welfare Fordism. In contrast, in order to have a chance of working, resilience requires populations that are free of any interposing institutional, cultural or social forms of refuge or protection. Rather than seeing in vulnerability a critique of capitalist exploitation and dispossession, resilience is parasitic upon their existence. Closed or protected communities have to be opened-up or abandoned to contingency so they are free, after the fashion of rubber balls, to bounce back better; if they can. However, while the therapeutic value of ignorance and future uncertainty defines neoliberalism's public prescription for the hoi polloi, it cannot be taken for granted that vulnerable people would voluntarily throw-off modernist forms of social protection. Beginning with structural adjustment in the global-South, and continuing with the post-2008 austerity counter-strike in the global-North, there is a long history of dismantling, imposition and political diktat behind the Thought Collective's public urge to embrace future uncertainty by becoming resilient to it (Pierson 1994; Cornia, Jolly, and Stewart 1987).

In the name of freedom and economic efficiency, from the Welfare Fordist plateau of the 1970s, our direction of travel has involved a constructivist *re-tasking* of the state as a tool for the endless creation of markets and market-based solutions to future uncertainty that now define and integrate the human and

natural worlds (Giddens 2009; Rockström et al. 2009). Usually flagged as deregulation, privatisation and globalisation, the neoliberal insurgency has successfully critiqued and dismantled earlier modernist technologies of protection and social insurance. However, while drawing legitimacy by presenting future risk as a new ontology of life, there are important differences, unevenness and partiality in how resilience is being prescribed and applied (Rohde 2012, 31 October). The communities and individuals that are being experimentally exposed to uncertainty are not elites, they are the non-elite multitude. The subjects of resilience are the masses who struggle to avoid becoming surplus to requirements (Evans and Reid 2013; Duffield 2007). They are the abandoned *working poor* who, through their own ingenuity and foresight, are expected to exist beyond collective forms of state-based social protection. The double-truth of resilience is that policy elites, reflecting the behaviour of the Neo-liberal Thought Collective generally, are not exposing their own personal lives to the future risk that they prescribe for aid beneficiaries and the working poor (Mitchell and Harris 2012); as far as they can, the elites are using their advantage to minimise, displace or avoid risk (O'Reilly 2011). As the response to the 2008 financial crisis has clearly shown, even the risk-taking casino capitalism we now endure under holy-writ demands the under-writing and last-resort protection of the public purse.

5. EMBRACING RISK VERSUS CARE-OF-THE-SELF

In geospatial terms, elites are withdrawing from the post-security terrains of permanent emergency into the world's proliferating pri-

vate gated-complexes and cultural walled-gardens (Davis 2006). As global urban environments fragment and polarise (Siddaway 2007), elites are retreating from increasingly degraded and insecure public spaces to the safety of exclusive private spaces and times (Davis and Monk 2007). Occupying a strategic position on the frontier between the global-North and -South, a space where having an *international* status is an elite moniker, disaster as development is a good example of the double-truth of resilience. Since the 1990s, in response to the widely held belief that aid work is becoming more dangerous (Collinson and Elhawary 2012), international aid workers have retreated into the aid world's proliferating Green Zones, the iconic image of which is the fortified aid compound (Duffield 2010). This withdrawal has created a *paradox of presence* (Collinson et al. 2013). While aid agencies have declared themselves willing to stay and continue expanding within challenging environments, international aid workers themselves are becoming physically *remote* and insulated from the societies in which they work. While aid agencies proclaim their presence, within disaster zones that presence is increasingly *virtual*.

By withdrawing to secure gated-complexes in response to uncertainty, aid managers and donor representatives are avoiding the risks which, it is argued, aid beneficiaries must embrace if they are to bounce back better. However, while minimizing their own risk exposure, internationals do not deny their need for resilience. Compared to community-level disaster resilience, resilience for aid managers has a more subjective and psycho-social meaning that focuses on *care-of-the-self* techniques and sensibilities (Comoretto, Crichton, and Alberly 2011). Reflecting the double-truth of resilience, while aid beneficiaries are expected to embrace future risk, international manag-

ers are encouraged to prioritise care-of-the-self (IRIN 2010). Although these two orientations are different, they interconnect and complement each other. For internationals working in uncertain post-security aid environments, the need for constant vigilance and risk management, a form of paranoia directly reinforced by field-security training (Duffield 2010), produces daily stress and anxiety (Watkins 2012, 10 May; Worth 2012). The justification for care-of-the-self resilience is that you cannot maintain vigilance and preparedness, and work effectively, without learning from, adapting to and managing the immanent trauma of the real (IRIN 2010). Importantly, this narcissistic understanding of resilience does not contradict the growing bunkerisation of the international aid industry. Subjective care-of-the-self is a defining feature of the inner psycho-social furniture of the bunker.

