The Epidemiologist as Culture Hero: Visualising Humanity in the Age of 'the Next Pandemic'

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As a projected human extinction event, the 'next pandemic', generated according to prevalent scenarios by a newly emerged zoonotic virus (Quammen 2012; 2013), has in the last two decades assumed the role of the ultimate, world-ending catastrophe. The return of such end-of-the-world scenarios after a long lull, which followed the dissolution of the US-Soviet nuclear standoff, is a topic that has been extensively discussed in studies of Western popular culture (Keane 2006; Perkowitz 2010; Cantor 2012). What has, however, remained outside the scope of these analyses is that, represented as the ultimate catastrophe, the 'coming plague' (Garrett 1996) necessitates its very own culture hero. This twenty-first-century Gilgamesh is no other than the epidemiologist.

In this paper I will examine the emergence of this figure in recent years, and in particular how it has come to assume flesh and blood in the growing genre of films about infectious disease pandemics. My paper approaches films about the 'next pandemic' as visual products in an era when epidemiological concern over the emergence of a new pathogen is becoming a mainstream fear (see latest Ebola outbreak). What distinguishes this from cultural studies approaches is the anthropological focus and analytical tools employed by my study. The present paper is concerned with 'next pandemic' motion pictures insofar as they form a visual narrative that embodies (or is intended to embody) questions about the human condition; in particular about how human sociality is reproduced under conditions of conflict. This is a cinematic genre that reflects and

propagates to mass audiences a new ideology regarding what human sociality consists in, and how it is to be preserved. And it does so through the representation of the epidemiologist as a catalyst of human sociality; a new visual symbolic form that may be singled out as a significant biopolitical operator. My intention then is to provide an anthropological analysis that will help us understand the ways in which, through the lens of this prolific cinematic genre, humanity is constituted on the imagined crux of species extinction; an end-event that is to be averted by means of a transformation of our sociality and agency. The paper is hence positioned at the crossroads of social anthropology, as a study of sociality, medical anthropology, as a study of medical imaginaries, and visual anthropology, as a study of how these are interlinked and inter-germinated in the visual form of the epidemiologist as a culture hero.

In my analysis of this phenomenon and its biopolitical implications, I would like to draw away from the classic anthropological analysis developed in the 1960s by Myerhoff and Larson (1965). Following the latter, physicians were rendered culture heroes in post-WWII American television dramas through a process that, on the one hand, stripped them from their charisma by means of routinisation, whilst, on the other hand, transformed them into someone who 'structures and defines the ingredients of typical situations, depicting appropriate behaviours, and accompanying motivations and interpretations' (ibid: 188). In their 1965 paper and subsequent work (Myerhoff 1966), the two anthropologists followed Orrin Klapp's sociological analysis (1948) in theorising the doctor-as-culture hero as a figure who generates social control and integration in an otherwise heterogeneous and fragmented post-traditional society. No longer a charismatic hero, or a catalyst of social change, the physician is, according to this analysis, able to foster social cohesion by means of his or her technical training and skill; not due to some innate qualities, which are transferred to the realm of science and

technology as such (Myerhoff and Larson, 1965: 189). The difference between Myeroff and Larson's doctors and twenty-first century epidemiologists lies in the fact that what constitutes the latter as culture heroes is not their ability to generate social consensus in the midst of crisis. It is rather their propensity to embody and thus restore humanity, which under the given pandemic scenario is positioned, both biologically and ontologically, at the brink of extinction. I would hence like to argue that, under the bane of the 'next pandemic', the epidemiologist is rendered a culture hero in the classical sense of the term: a mythic figure that 'makes human society possible' (Caroll 1981: 301), under the condition that humanity embraces the neoliberal governmental principle of self-limitation as an ontological necessity vis-à-vis the cataclysmic force of the 'killer virus'.

Time and Human Sociality

Since the emergence of 'coming plague' scenarios in epidemiological and popular-medicine discourse in the early 1990s, Hollywood movies have become an exemplary terrain for the constitution of the epidemiologist as culture hero. Previously, infectious disease epidemics were an unusual subject for Hollywood films, so that, with the exception of *Panic in the Streets* (Kazan 1950), *The Satan Bug* (Sturges 1965) and *The Andromeda Strain* (Wise 1971), we may say that the theme was the privileged field of European art cinema, with striking examples including masterpieces such as Ingmar Bergman's *The Seventh Seal (*Bergman *1957)*, Luchino Visconti's *Death in Venice* (1971) and Lars von Triers' *Epidemic* (1987). These films evinced little or no interest in epidemiological aspects of infectious disease outbreaks, and no epidemiologist was featured in them. The disease, usually modeled upon popular perceptions of bubonic

plague, was instead used as a powerful context for the unfolding of an existential drama, a technique following Albert Camus' *The Plague* (1947).