Care-of-the-self training, which has spread from the military and emergency responders in the global-North to international aid workers, has been likened to putting on *mental armour* (Archilles Initiative 2013). It reflects a move away from trying to cure PTSD, to sidestepping and preventing it happening in the first place (Howell 2012; O'Malley 2010). Care-of-the-self training tends to be formulaic and generic. It stresses healthy living and being an active part of a supportive social network in which learning to recognise burn-out in oneself and others is important. Positive thinking and avoiding negative thought patterns are key attributes. Given that contemporary approaches to disaster trauma liken it to a contagious disease that humanitarian responders can catch (Summerfield 2001), developing emotional distance is essential for subjective resilience. From this narcissistic perspective, the exclusivity of the bunker provides a safe refuge to regain emotional distance. The fortified aid compound is more than a defensive

structure ringed with security protocols; it's a necessary therapeutic architecture separating international aid managers from the real and imagined horrors beyond its walls.

6. ACCESSING COMMERCIAL GEOSPATIAL TECHNOLOGY

Attempts to address the problems associated with the growing in-country segregation of international aid managers from the societies in which they work, have largely been addressed through an expansion of *remote management* (Norman 2012; Hüls 2011). This subsumes various attempts by terrestrial managers to work at arm's length through local aid workers, local NGOs, private contractors and armed groups. The utility of such auxiliaries and partners is that they lie outside the restrictive security protocols governing the movement of international aid workers. It should be noted that an estimated ninety per cent of all aid workers are recruited locally (Egeland, Harmer, and Stoddard 2011). Accounting for the majority of security expenditure, in-country internationals are by comparison an expensive high-maintenance minority. Remote management involves risk-transfer to a widening range of local intermediaries. However, increasing the number of subcontractors has meant that funding, accounting and responsibility is now divided between many often competing bodies. While allowing managers to work safely, remote management has compounded the problem of physical segregation by decreasing transparency, as the organizational layers separating HQ policy *intent* from on-the-ground *completion* have multiplied (da Costa and Karlsrud 2012; Lemay-Herbet 2011). Access denial coupled with remote management has produced a crisis of *ground-truth* within disaster zones.

Since the mid 1990s, there has been growing humanitarian interest in geospatial and remote technologies that, in various ways, help overcome problems associated with physical distance, access denial and the demands for immediacy. Geospatial technology is a broad term. It involves the computer-based acquisition, mapping, modelling, analysis and visual presentation of spatially referenced data derived from *global positioning system* or GPS applications (Verjee 2005). Traditionally dominated by satellite remote sensing, since the mid 2000s the geospatial has expanded to include the Web 2.0 revolution, underpinned by the rapid spread of cheap geo-located mobile phones and tablet devices, and the advent of Big Data as the Network has risen to dominance as a source of information, commercial exchange, service provision, user self-broadcasting and, not least, social networking (Bollier 2010). The intelligence mined from the electronic trace left by the exchange of digital information, apart from overarching military and security applications, is now widely used to inform and enact commercial and government decision-making, from the environment and urban management, through to accessing benefits, shaping consumer choice and market prediction (Mayer-Schonberger and Cukier 2013). Mobile and internet-based technology is also expanding fast in the global-South, where it is leapfrogging over wrecked, decayed or non-existent terrestrial telecommunication systems (de Bruijin, Nyamnjoh, and Brinkman 2009). In the process, it is laying the geospatial infrastructure and regional market support that underpin cyber-humanitarianism's conditions of possibility (UNOCHA 2013: 12-13).

Relative to other sectors, humanitarian organizations are coming late to the potential of these technologies. Initially pioneered by military funding and war-making demands,

since the end of the Cold War geospatial technologies have spread rapidly throughout the commercial and business worlds. Today the leading-edge of these technologies is composed of private companies and corporations. Even twenty years ago, however, they were still largely military and restricted (Verjee 2005). Moreover, in order to access these commercial geospatial products, as will be illustrated in relation to Darfur, from the start, humanitarian agencies have been dependent upon forging new public-private partnerships with this emergent commercially-driven sector (Bally et al. 2005).

During the Cold War the development of computer-based satellite remote sensing, GIS mapping, visualisation and simulation technologies were military-led. However, in the US at least, this drive always had a strong state-corporate character (Hanchard 2012). Think-tanks like RAND and the major aerospace companies formed strategic partnerships with the military in developing geospatial technology (Jardini 1998). Reflecting current technological boosterism, there were concerted attempts to re-harness military and space-race systems-analysis, that is, computer-based management and logistical applications, to solve social problems within the United States. Notably, the urban *war on poverty* during the 1960s and early 70s (Ibid., Light 2003). Apart from economising welfare bureaucracy, while rendering mechanical informational and computational skills redundant, a civilian systems-analysis did little to actually solve urban poverty (Ibid.). Such programmes, however, helped forge the celebrated *military-industrial complex*. In the geospatial sector, while commercial companies grew and multiplied, the military remained the drivers of the technology and expertise. Although low-resolution commercial satellite remote sensing systems were launched, a

Superpower high-resolution monopoly lasted until the end of the Cold War (Verjee 2005).