It is hence in Wolfgang Petersen's film *Outbreak* (1995) that we first come across the epidemiologist as culture hero on the big screen. The character in question is Sam Daniels (Dustin Hoffman), a virologist and colonel of the United States Army Medical Research Institute of Infectious Diseases (USAMRIID). The film begins with a black screen featuring a foreboding quote by biologist and Nobel laureate Joshua Lederberg, which has become a veritable cliché of the 'next pandemic' discourse: 'The single biggest threat to man's continued dominance on the planet is the virus'. The opening scene of the movie takes us to the Congo Basin, with the plot unfolding as a prototype of what we may call the 'African phase' of emerging infectious diseases discourse, corresponding to mid-1990s fears that the 'next pandemic' will arise from tropical Africa, usually due to unwarranted ape to human contact, and will assume a haemorrhagic form. As Kirsten Ostherr (2005) has noted in her pioneering study on cinematic representations of contagion, the film is heavily based on 'the emergence of Ebola into the popular discourse of contagion in the Unites States', exemplified in the writings of Richard Preston (1992; 1994), whilst also reproducing highly racialised and homophobic approaches to AIDS.

The first scene of the film depicts the outbreak of a lethal and mysterious disease in a mercenary camp, which is eventually bombed to oblivion by the US Army in order to contain the outbreak. This African prelude of the main film is punctuated by scenes of monkeys running in the periphery of the camp, before and after its destruction. As Ostherr (2005: 183) was first to note, the most striking moment in this sequence is when 'the camera again cuts […] to a medium-shot of a screeching monkey, then dissolves into a smoky mist to a close-up of the witch doctor's [sic] face, thus creating a visual

metonymy linking monkey, black skin, and African "premodernity" as the vectors of an uncivilized and deadly contagion'. The disease is thus constructed from the very start of the film as both primeval and emerging, embodying two aspects of the unknown in a manner reminiscent of popular narratives about the origins of HIV/AIDS, either as a 'primitive' ape-to-man (sexually transmitted?) infection, or as a high-tech laboratory-produced pathogen. Faced with such a dark and elusive enemy, Colonel Daniels' heroic fit consists in dedicating himself to the pivotal epidemiological task overlooked by his superiors: tracing the zoonotic host, a monkey which, captured and imported to the USA from Zaire, smuggles with it the haemorrhagic virus, 'Motaba', a fictional, 'phallically anthropomorphized' version of Ebola (ibid: 181).

Although the film is arguably more about corruption and military conspiracy than about epidemiology, it is the first Hollywood movie to tackle zoonosis and disease emergence and to introduce the general public to basic epidemiological notions, such as contact tracing. In the end, Colonel Daniels' prioritisation of civil and medical duty over military obedience averts a mini-Hiroshima event in North California (the Army command wants to liquefy the epicentre fictional town of Cedar Creek with all its inhabitants) and produces a serum, saving humanity from a viral apocalypse. In this sense, Colonel Daniels embodies a variant of the classic Hollywood maverick hero, who, as Kiku (2008) has argued, works for humanity against corrupt state institutions. What sets this visual narrative apart, however, is the temporality in which the hero operates.

What makes Colonel Daniels unique is his 'real time' reaction; his ability to trace the host, isolate the mutant virus and produce the life-saving antiserum before the disease spreads.[1] The importance of this is underlined through the castigation of his superior, Brigadier General Ford (Morgan Freeman), who delays the distribution of the original serum before the virus mutates. Delay, broadly understood as a time lag, is the enemy of

the epidemiologist who is a culture hero only in so far as he works *in and against* time, striving to save the future by seeking the past in the present. This interlaced temporality, a quest for past origins in present-time so as to guarantee the future of humanity, is crucial to the constitution of epidemiological heroics, and will assume greater complexity and importance in later variants of the epidemiologist as cultural hero, such as Steven Sodenbergh's film *Contagion* (2011).

Contagion is not a protagonist-led movie, but rather comprises in inter-connected snippets of life-stories during the pandemic. The culture hero in place is thus collective rather than individual, composed by a triangle between three female epidemiologists. On the one hand, we have Centers for Disease Control and Prevention (CDC) epidemiologist Dr Ally Hextall (Jennifer Ehle) who discovers the genetic drift event that lies at the root of the killer virus: a bat-to-pig jump, which leads her to pronounce the key phrase of the film: 'somewhere in this world the wrong pig met the wrong bat'. More than this, however, Dr Hextall uses the discovery made by a precursor character, University of California San Francisco professor Dr Ian Sussman (Elliott Gould), so as to manufacture a vaccine. The key heroic element here, as in *Outbreak*, is putting civil and medical duty above orders. In the face of CDC failure to procure satisfactory results, Dr Sussman is able to develop a cell culture where the new virus, Meningoencephalitis Virus One (MEV-1), can grow. Dr Sussman does this by disobeying orders by the CDC Deputy Director to destroy his working samples of the virus, after testing is cleared only for Biosafety Lab Level 4. Taking the lead of disobedience from the professor, and adopting his critique of the slowness of state-run lab processes, Dr Hextall achieves culture hero status by breaking the rules in an even more radical way, without however turning against her home institution as such, or assuming the role of the maverick hero described by Kiku (2008). A key scene in the film depicts the epidemiologist in full biohazard

airtight suit, facing a single surviving experimental rhesus monkey in its cage. This is a silent, protracted moment of face-to-face evolutionary contemplation, where the gift from the past (the monkey's acquired immunity) of a future for humanity (species survival) is rendered actionable by the presence of the culture hero. What we have here is a moment of epidemiological *parousia*: acting as an intermediary between humanity's evolutionary past and its future survival, Dr Hextall proceeds to use the experimental vaccine secretly on herself, refusing to go through protocol, ethical clearance and all the 'time-wasting' procedures of human subject testing. She then rushes to the hospital where her father lies ill in bed, infected by the virus; she removes her mask, talks to him, explaining what she is doing, and finally kisses him on the forehead so as to test the efficacy of the vaccine. Dr Hextall thus again embodies the role of an intermediary, this time between the present infected humanity and the promise of a healthy future whilst upholding kinship as a fundamental principle of human sociality. The test proves successful and vaccine production begins.

The second figure in the triangle is the CDC epidemiological intelligence (EIS) officer Dr Erin Mears (Kate Winslet) who goes to the epicentre of the outbreak in Minnesota to collect information whilst engaging in a tag-of-war battle with procrastinating state-level public health bureaucrats in order to secure in-time resources. In the course of her fieldwork Dr Mears is infected and succumbs to the disease. The role of Dr Mears embodies epidemiological heroics at their crudest, self-sacrificial form. In the words of the actress, who 'spent time at the CDC and met with past and present EIS officers' (Anon. 2011: 9) in preparation of her role in the film: 'These are people who can be sent into war zones where there's been an outbreak of a new virus. Fear is not an option. If they feel it, they learn to push it aside' (Winslet in ibid: 9). Like Dr Hextall, albeit with a more martyrological angle, Dr Mears also embodies the intermediary role of

the culture hero, as she mediates between both the scientific community and the common people, and between the latter and local bureaucrats.

The third figure of the heroic triangle is Dr Leonora Orantes (Marion Cotillard), a World Health Organisation (WHO) epidemiologist dispatched to Hong Kong to trace the source of the virus. There, she manages to identify patient zero (the first infected individual with symptoms of the disease), by 'working backwards in time to unravel the mystery of where this thing came from' (Cotillard in ibid: 9). During her work, she is kidnapped by a Chinese assistant, who keeps her hostage in a village, negotiating her release in exchange of the vaccine. When the exchange actually occurs, Dr Orantes finds out that the vaccine provided for her kidnappers and their village community is only a placebo; she immediately dumps her treacherous WHO rescuer so as to return to the countryside to warn the villagers. Dr Orantes thus embodies the intermediary between the scientific community and the common people, but also the 'fighter against time', leaving no doubt that 'time', rather than other human beings (including her own captors), 'is the enemy' (Cotillard in ibid: 10).

It is clear that the three characters of the film form a triangular paradigm of selflessness and self-sacrifice; yet this is not the crucial point here. The epidemiologist does not simply replicate the twentieth century doctor-hero, who dedicates her highly specialised skills and her very life to battling disease so as to save smaller or larger portions of humanity. Rather, what is important here is that the three heroines remain social when social bonds around them collapse. This scenario of social, rather than simply societal, collapse is pertinent to what, following Priscilla Wald (2008), we may call the outbreak narrative on the 'coming plague'. This fantasy no doubt hankers back to Boccaccio's *Decameron* description of plague in Medieval Italy, as well as to Antonin Artaud's influential essay *The Theatre and the Plague*, where the time of plague is

described in a Saturnalian manner: 'the last of the living are in frenzy: the obedient and virtuous son kills his father; the chaste man performs sodomy upon his neighbours' (1958: 24). This is not simply a situation where organised society is brought to its knees, with the police, the post office and the health care system tattering, but a spiritual transformation: a situation where the social nature of humanity is at risk, and at the same time at the brink of a radical transformation. As, from a neoliberal perspective, sociality is primarily a relation of exchange, it is characteristic that in Hollywood films social collapse is usually portrayed through looting or supermarket ransacking. With exchange, the cornerstone of neoliberal sociality, having collapsed, humanity is returned to the primitive reign of use value; a condition which, contra Artaud (1958: 24-25), late-capitalist outbreak narrative envisions not as ecstatic, revelationary, or purifying, but as a cruel and relentless process of animalisation.

In the midst of this bestial devolution of human sociality, where the mentality of each for her own prevails, the epidemiologist shines through as a last beacon of humanity in her stubborn sociality. In the darkest hour, where the 'horror in our backyard' (Jacobs in Anon, 2011: 5) has brought about a collapse of custom, the culture hero rescues humanity from oblivion by upholding nothing less than the principle of exchange. When, at the end of the film, Dr Orantes returns to her captors to warn them of the counterfeit vaccines they received in exchange of her by the WHO, one needs to see this not so much as an all-consuming act of humanness, as love for the children she taught whilst being hostage in the Chinese village, nor as a manifestation of the Stockholm Syndrome, but as a refusal of the epidemiologist to be exchanged for nothing; an act aimed at upholding the principle of exchange (life for life) and, more than that, exchange as the constituting principle of human sociality, even at the twilight of human life as such. No wonder Dr Orantes looses her speech once she takes up her moral task in Hong Kong

International Airport: she has assumed the role of an offended commodity, and, though perfectly able to act, commodities must necessarily remain mute, for the only thing they need to annunciate is immanent in their being-for-exchange.