In the mid-1990s, as part of the wider deregulation, privatisation and globalisation of critical infrastructure systems (Collier and Lakoff 2006), the Clinton administration introduced several crucial geospatial reforms that allowed the rapid privatisation and commercialisation of military technologies and data-sets (Verjee 2005). In 1993, the military global GPS system was progressively opened to civilian use. Today even cheap mobile GPS technology can locate any place on earth to within an accuracy of several metres. The following year, Clinton declassified military imaging sensors and authorised private US firms to launch and operate commercial high-resolution satellites. While the Defence Department retains *shutter control* in exceptional circumstances, many private companies now operate high-resolution satellite systems giving less than a metre ground resolution, or the area covered by one pixel (Hayes 2012).

Although the military retains a technological edge, commercialisation has changed the nature of the public-private partnerships in the geospatial sector. Expanding alongside a growing *societal security* market (Goss 1995; Shane 2012, 13 August; Ellsberg 2013), these quintessentially *dual-use* technologies have blurred military and civilian interests in new ways (Harris 2006). In particular, private-sector start-ups, companies and corporations now own and drive this machine-driven *military-industrial-environment complex* (Duffield and Evans 2011). The military now regularly enters commercial contracts to purchase geospatial products from independent suppliers. In 2001, for example, the US military agreed exclusive user contracts with a number of commercial remote sensing agencies in order to access their high-resolution Afghanistan over-flight images (Ackerman 2001). This

material was used for deployment rehearsals, battle damage assessment, and humanitarian airdrops. The military also exploits open-source mapping software, like Google Earth (MapAction 2008, April). While technically limited, it's useful because it is declassified, as a huge user-base, and is easy to learn compared to earlier, but more sophisticated, human skill-based GIS software programmes. Together with other open-source platforms, Google Earth allows the military to share terrain visualisations, interactive maps and meta-data analysis with, for example, humanitarian agencies and affected populations in disaster situations (Harvard Humanitarian Initiative 2011).

7. REMOTE SENSING IN COMPLEX EMERGENCIES

During the 1990s, humanitarian organizations struggled with the cost of remote imaging and accessing the expertise to interpret it. However, by the end of the decade, the UN and ICRC had begun to access geospatial products through public-private partnerships like UNOSAT and RESPOND, or state-supported research networks like the EU's Joint Research Centre (JRC) (Hanchard 2012). Such first-wave consortia typically brought together, in varying combinations and different terms of agreement, national space agencies, university research facilities, private geospatial companies with senior UN or other humanitarian representatives (Verjee 2007). These geospatial partnerships aspired to leverage private sector technology, expertise and *data philanthropy* to meet urgent humanitarian needs. This was the organizational background to UNHCR's first use, in the late 1990s, of geospatial technology to remote-

ly sense refugee populations in the Balkans, Kenya, and Nepal. Supported by a consortium of European companies (ENVIREF), this was the first application of geospatial technology to chronic conflict-related emergencies, or what the UN calls *complex emergencies* (Verjee 2005). It demonstrated the feasibility of extracting humanitarian intelligence from commercial high-resolution images of refugee camps and their surrounding environs.

Remote sensing technologies transform refugees into problems of cryptanalysis. That is, as a problem of interpreting the digital human terrain as revealed by commercial high-resolution satellite imagery (Bjorgo 2002). Separated by a techno-discursive distance between the observer and the observed, remote sensing reveals both objects on the ground and, through the digital trace of their existence and activities, a photographable and therefore objective *surveillant subject* (Harris 2006). From a disaster management perspective, the refugee is a problem of environmental interpretation. According to UNHCR, Google Earth not only has the ability to show the vital work it is doing in difficult-to-access locations, by showing this work in its geographical context, "...we can really highlight the challenges we face on the ground and how we tackle them" (Batty 2008, 8 April). Remote imagery and computer geolocational mapping reveals the eco-system in which camps are situated. Pushing the politics of forced migration into the background, refugee surveillant subjects are relational products of water availability, soil conditions, forest services, lines of communication, logistical capacity, armed threats and terrestrial aid infrastructure and access. Locked-into their environment, however, as *dispossessed* surveillant subjects, refugees figure in this emergent threat-landscape as emblematic of a species-life that possesses enviable

fast-adaptive powers to turn an austere environment to their advantage.

At the onset of the Darfur emergency in 2004, UNHCR asked UNOSAT to explore groundwater reserves in Chad sufficient to support Darfur refugees (Bally et al. 2005). Within months, the consortia had procured accurate water supply target maps, which UNHCR used to optimize the location of some of its Chad camps. As the emergency deepened, by December 2005 there were 1.5 million Internally Disposed Persons (IDPs) within Darfur. UNHCR asked the RESPOND consortia to supply thematic mapping and route planning data. Over the next couple of years, besides humanitarian activity maps for UNOCHA, RESPOND supplied a range of cartographic products to donors, UN agencies and NGOs (Donnelly 2012, 30 July). These included area resource maps, camp infrastructure, water availability, transportation, etc. Using ten different sensors from nine spacecraft, RESPOND supplied geospatial data under a number of public-private agreements (Hanchard 2012).

Since the mid-1990s, refugee camps have been increasingly militarized and securitized, and local restrictions on international access have grown. In Darfur, for example, many camps are controlled or contested by opposition groups (Kahn 2008). Refugee/IDP remote sensing has grown in scope and accuracy in concert with the deepening crisis of access. The scientific literature on the geospatial dimensions of the Darfur emergency frequently cites the danger on the ground for international aid workers (Sulik and Edwards 2010). From the start of the emergency, the EU's JRC worked on the problem of remotely measuring Darfur's volatile IDP populations. By the end of the 2000s, scientists had developed algorithms to do this automatically and to acceptable accuracy, without the need

for ground truth (Lang et al. 2010; Kranz et al. 2010; Kemper et al. 2011). Toward the end of the 2000s, helped by data philanthropy, organizations like Amnesty International began to use geospatial technology, including renting their own satellite time, to remotely look for evidence of human rights abuse in places like Darfur, where it was judged unsafe to put monitors on the ground (Prins 2008; Sulik and Edwards 2010).

The growing ability to sense, map and ecologically interpret from space has developed dynamically with the crisis of humanitarian access. As the former has grown in accuracy, timeliness and availability, it has also tended to normalise the resulting crisis of *ground-truth*. Access denial is a temporary limit-point as science mobilises to surmount it. The blow-back, however, is that when geospatial technologies are successful in overcoming remoteness, they simultaneously reinforce the techno-discursive distance between the observer and the observed. Writing over half a century ago, the rise of cyber-humanitarianism has proven to be a good example of what Hanna Arendt called *world alienation* (Arendt 1998). In order to get a better view, the scientific urge is to disentangle itself from all that is subjective in exchange for the objectivity of the image, the dataset, the model and simulation. The price of shrinking the globe to the scale of human senses results in simultaneous distancing or remoteness from the world.

8. WEB 2.0 AND CYBER-HUMANITARIANISM

By the mid 2000s, geospatial take-up among humanitarian organizations was still relatively limited, and as in the case of Darfur, was mainly concerned with cartographic prod-

ucts. Aid agencies had not embraced remote technology, data-analytics and simulation to the same extent as the world of corporate security and consumerism. However, the growing list of feasibility studies, including Darfur's multiple experiments, encouraged scientists to predict a humanitarian future in which geospatial technologies would provide effective tools for optimizing campsite selection, providing environmental surveys, tracking fluctuating IDP movements and, not least, informing and improving humanitarian logistics (Verjee 2007). However, this modernist managerial view was short-lived. It saw remote technologies as positively augmenting the UN's traditional command-and-control systems. In less than a decade, however, new Network developments had created the conditions of possibility to move beyond these systems, rendering most of them redundant (Zlatanova et al. 2010; UNOCHA 2013).

Google Earth (GE) was launched in 2005. Besides its immersive character, GE is an open-mapping platform able to deliver, for free, resolutions as high as 10 cm in some locations (Hanchard 2012). While limited as a mapping tool, GE technology is adequate for most humanitarian visualisation needs. Besides usability, however, an open platform also makes cheap digital dissemination of agency news and views possible. New interactive geolocated platforms like *Ushadi* and *StreetMap* have emerged that use the Net to provide machine-driven ways of interactively reconnecting aid programmes and public opinion in the global-North (Satellite Sentinel Project 2012, 24 July; UNOCHA 2013). In 2008, UNHCR entered a partnership with GE with the creation of Google Earth Outreach (*MapAction* 2008, April; Dobbs 2008, 8 April). The sensing and mapping of refugee/IDP populations in difficult to access environments was an important aim. GE's out-

reach programme gives humanitarian agencies the skills and resources to overlay text, audio and video information onto GE maps, thus enabling them to bring boiler-plate versions of their humanitarian work to globally-networked audiences (Batty 2008, 8 April).

The addition of a number of UNHCR layers to the GE package has made it possible for the observer to *zoom-in* or *fly-through* no-go environments like Chad-Darfur border, Colombia or Iraq. Simply by sitting in front of your computer, with a few clicks, it is now possible to "...see, hear and develop an emotional understanding of what it is like to be a refugee" (UNHCR 2008). To date, Darfur is GE's biggest visualisation project. Based around photographs, video clips, models and testimonies, the template has a number of levels of detail.¹ Besides camp fly-throughs, opening layers provide an overview of UNHCR's regional terrestrial activities. Moving closer to the ground, links to refugee health, education, or water access can be interactively explored. The final layers allow local-level depictions of camp infrastructure, its surrounding environment and, importantly, access to individual IDP narratives (USHMM 2009).