Screen Heroics Off-Screen

Admittedly less outspoken as regards the wider political economic subtext of the outbreak narrative, a recent presentation by the director of the US CDC Office of Public Health Preparedness and Response at the annual multi-media science fiction festival Dragon*Con is nonetheless revealing of the pertinence of the cinematic image of the epidemiologist in the off-screen world. Appearing on Labour Day 2011, Dr Ali S. Khan told an eager audience that 'Mother Nature is much more creative than we are', it, rather than bioterrorism, being the most likely source of a global pandemic (in McCollom 2011). This statement seems to be a moment of real life replicating art.[2] For it brings to mind the emergency meeting in *Contagion*, where, being asked whether the pandemic may be the result of weaponised avian flu by rogue enemies, the fictional Deputy Director of the CDC responds: 'Someone doesn't have to weaponise the bird flu, the birds are doing that'. The epidemiologist is thus portrayed as engaged in a struggle not against an extraterrestrial or human-made event, as in more traditional versions of biological threat like the *Day of the Triffids* (Francis & Sekely 1963), *The Andromeda Strain*, *The Stand* (Garris 1994), *Twelve Monkeys* (Gilliam 1995) or *Rise of the Planet of the Apes* (Wyatt 2011), but against nature itself. His or her role in the struggle for the survival of humanity (and, let us not forget, its planetary domination as a species) is one of the culture hero in the most classic, dichotomous sense of the term: a dialectical mediator between nature and culture.

This symbolic form looms large in media reporting of the CDC PR stunt at the Dragon*Con festival: 'After speaking with a few people following the panel, Khan leaves Dragon*Con as silently as he came. Around him, people are dressed to fight imaginary dragons, ghosts, demons, and wraiths, but Khan fights the real monsters – public health emergencies like pandemic influenza, outbreaks of cholera and Ebola, and the aftermath of natural disasters. Unlike the heroes of science fiction, his work does not end' (McCollom 2011). There is no mistake here. Forget Superman and Batman; high-jacking the old leftist slogan, we may proclaim: epidemiologists are the real heroes. It is not just that they are skilled, efficient and humble, but more importantly that they endure. One should pay close attention to the final phrase of the journalistic piece on epidemiological heroism: 'Unlike heroes of science fiction, his work does not end'. Given the importance of time in the construction of the epidemiologist as culture hero, the statement is of vital importance. For it poses the epidemiologist as metonymically encapsulating the chronicity of epidemics, as discussed by Elena Gomel: 'Instead of delivering the climactic moment of the Last Judgment, pestilence lingers on, generating a limbo of common suffering in which a tenuous and moribund but all-embracing body politic springs into being' (2000: 406). The struggle against the 'next pandemic' is an enduring, never-ending epos insofar as we cannot simply annihilate or sterilise the enemy, nature, but have to live within it and at the same time against it. Hence, in the 'coming plague' scenario the epidemiologist assumes the Promethean role of reconstituting human sociality; a task which can never be completed, but is rather constituted by its very inconclusiveness, as an enduring negotiation between nature and culture that strives to guarantee human dominance on the planet. This, as well as the overall biopolitical aspect of the epidemiologist as a culture hero, finds its apotheosis in the recent blockbuster movie *World War Z* (Foster, 2013), which ends with the

protagonist speaking directly to the audience so as to point that, although a vaccine has been found, 'this is not the end; this is the beginning of a long battle'.

The Zombie Pandemic

Regressing from the diffused agency model of *Contagion*, *World War Z* reconstitutes the singular epidemiologist as culture hero in the figure of Gerry Lane (Brad Pitt). Although Gerry is not strictly speaking an epidemiologist but an ex-UN officer, after he manages to escape his zombie-stricken hometown, Philadelphia, he assumes the role of an epidemiological intelligence officer under the wing of the UN Deputy Secretary General. His role is to locate patient zero, the ultimate index patient of what Harvard virologist Dr Andrew Fassbach (Elyes Gabel) suspects to be a virus which turns humans into zombies. The virus is transmitted through a bite, its the incubation period being reduced to a few seconds, an extraordinary dramaturgical effect that seems to be borrowed from earlier films such as *The Andromeda Strain*. Though termed zombies, these infectious vectors have nothing in common with the rich abjectifying ontology of 'menacing passivity' developed in George Romero's 'living dead' trilogy, where, as Shaviro (1993: 94) has demonstrated, zombies acquire a subversive, even redemptive character: 'the living dead are not radically Other so much as they serve to awaken a passion for otherness and for vertiginous disidentification that is already latent within our own selves' (ibid: 98). If Romero's living dead are primarily characterised by the lack of origin or referent, their being 'unmoored from meaning', a phenomenon that 'defies causal explanation' (ibid: 83), in *World War Z* the identification of zombies' origin is the sole purpose and pathos of the film. It is no longer 'the rebellion of death against its capitalist appropriation' (ibid: 83), but this microbiological origin that defines zombies, whilst, at the same time, interpellating, in Althusser's sense of the term, the epidemiological culture hero of the

film. In this sense, *World War Z* zombies are no longer part or a variant of the 'living dead' mythology, which Deleuze and Guattari (2004) saw as the last modern myth; they no longer 'literalize and embody an extremity of agitation, an ecstatic emptying of the self, a mimetic contagion' (Shaviro 1993: 103). Rather, they are a race of rabid and rapid superspreaders, a crucial epidemiological category in what we can call the post-SARS outbreak narrative: individuals imagined as more infective than other people, who spread pathogens to an extraordinary percentage of their direct or indirect contacts.