In terms of the movement from modernist conceptions of disaster being outside of society to its postmodernist internalisation, cyber-humanitarianism deepens this trend through narcissistic technologies of proximity and simulation that, on the basis of synthetic experience, invite the observer to empathise by 'experiencing' the refugee condition. While Google Layers aim to encourage emotional understanding, refugee-based video games, produced in collaboration with humanitarian agencies, go further by allow-

¹ See, United State Holocaust Memorial Museum (USHMM) project *Crisis in Darfur* at <http://www.google.com/earth/outreach/stories/darfur.html> (accessed 5 May 2013)

ing the observer to turn player and 'become' a refugee. As the player navigates the difficulties of fleeing a country, moving through dangerous border regions and starting a new life in austere and unfriendly exile, the game *Against all Odds*, produced by UNHCR in collaboration with Microsoft and several media companies, is described as letting you "...experience what it's like to be a refugee" (UNHCR 2005). The UN Regional Information Centre for Western Europe (UNRIC) together with the mtvU student media group at the University of Southern California, has produced *Darfur is Dying*. This simulation allows players to negotiate the "...forces that threaten the survival of his or her refugee camp. It offers a faint glimpse of what it's like for the more than 2.5 million who have been internally displaced by the crisis in Sudan" (HRE 2009). The common denominator linking such simulations is that the refugee environment is harsh, unrelenting and uncertain. Remote sensing transforms refugees into products of their environment, interactive layers allow observers to glimpse the life of the refugee, while simulation completes the narcissistic journey as observers turn players and, for a while, become imagined refugees.

Boosted by geo-located open-mapping platforms and simulations, the radical potential of Web 2.0 mobile broadcasting applications has quickly unfolded (Eagle and Pentland 2006). Reflecting the rise to dominance of a neoliberal re-tasking of state and economy, the ability to commercially mine social media for surveillant-intelligence, together with the Web 2.0 booster embrace of disaster-resilience as its humanitarian vision (Meier 2013, 9 April; Global Pulse 2009), gives cyber-humanitarianism a neoliberal feel. Not least, saving of life becomes conditional upon a free-market in information, a market that the US corporate sector now

dominates. Cyber-humanitarianism completes the abandonment of modernist technologies of protection and rescue in favour of a hyper-bunkered system of disaster management dedicated to modulating the moods and behaviour of non-elites as they adapt to permanent emergency.

Since 2009, the UN's Global Pulse project has been experimenting with applying Big Data for addressing poverty, hunger and disease. GP is using Big Data to search for anomalies in the human eco-system, especially how people in the global-South are responding to financial and climatic volatility (Ibid). Using advanced algorithms and visualisation techniques, it aims to produce new tools for *sense making*. For example, if a family falls into poverty, its members can be expected to alter their digital behaviour. One can expect a decrease in mobile top-ups, depletion of mobile banking accounts, attempts to sell goods online, and a growth in tweets concerning high prices or shortages. By coupling satellite imagery, and commercial visualisations of anomalies in traffic flow, mobile banking or electricity usage, with UN remote datasets on food aid or school attendance, operating near-real time, *Global Pulse* promises immediacy and nuance in terms of policy response. However, from the first tentative steps to visualise refugee camps in the late 1990s, to the ability today to integrate satellite imagery and the mapping of terrain with other localised GIS socio-economic datasets has spread beyond the UN to a raft of NGO, advocacy groups and think-tanks with their increasing embrace of remote methodologies to counter the problem of access denial. Such agencies, for example, are now able to analyse the developmental effects of the local-sending of pirate ransoms in Punt Land (Shortland 2012). Or, provide a visual insight into the ecological effects of ethnic-infighting for

control of Northern Darfur's gold mining areas (Ismail and Kumar 2013). Importantly, remote evaluative methodologies mean that principal investigators or consultants no longer need to be in-country, let alone in the area concerned.

Achieving an all-encompassing *humanitarian awareness* is similar to the modalities of military *battle-space awareness*. Whereas the military is ahead in the *interoperability* of its machine-intelligence, surveillance and reconnaissance platforms with human-assisted analysis, targeting and response systems (Harris 2006; Brunner and Caveltly 2009), humanitarian organizations are playing catch-up as they become adopters of these emergent technologies. Since Katrina in 2005, each major disaster, like the Haiti earthquake, Pakistan floods, New Zealand earthquake, the Japanese Tsunami and Hurricane Sandy, appear as cyber-humanitarian laboratories, each producing new and better ways for extracting, analysing and applying humanitarian intelligence derived from remote technologies (UNOCHA 2013: 30). In terms of political economy, this technological embrace is inseparable from the deepening and expanding humanitarian public-private partnerships, the first wave of which emerged in the 1990s (see above). This time, however, they operate beyond UN linkages with national space agencies, university research departments and commercial geospatial companies. The second wave embraces the *new actors* in the cyber-landscape. Apart from the disaster-victims destined to become adaptive self-organising communities, this includes the start-up companies, corporate satellites and, importantly, the *self-organising voluntary networks* that reflect what Richard Barbrook and Andy Cameron have called the *California Ideology* (Barbrook and Cameron 1995). That is, the peculiar blurring of hippy libertarianism with the raw frontier neoliberalism of Silicon Valley.

We've suddenly moved from the scarcity of satellite intelligence, to an abundance of information. Indeed, a data deluge. What we could call the *human trace* is the exponentially growing machine memory that is stored and warehoused by commercial companies and governments, and gleaned from people as they digitalise their lives. A measure of this exponential growth is that the store of available data gets younger and younger (Bollier 2010). The stock less than a day old, or a week old, increases by the minute; Big Data calls this trace *digital exhaust*. Depending on what is being looked for, the goal is to turn this growing mountain of digital waste into something valuable by algorithmically sorting the useful from the useless. The result is value-added information or *intelligence*. It is the promise of near-real time intelligence on the moods, sentiments and behaviour of a given population that underlies the radical claims for Big Data. Whereas satellite remote sensing provides visualisation and GIS mapping capabilities for disaster management, Big Data promises an abundance of what had been difficult in the past; the interpretation of the human terrain. In this respect, GIS systems add unprecedented geographical precision to data. While remote sensing has been a growing part of disaster management since the 1990s, today, however,

... technology once limited to experts and institutions is available to anyone. This has allowed groups of self-organizing volunteers to place SMS messages and social media postings on dynamic maps, highlighting clusters of cries for help in an earthquake, or identifying where roads have been washed away after a flood (UNOCHA 2013: 28).

The low-cost informational technologies that currently reflect the *zeitgeist* of the Network

Age include *crowd-sourcing*, *crowd-seeding* and *mobile-cash*. Crowd-sourcing involves problem-solving by asking a distributed group of people, often volunteers, to complete a certain task. While reviewing goods and services is common in the global-North, for cyber-humanitarianism crowd-sourcing usually involves seeking and validating information directly from disaster-affected populations. At the same time, the derived technical information tasks, such as mapping, translating and integrating useful data, can be outsourced to other crowds, including technical volunteer networks able to live anywhere there is a connection. In 2010, for example, the Standby Task Force (SBTF), comprised seven-hundred technical volunteers in seventy countries divided into ten teams providing support for humanitarian responders. Since then, SBTF has been mobilised in more than twenty-two crises, has worked with UNOCHA, USAID, Amnesty International and Oxfam, and provided support for Syrian diaspora and Sudanese civil society groups.² SBTF has also been incorporated into the Digital Humanitarian Network as a network of networks designed to interface between formal humanitarian agencies and “...informal yet skilled-and-agile volunteer and technical networks” (Ibid: 30).

As a cybernetic learning-machine, cyber-humanitarianism promises to reconnect and reorganise disaster-affected populations, responders, voluntary-networks and public constituencies in new ways. While this is the essence of Web 2.0 radicalism, in many respects, the essential technologies and desired institutions that constitute the cyber-humanitarianism vision are not particularly *new*. Being able to call forth self-reliant and self-

organising subject-communities, for example, has been the dream of liberal development since the industrial revolution (Cowen and Shenton 1996; Duffield 2007). At the same time, many of the political and economic problems of the 1960s, like climate change, health pandemics, terrorism, debt relief and global poverty are still around today. At the same time, like these problems, our conception of an imminent computerised future has also remained relatively fixed.

As in the mid-1960s, the invention of artificial intelligence and the advent of information society was still only a couple of decades away. The present is continually changing, but the imaginary future is always the same (Barbrook 2007: 9).

While periodically rejuvenated, the realisation of McLuhan’s vision of the *global-village* has been immanent for the last fifty years.

The singularity of cyber-humanitarianism, however, is that it blends the longstanding liberal will to govern through self-reliant subjects with the immanent realisation of the digital global-village. While cyber-humanitarian boosters will admit that promoting self-reliance has been difficult in the past, a new and optimistic technological-determinism now claims that the Network creates the conditions of possibility for innovative ways of governing through self-organising communities as they adapt to, and emerge from, permanent emergency. Despite the longevity of self-reliance as a liberal aim, a deepening jobs crisis, economic polarization and the collapse of generational social mobility are once again blighting Europe (IFRC 2013). Within the expanding space of the global-South, for most non-elites, as mounting political frustration shows, the reality of information-aided self-reliance falls significantly below their material and political

² See, Standby Task Force (SBTF) website, <http://blog.standbytaskforce.com> (accessed 3 May 2013).

expectations (Bradbury and Kleinman 2010). At the same time, uncritical media boosterism of (the not so) new technology renews the faith that the completion of the last global circuit to allow the *global village* to blink into life is now imminent. Unlike the techno-scientific imaginaries of Welfare Fordism, however, where workers were encouraged to see themselves and their families as future space tourists or the soon to be owners of personal robots (Barbrook 2013), today's advances in computing, artificial intelligence and genetic decoding look more like technologies that, if anything, will shape new forms of elite consumption. For non-elites, rather than being waited upon by personal robots, advance in artificial intelligence has translated into the disappearance of skilled and professional work (Lanier 2013) as the distributional bell-curves of the past become the power-curves of a neoliberal Network society (Bollier 2013).