The idea of zombification being the result of a zoonotic disease and zombies being the ultimate, even one may claim ontic, superspreaders of an end-of-the-world infection first appeared in the film *28 Days Later* (Boyle 2002) where animal rights activists break into a Cambridge lab and release a chimpanzee infected with an experimental virus called 'Rage'. The chimp bites its releaser who is instantly infected and assumes an enraged rabid-looking aspect, infecting her comrades as well as a white-coat scientist who tries in vane to warn them about the 'highly contagious' disease carried in the blood of the primate. The film is titled *28 Days Later*, as the main plot unfolds after that time span, during which nearly the entire population of Britain has become infected by 'Rage'.

Owing to the box-office success of *28 Days Later*, the zombie infection trope quickly became a potent metaphor for emerging infectious disease in popular culture. In the last ten years 'zombie infection' and 'zombie pandemic' have became popular videogames, grassroots prep practices, and groups such as the Zombie Squad have taken to the streets of the US (Huddleston 2012). Even the *National Geographic* featured an article claiming that a zombie or 'rage virus' could emerge out of a rabies bird flu hybrid (Than 2010). More importantly, however, the US Centres for Disease Control and Prevention (CDC) have actually opted to use the zombie metaphor to talk about disease outbreaks and how we should react to them. The Zombie Preparedness Campaign by the CDC Office of

Public Health Preparedness and Response (2011) featured posters showing a zombie peering through a window with the phrase 'Don't be a Zombie, be Prepared', 'Zombie survival kits', as well as a two-part graphic novel titled *Zombie Pandemic* (Silver 2011). Ali Khan identified the inspiration of the campaign as based on the popularity of the 'zombie apocalypse' in popular culture. He further claimed that, answering the question 'how do I prepare for a zombie apocalypse?' will help to 'share a few tips about preparing for *real* emergencies too!' (2011, emphasis in original). The zombie campaign was a major success, with the CDC website allegedly being down due to the number of people clicking on the webpage.

Screened only two years after the CDC Zombie Preparedness Campaign, *World War Z* shares its pro-science attitude. It hence differs radically from earlier zombie films, as well as from the popular zombie infection TV series *The Walking Dead* (Darabont 2010) in its attitude towards the solution to infection, and the role of the military-scientific complex in it. In the last film of the 'living dead' trilogy (*Day of the Dead*; Romero 1985) the military-scientific complex is famously ridiculed as effectually more dead than the zombies, with the final zombie invasion of the militarised underground safety zone being portrayed as a moment of deliverance rather than damnation (Shaviro 1993: 93). Similarly, in *28 Days Later* science seems to have evaporated while the British Army is but nine soldiers hiding in a manor house off Manchester. They are interested only in hot water, idle talk over candlelit dinner and raping women they lure into their decadent hiding place with a decoy radio-broadcast promising an 'answer to the infection'. The theme is repeated in *I Am Legend* (Lawrence 2007), which tells the story of a man-made zombifying virus outbreak in New York. The film not only portrays sciencists as responsible for the pandemic (the fictional KV virus being the result of bioengineering of measles into a cancer treatment), but also reveals the serum-seeking efforts of the last

remaining scientist in 'ground zero' Manhattan, virologist Dr Robert Neville (Will Smith), as lacking an elementary understanding of natural selection. Entangled within what from a Latourian perspective we may call his laboratory rituals, Dr Neville fails to grasp that zombies, rather than KV-immune humans, are the new evolutionary stage of (post)humanity. Finally, in the ongoing TV series *The Walking Dead*, any hope of scientific help evaporates already during the first series (2010) when the Atlanta CDC HQ, whose staff have either killed themselves or fled for their lives, self-explodes.

In contrast to these critical narratives, *World War Z*'s aim is not to challenge but to affirm the vitality of biopolitical power under the wing of the military-scientific complex. Supported by elite armed forces, Gerry Lane lands in South Korea, where, after the Harvard virologist is accidentally killed, he finds himself in charge of the whole epidemiological intelligence operation. Following the lead of an imprisoned CIA agent, he then takes off to Jerusalem, where we witness the failure of the 'old way' of protecting society from infection: the wall. The Mossad, having intercepted an Indian military signal months ahead of the global pandemic, concludes that the only protection for Israeli citizens is to erect an enormous wall around Jerusalem. All comes to ruin, however, when joyous Jewish and Muslim refugees chant through megaphones their praise to God for saving them behind the wall. Hearing the amplified hallelujahs, zombies swarm the fortifications; they self-organise into a huge undead pyramid (Forth 2013), and manage to enter and infect the Holy City.

It is during his escape from the chain-infection of Jerusalem that Gerry witnesses two exceptional events: zombies overlooking and running past a frail old man, and a sickly looking boy, who crouches on the ground as the infected hordes run howling past him. Gerry's epiphany is thus reached on the road to Jerusalem Airport, where he intercepts a Belarus Air passenger plane and orders it to change its route to the closest remaining

World Health Organisation (WHO) lab, in Cardiff, Wales. Gerry has to blow up the aircraft with a grenade just above Cardiff, as a stowaway zombie has caused a chain-infection in the economy and, alas, also the business class of the aircraft. Reaching the WHO lab, Gerry finds it infected with the virus, due to an accident that occurred in the course of the scientists experimenting on it. Gerry requests the remaining uninfected biologists to provide him with their most lethal but treatable pathogen, which, after the usual adventures, he randomly injects himself with, hence becoming 'invisible' to the zombies, which run past him. A 'vaccine' has thus been found, which by rendering people treatably ill makes them imperceptible to zombies, who have been 'programmed' by the virus to infect only healthy hosts.