9. DISASTER-RESILIENCE IN THE NETWORK AGE

As a condition of continued capitalist growth and profitability under neoliberal conditions, states and corporations are abandoning any direct sense of social or collective responsibility; they are vacating the social landscape (Scarpatti 2013, 17 May; Channel 4 2013, 9 September). When viewed as a business-plan, cyber-humanitarianism is selling a technological fix against an imaginary future of permanent emergency. Governing this austere, post-security dystopia remotely has evolved into a core public-private concern. To compensate for the absence of state and corporate responsibility, as a business-plan, resilience requires ever-greater powers of self-management and self-reproduction, in-

cluding responsibilities for the self-repair and maintenance of critical infrastructure (UNOCHA 2013, 10-12; Linskey 2013, 22 August), from surveillant subjects now 'free' of the expectation of public protection and hence state dependency. Already trialled in the global-South as structural adjustment, for non-elites in the global-North, it's the beginning of what, for many, is their bewildering journey to the South.

The UN's Office for Coordination of Humanitarian Affairs recently launched a new discussion document (UNOCHA 2013) entitled *Humanitarianism in the Network Age*. This is the latest in a growing number of policy documents advocating the humanitarian-utility of remote sensing and Big Data analytics (Donnelly 2012, 30 July; Hanchard 2012; Bollier 2010). The *Network Age* was well received among the techno-savvy in the aid industry and the geospatial blogosphere leaders (Meier 2013, 9 April). Reflecting the technological determinism underlying this literature, the tone of *Network Age* is one that critics have dubbed *cyber-optimism* (Morozov 2011). While advocates admit that there are important privacy and ethical issues to be overcome, together with serious questions relating to corporate ownership and the dangers of humanitarian organizations working with for-profit organizations, it is argued that "...the existence of a common goal (saving lives) and a shared basic drive (the desire to help) suggests a potential for deeper partnerships" (UNOCHA 2013: 18). Interestingly, this appeal to an overriding common goal is a remix of the argument used at the end of the 1990s, to support the merger of aid and politics in the organizational form of the UN integrated mission (Macrae and Leader 2000). However, subsequent experience has shown that, despite common goal claims, this merger remains problematic and the goal of coherence unfulfilled (Duffield,

Gossman, and Leader 2002; Eide et al. 2005). For humanitarian agencies and the corporate sector, rather than lowest common-denominator claims about a wish to save lives, one platform that does unequivocally bring them together is their mutual pursuit of resilience among surveillant populations.³

In the illustrative disaster examples drawn from the global-North and South that are glossed in OCHA's *Network Age* report, the state is noticeable by its absence. People no longer dial the emergency services, they broadcast their plight on Twitter or Facebook. Reflecting the post-Katrina acceptance that emergency responders will not always be on every street corner, neither do self-broadcasters necessarily receive in return, if you will, a bed for the night (Reiff 2002). That is, material assistance. Almost "...like a biological or ecological system", what they receive is value-added information, as to how they can best help themselves, or where they can find others among them who are willing and able to help (Meier 2010, 12 August). Following commercial and urban management applications in the global-North, not only are disaster victims expected to be members of self-organising and self-repairing communities, things like needs assessment are no longer seen as an external professional responsibility. People now have the technological means to make their own decisions known.

Whereas aid agencies once made assumptions about people's needs in a crisis, people now have the tools to say what they need and want. *By using technology to engage with their own networks, communities and individuals are determining how to help themselves and how they want to be helped*

³ For the synergy between resilience and neoliberal economics see (Walker and Cooper 2011).

by others, mobilizing local, national and sometimes global support to meet their needs (UNOCHA 2013: 13, emphasis added).

Orchestrating competitions between disaster-affected populations to make their case for humanitarian assistance – perhaps on dedicated reality-TV channels – would appear to be our direction of travel. Subject to peer verification and the decision of credibility-testing algorithms (Li, Zhao, and Li 2011), self-assessment has radical implications for existing humanitarian terrestrial infrastructure and its associated professional skills relating to health, shelter or nutritional and educational needs. However, while professional terrestrial skills are becoming surplus to requirements, apart from data-skills to deal with the volume and complexity of information flows, new actors and skills are emerging relating to "...using that information" (UNOCHA 2013: 21). Customer-care, media development, ethical and privacy expertise are growing in importance as part of the wider marketing of humanitarian intelligence. As disaster-affected communities mobilize around the competitive broadcasting of their own needs, managing expectations will become vital since people "...expect their communications to generate action" (Ibid: 38). Rising expectations put pressure on humanitarian responders,

... to define what they can and cannot provide. The extent of communities' desires may exceed their immediate life-saving needs, raising expectations beyond those that humanitarian responders can meet. This can have dangerous consequences. Expectation management has always been important, it will become more so in the network age (Ibid: 39).