Given this novel resolution, one is left to wonder how it could be that nobody previously noticed that zombies spared hospitalised or otherwise ill patients.[3] More importantly, however, what we have to consider here is the role of the epidemiologist as a culture hero who brings humanity back to life by bringing it illness. What is at stake here is clear: civilized illness versus savage infectious disease, and at the same time a pathogen with a history, a biography and an established career track record, versus a novel, emergent pathogen; a mysterious, enraged and primitive virus. One needs to pause here so as to consider emerging infectious disease, the category preoccupying pandemic scenarios since 1989, as the breach of an ontological contract: the idea, current since the eradication of smallpox (c. 1980), that developed countries had moved beyond the pale of plague and into the realm of non-infectious chronic disease. In this sense, emerging infectious diseases are imagined to threaten not simply our health but also our illness, as a social evolutionary stage of sorts. They supposedly threaten to drag us back to a previous step of the evolutionary ladder, where societies stand challenged not by obesity, cardio-vascular disorders, diabetes and cancer, i.e. by intrinsic problems of the human

organism, but by germs, extrinsic threats that were largely believed to be problems of 'developing nations' only. That is why the solution provided by our culture hero, Gerry Lane, is so ingenious. He is no zombie-slayer, he does not go out there like the Indian Army in a futile mission to massacre the undead, nor does he, like the Mossad, regress to medieval solutions (the walled citadel), nor does he opt to abolish individual freedom by adopting the radical North Korean solution to the zombie epidemic: pulling all citizens' teeth out, thus depriving them from the means of infection. Instead he fights the zombie plague by mass-introducing a cooked illness, in Levi-Straussian terms: a domesticated pathogen, doctored in labs, tamed into a vaccine that camouflages humanity before the savage, raw zombie virus. By rendering a large part of surviving humanity artificially ill, the culture hero provides a mediating state between life and death and delivers it from the zombie apocalypse.

Man the Man-Hunter and the Repastoralisation/pasteurisation of Humanity

The significance of *World War Z* lies with its power to visually bring together two imaginaries, concerning emerging infectious disease and zombies, in a biopolitical myth about total infection and ways of preventing it. The film follows the *28 Days Later* paradigm in displacing the focus from zombies as a menace-in-itself, a theme that dominates classic zombie filmography, towards the zombie virus as a parasitic hyper-life that overrides the human organism and afflicts not one or multiple physiological functions, or even the totality of the human body, but human being as such. Zombies are furthermore not simply vectors of disease; they have become totally identified/merged with it. Not only do they portray a total change of behaviour, such as also evident in the case of rabies, but evince what we may call a bio-ontological transformation, in other words, a transformation in the species-being (*Gattungswesen*) of humanity. On a first

level, this transformation lies with the fact that the undead faculty of zombies looses the primary ontological status it holds in classic filmography, and becomes a side-effect of viral infection, or rather a way that the virus has found so as to make its vectors persevere and transmit it to a maximum number of contacts. This understanding of the virus resonates with the witty statement of the Harvard viroligist on board the military plane bound to South Korea: 'Mother Nature is a serial killer'.[4] Hence the zombie virus is invested with intentionality: it wants to reproduce, it strives to transmit itself; a popular pseudo-Darwinian understanding of life in general, following which adaptation and survival are depicted and understood as a *goal* rather than just a *fact* of life. There is, however, a more complex level on which the aforementioned bio-ontological transformation operates. This needs to be examined carefully, as it has significant implications for the establishment of the epidemiologist as culture hero and of the biopolitical destiny he or she embodies.

What can easily be misunderstood as a detail in the *World War Z* scenario, when in fact it holds a key exegetical position, is the information that zombies can no longer be infected by another virus or bacterium, a method which, we are told, the Cardiff WHO scientists tried without success. What we have here is a portrayal of pure life. Hollywood had already provided us with what Stephen Mulhall (2001: 19) described as a predatory form of 'life as such', 'Nature incarnate or sublimed', in Ridley Scott's *Alien* (Scott 1979). Yet what differentiates Alien from the viral zombie, in spite of their common embodiment of 'pure evil animality overlap[ing] with machinic blind insistence' (Zizek 2006: 63), is that whilst the former reproduces by impregnating humans with baby-aliens, who come to life by destroying their host, in the case of *World War Z* the viral form of hyper-life as pure information rides on the back of organic matter in a communication paroxysm: everyone becomes a transmitter, a superspreader of viral

information, without the virus actually killing anyone, the usual burn-up limit to the effectiveness of infection.

At the same time, the zombie virus is a form of life that needs no social context. It is elementary epidemiological knowledge that all human pathogens, be they eukaryotes, bacteria or viruses, operate within strict social-ecological parameters. A bubonic or pneumonic plague outbreak does not automatically result from the co-existence of *Yersinia pestis* and humans in a given locus, but instead requires specific social contexts and relations, such as the hunting of vectors (sylvatic plague), or housing structures that allow for 'blocked fleas' to access humans (commensal plague). Similarly, cholera outbreaks require water and food sharing practices, typhus outbreaks crowded habitation conditions, and the AIDS epidemic is conditioned on unprotected sex practices, sharing needles and/or infected blood transfusion. What renders the fictional zombie virus unlike any other pathogen is not only its exclusive, totalising nature, which allows no co-infection, but also that its transmission and spread is free of any social context or relation. Its human vectors break down all social barriers and operate without any social context so as to procure new targets for infection. As 'life as such', as a free-floating signifier, the zombie virus demolishes all mediation, instituting a reign of pure immanence.

It is crucial here is to examine this paradigmatically a-social and a-ecological mode of transmission of the virus, for this is no other than man-hunting. As evident from the very first act of *World War Z*, the Philadelphia attack scene, zombies hunt down potential virus-receptors and bite them, thus transmitting the virus and transforming their prey into new, predatory vectors. It is characteristic that the only time when zombies assume the classic Romerean aspect of slowness in the film, is when there is a lack of human targets for infection. Under this condition zombies become idle and simply linger in one place,

hovering in a state of quasi-hypnotic preparedness, until the slightest human-produced sound brings them back to a paroxysmal, predatory state of existence, where their sole purpose becomes to bite the signal source.

Zombies hence reduce the entirety of human kind into a hunted-humanity in the terms of Gregoire Chamayou (2010) who in his recent book *Les chasses à l'homme* provocatively argues for man-hunting's place next to Foucault's pastoral technology of power. Based on a commentary from the Zohar, Chamayou sets the original sovereign, the Biblical founder of Babel, Nimrod, as the prototypical man-hunter: 'on the one hand we have Nimrod, cruel tyrant and idolater, and on the other hand Abraham, peaceful and virtuous shepherd' (ibid: 23)[5]. The contrast between the two figures, claims Chamayou, 'became a *topos* of Biblical commentary', as a contrast between Babylon and Israel (ibid: 23), forming a symmetric opposition between two models of political power (ibid: 24). Nimrod's man-hunting power hence opposes Abraham's pastoral power as its 'true antithesis': if the latter is transcendental, and aimed at the total submission of humanity to divine will, the former is fundamentally immanent, its aim being no other than to capture humanity within a sovereign apparatus. This is why, Chamayou argues, 'the reign of the hunter-king is not just the first power on Earth, but also the first properly speaking earthy power (*pouvoir terrestre*), whose authority does not derive from any transcendental source' (ibid: 25). It is this *immanence of force* that Chamayou sees as the fundamental characteristic of cynegetic power. We may thus say that in the 'next pandemic' scenario of *World War Z*, all humanity, which had hitherto chosen the pastoral rule of Abraham, comes under the cynegetic power of Nimrod; no other than the man-hunting zombie virus, whose emergent immanence is such that it has not even a name. Hunting humans by means of humans, the viral hunter-king may or may not have a crown (depending on whether it is a coronavirus), yet what it certainly has is 'earthly

power'. Free of any external referent or social-ecological context, the zombie virus is the embodiment of the negation of transcendence. Even the very children of Abraham, the Jews and Muslims of Jerusalem, are not immune to its immanent force which transforms its captured prey into predator, hence universalising the cynegetic principle by returning humanity to its imagined as original, natural and immanent state: 'man the hunter', or rather 'man the man-hunter'.

In order to fully grasp the import of this viral-cynegetic paradigm and its biopolitical implications, it is pertinent to return to *World War Z* so as to examine more closely the North Korean mode of containing the pandemic. For this is essentially presented as based on a preventative anti-cynegetic technique taken to extremes. The CIA agent whom Gerry Lane interviews in the military base of Camp Humphreys calls the North Korean method (pulling all teeth out) the most successful experiment in social engineering in human history. Rather than simply being a cheap ironic commentary on state socialism, this is a statement not so much about the phagic aspect of the infection (zombies in this film bite but do not eat humans) as about 'man the hunter'. The North Korean regime's method may in fact have been successful in containing the pandemic from spreading north of the Thirty-Eight Parallel and south of the Yalu River but at the cost of dehumanising all potential vectors. For the Politburo's decision to pluck out the teeth of its subjects prevents the latter from becoming vectors only through the denial of the cynegetic potentiality of humanity as such. If civilization is imagined to be a process through which 'man the hunter' goes through a Neolithic Revolution that renders human kind pastoral, this is not supposed to be an all-out evolutionary achievement, or the result of some political theological transcendence. It is rather an enduring dialectical process which continuously posits cynegetic and pastoral techniques and principles one against the other. The essentially Stalinist, anti-dialectical solution adopted by the Workers'

Party of Korea is thus a betrayal of civilization as such, as a constant negotiation between nature and culture. On the contrary, our culture hero seeks a solution at the opposite side of the anthropological spectrum: camouflage.