Ousting top-down forms of modernist intervention and protection, international development took a non-material turn during the 1980s. It reflected the victory of Schumacher's vision of small-scale NGO-led education projects, micro-finance and local incentives to promote social reorganisation around sustainable self-management (Schumacher 1974). Today, non-materiality takes its ultimate form, not as Schumacher's gift of knowledge, however, with its commitment to face-to-face pedagogy and intermediate technology, but as a gift of value-added information, with the expectation that it will help surveillant-subjects adapt to a life of uncertainty. That it involves a move from face-to-face to *face-to-screen* relations, with important changes to ethical subjectivity, is neglected. Indeed, the cyber-literature tends to assume not only an equality between real and digital encounters but, if anything, the latter are hyper-real allowing for immediacy while shrinking distance and overcoming access problems. However, participative terrestrial aid partnerships with local communities have long been critiqued as masking unequal power relations (Cooke and Kothari 2001). When aid managers are remote and hyper-bunkered, it is difficult to see how these problems will be ameliorated. In an age of austerity when humanitarian relief assumes the non-materiality of information, one can well imagine that managing expectations downwards will become an important function of cyber-humanitarianism.

10. CONCLUDING ARGUMENT

Rather than facing the challenges of terrestrial humanitarian aid, disaster management now envisions a future of disaster-resilience

for distant and hard to access populations orchestrated by hyper-bunkered aid managers. By modulating moods, expectations and actions through smart feedback, the drive is to digitally reconnect aid managers with the adaptive and self-organising communities preferred by neoliberalism. Moreover, the 'reality' of digital recoupment creates conditions of possibility that its advocates argue goes beyond the limits of actual face-to-face encounters. The passing of a world shaped by the noise of history, language and politics, is more than compensated by the emergence of a new and radical paradigm: the hyper-reality that is possible when humans, as electronic surveillant subjects, are objectively reconstituted through machine-based information decoding. Moreover, in placing the prime responsibility for management, repair and recovery on disaster-affected populations themselves, cyber-humanitarianism side-steps the moral and political tenants of liberal humanism: neutrality, autonomy, impartiality, protection and witness (Hopgood 2013). Since communities are now expected to help themselves, from needs assessment to infrastructural repair, in place of these contested face-to-face principles, cyber-humanitarianism substitutes a concern for privacy and ethics. The central issue being how far hyper-bunkered managers can go with the remotely gathered information they already possess.

The promise of the Network Age packs a powerful incentive for the humanitarian sector to reorganise around information and forge links with the new private partners that are boosting it. With the possibilities of data-mining now pressing the limits of human imagination, real-time, multi-spectrum opportunities for reconnecting observers and the distantly observed interactively can now be glimpsed on the horizon. Cyber-humanitari-

anism builds on the already outlined change in how we understand disasters, that is, from accidents occurring outside society to being internal to the working of society itself. It deepens this process of internalisation, pushing it beyond livelihoods to embrace the world of lived emotions. Through remote sensing, modelling and simulation, face-to-face experience loses out to a computer-based ability to simulate hyper-real emotion and feeling, thus creating a cybernetic learning-machine. In addition to observing displaced-ecologies, humanitarian simulation promises a glimpse into the 'real' emotional world of the dispossessed as they confront a hostile, suspicious and unpredictable environment. The availability of simulated experience also extends to that of the humanitarian responder (MIT Game Lab 2013; Dabanga 2009). Simulations rehearse the problems that aid workers or journalists face while trying to work in hostile environments.

The corporations that are driving this cybernetic learning-machine are expanding their ability to store and analyse information. The creation of value-added data streams radically challenge traditional management structures. The current UN cluster-based model of disaster management, involving the collection of information, deciding a course of action and delivering humanitarian assistance through specialist networks, is now argued to be hamstrung by information silos and inter-agency secrecy; it has been declared a failure (UNOCHA 2013, 23-25). However, remote management profoundly changes the nature of humanitarian action. As already argued in relation to the ecological gaze, remote sensing marks a decisive break with history and language as a means of understanding the human condition. Causal forms of analysis dependent upon the politics of ground-truth are being replaced by computer-deduced cor-

relations and relativities. Understanding the human condition has become a problem of cryptanalysis. While demanding new skills, cyber-humanitarianism also has the potential to render existing terrestrial humanitarian infrastructure and its associated professions largely redundant.

While some may consider cyber-humanitarianism as offering incremental or additional tools for existing aid agencies, the logic of cyber-humanitarianism is that of a radical paradigm shift. The humanitarian future will not be like the past. Rather than uncritically embracing this future, humanitarian agencies need to understand what exactly they are buying into. Not least, cyber-humanitarianism embodies the conditions of possibility for neoliberalism's biopolitical imperative – the abandonment of the world of peoples to permanent emergency while institutionalising the double-truth of resilience. The remote and smart technologies that are driving cyber-humanitarianism undoubtedly have progressive social potentialities. Freeing them of their security dual-use, however, requires the demilitarisation of their founding algorithms and democratisation of the platforms they now control. Demystifying technological fetishism by reducing smart technologies to their human determinants and necessary political economy is essential. In so doing, let us strive to affirm our humanity rather than denying it.

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