What happens when Gerry Lane injects himself (and then others) with a treatable, domesticated pathogen is a process of rendering himself indistinct vis-à-vis the zombie virus. In line with Neil Leach's work on camouflage (2006), one must seek to understand how this technique works on both a strategic and an ontological level. Leach has argued, echoing earlier anthropological studies of the mask (e.g. Napier 1987), that, 'the role of camouflage is not to disguise, but to offer a medium through which to relate to the other' (Leach 2006: 240). This is all the more relevant in relation to the epidemiologist as culture hero, a role which, as I have pointed out repeatedly in this paper, is fundamentally one of an intermediary. Contra Leach (2006: 243), however, the efficacy of this medium is not based on its power of representation. This is a non-mimetic camouflage, devoid of aesthetic dimensions, visual or otherwise: nothing changes in how the artificially infected culture hero looks. Gerry Lane is in all appearance his old healthy self, enjoying a rare moment of normality by seeping a can of Pepsi; he does not stagger, nor does he look pale, frail or sick. The infectious zombie hordes overlook him not because of his appearance but because of his altered being. This is where *World War Z* reaches its highest moment of anthropological metaphysics, which must be taken seriously so as to understand its biopolitical implications.

Like any of its usual natural manifestations (e.g. the Giant Katydid), here too camouflage is operative on the basis of an interaction between self and other (ibid: 243-244), or on what, following Roger Caillois (1935), we may describe as a relational concealment based on the manipulation of distinction. Yet the domesticated illness jab does not operate, as one might have expected, on a biological or physiological level

predicated on its biochemical properties. It does not change the appearance of the self vis-à-vis its prospective predator, but rather shifts the very ontological value of predator-prey interaction.[6] For if, as I have already mentioned, the cynegetic relation upon which zombie infection operates requires no social context, what it does need is an ontological equivalence: as pure sovereign the man-hunting virus seeks to infect subjects so as to render them into man-hunters in turn. What the injection of another pathogen achieves is to transform human beings from subjects into quasi-objects, in Michel Serres' sense of the term (2007). The preventative infection of humans by the culture hero is distinct from vaccination in general, for the reason that this operation is not predicated upon the immunological familiarisation of the self with a non-self (Napier 1996), but rather upon rendering the self totally imperceptible by the non-self through erasing its own selfhood. No longer a self, the human being becomes indifferent to the non-self virus. The injection hence deprives the pandemic apparatus of capture from its object proper: humans as subjects. As quasi-objects of another pathogen, humans no longer fulfill their role as ontological targets of the pure-life zombie virus.

The epidemiologist as culture hero is hence able to save humanity by folding life into death (Leach 2006: 246), and subjecthood into objecthood; a task performed through the double process of *re-pastoralisation* and, to return to Latour (1993), *re-pasteurisation*. On the one hand, the epidemiologist re-pastoralises humanity as a whole: he salvages it from the realm of cynegetic immanence, and re-socialises it. He or she acts like the classical culture hero mediator who negotiates a fecund separation/ mediation between nature and culture. This re-pastoralisation is not, however, achieved through a flocking-in of social actors, such as in the futile effort of the Mossad to re-enclose humanity within the political theological structure of the wall. Nor is it achieved through rendering social actors docile, as in the dehumanising social engineering experiment of the North

Korean regime. Instead, the re-pastoralisation of humanity is achieved through the re-pasteurisation of individuals: through their transformation into quasi-objects by a process of temporary infection (Table 1). There is a pervasive Pasteurian metonymy in operation here, following which, humans, as yet-uninfected subjects, stand for Louis Pasteur's famous growth medium. Both sterile and containing nutritive value (Collins and Pinch 2012: 80), the medium stands to be infected once exposed to non-sterilised air, in other words to the environment. The infectivity of humans thus evinces their being alive and, at the same time, open to the world around them. By contrast, being no longer human, zombies cannot be infected by another pathogen and are hermetically closed into their own immanence. Hence the transformation of humans into quasi-objects is portrayed as a condition of preserving their potentiality as social beings.

The anthropological import of the 'next pandemic' visual narrative thus becomes clear: humanity can retain its sociality, and the world can come out of its state of pathogenic imbalance (to invoke Laurie Garrett's influential metaphor) only if humans forsake their liberal-autonomous self for a more healthy and sustainable form of limited agency. In other words, humans can survive vis-à-vis the soon-to-erupt, imagined as inevitable, 'coming plague', only if they preventatively self-limit themselves. It is as an operator of this process of internalising the neoliberal governmental principle of self-limitation (Foucault 2008) as an ontological necessity for humanity, that the twenty-first century epidemiologist finds his or her place in the mythic pantheon of culture heroes.

Acknowledgements:

I would especially like to thank Priscilla Wald for stimulating my interest in cinematic depictions of the coming plague, Alex Taylor for introducing me to the critical study of

zombie filmography and sharing ideas and resources about the genre, and David Napier for his generous feedback on earlier drafts of this paper.

Funding

The research leading to this paper has received funding from the European Research Council under the European Union's Seventh Framework program ERC grant agreement no 336564.

Notes:

[1] On the importance of the notion of 'real time' in epidemiology see Caduff (2014).

[2] Ostherr (2005: 178) has noted that *NBC Nightly News* covered the June 1995 Ebola outbreak in Zaire with accompanying clips from *Outbreak*, with no verbal acknowledgement of the fictional character of the footage.

[3] A short cartoon on YouTube titled *How World War Z Should Have Ended* makes the point, tongue in cheek (HISHEdotcom, 2013).

[4] I would like to thank Robert Peckham for bringing this to my attention.

[5] All translations from Chamayou are mine, as I find the Princeton University Press 2012 translation problematic.

[6] This operation resembles mimetic hunting in Siberia (Willerslev, 2011), yet its lack of social context limits the scope of this comparison.

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