

*Routledge Studies in Health and Medical Anthropology*

# THE ANTHROPOLOGY OF EPIDEMICS

Edited by

Ann H. Kelly, Frédéric Keck and Christos Lynteris



# The Anthropology of Epidemics

Over the past decades, infectious disease epidemics have come to increasingly pose major global health challenges to humanity. *The Anthropology of Epidemics* approaches epidemics as total social phenomena: processes and events which encompass and exercise a transformational impact on social life whilst at the same time functioning as catalysts of shifts and ruptures as regards human/non-human relations. Bearing a particular mark on subject areas and questions which have recently come to shape developments in anthropological thinking, the volume brings epidemics to the forefront of anthropological debate, as an exemplary arena for social scientific study and analysis.

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**Edited by Ann H. Kelly, Frédéric Keck  
and Christos Lynteris**

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# Contents

<i>List of figures</i>	vii
<i>Notes on contributors</i>	viii
<b>Introduction: the anthropology of epidemics</b>	1
FRÉDÉRIC KECK, ANN H. KELLY, AND CHRISTOS LYNTERIS	
<b>1 Simulations of epidemics: techniques of global health and neo-liberal government</b>	25
FRÉDÉRIC KECK AND GUILLAUME LACHENAL	
<b>2 Great anticipations</b>	43
CARLO CADUFF	
<b>3 What is an epidemic emergency?</b>	59
ANDREW LAKOFF	
<b>4 Migrant birds or migrant labour? Money, mobility, and the emergence of poultry epidemics in Vietnam</b>	70
NATALIE PORTER	
<b>5 Photography, zoonosis and epistemic suspension after the end of epidemics</b>	84
CHRISTOS LYNTERIS	
<b>6 The multispecies infrastructure of zoonosis</b>	102
GENESE MARIE SODIKOFF	
<b>7 Complexity, anthropology, and epidemics</b>	121
HANNAH BROWN	

vi *Contents*

<b>8</b>	<b>Pandemic publics: how epidemics transform social and political collectives of public health</b>	135
	RUTH PRINCE	
<b>9</b>	<b>Of what are epidemics the symptom? Speed, interlinkage, and infrastructure in molecular anthropology</b>	154
	VINH-KIM NGUYEN	
	<i>Index</i>	178

# Figures

5.1	‘The Animal House (Mongolia). Note the Glass Cages’	85
5.2	‘On the way to Teshintansk (Siberia). Zabolotny and Wu July 1911’	92
5.3	‘An inn (Manchoulie)’	94
6.1	Rat tunnel at base of mud-and-dung home in Moramanga District	113
7.1	AIDS prevention advertisement by the NGO AIDS Consortium with PATH in Kenya	124



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# Introduction

## The anthropology of epidemics

*Frédéric Keck, Ann H. Kelly, and Christos Lynteris*

Epidemic and pandemic threats contour our contemporary political rationalities and social realities. Emerging and re-emerging infections, from HIV/AIDS to SARS and from Ebola to yellow fever, routinely expose the weakness of our collective systems of disease surveillance and control, fuelling anxieties of future, and increasingly catastrophic, pandemics (Caduff 2015). The ‘outbreak narrative’ that dominates the contemporary public discourse is propelled by the figure of the commercial aircraft, transporting local contagions across continents (Wald 2008). While the viruses that spill over from wild animals to remote village populations occupy pride of place in these end-of-the-world fantasies (Garret 1994; Preston 1994; see also King 2002; Peckham 2013), today the pathogens that could spark global pandemics might as easily evolve in antimicrobial-rich hospital environments in Europe and the United States (Chandler et al. 2016; Landecker 2016). Epidemics are the dark side of modernisation, medical and political progress; they represent the impossibility of securing the body politic in an ever-more interconnected, technologically advanced and globalised world. Historian Mark Harrison (2016) notes that the term ‘pandemic’ has been applied to diseases spreading across the globe only since the late nineteenth century, even if other societies have had different ideas about how diseases spread in a given community (which is the Greek meaning of *epidemics*). Responding to, and preparing for, the inevitable and yet unpredictable emergence of new epidemics and pandemics has become a prolific terrain for imagining the future of humanity. Epidemics prompt the question: how and through what mechanisms can we continue to live together?

As a mode of constitution of social life that has been cast anew by recent conceptions of virality, information, and communication, epidemics necessitate not simply the study of the disease itself and the way it affects social relations, but also the study of its modes of anticipation, visualisation, fictionalisation, and materialisation. As a result, what largely began in the mid-1990s as an examination of HIV/AIDS has today come to incorporate the study of a wide range of infectious disease epidemics, with monographs covering cholera, bubonic plague, influenza, Ebola, and dengue. At the same time, the analytic of epidemics has been applied to non-infectious diseases such as obesity or diabetes, as well as to mental illnesses, rendering a general paradigm in medical anthropology. What has made epidemics a particularly rich field of anthropological study is not simply the

multi-layered ethnographic opportunities raised by such phenomena, but primarily the methodological, epistemological, and broader theoretical challenges they pose for the discipline. Drawing together ethnographic insights from a diverse range of sites, histories, and pathogenic trajectories, this volume explores the anthropology of epidemics in a way that frames questions arising from the field as pertinent to the discipline of anthropology as a whole.

## **Epidemics from anthropological perspectives**

Anthropologists have a complicated history with the study of epidemics and their control. Both an obstacle and instrument of imperial expansion, disease outbreaks created the context and justification for policies of segregation, resettlement, quarantine, and population surveillance (Arnold 1993; Hoppe 2003). Epidemics were also an engine of scientific discovery and innovation; key advances in bacteriology and parasitology – for instance, the identification of mosquitoes as disease vectors and the germ theory of disease – developed from the research opportunities afforded by the colonial enterprise (Anderson 2006; Neill 2012). Native and subaltern populations were central to the rise of this new field of scientific inquiry; local traditions, rituals, livelihoods, and domestic spaces were cast as pathogenic reservoirs and as scientific resources for tropical medicine (Lynteris 2016a; Poleykett 2018; Vaughan 1991). Anthropology, a discipline which by the 1920s had come to be defined by a methodological commitment to long-term and immersive fieldwork, promised to render these domains of ‘primitive’ knowledge and practice visible for scientific interrogation and, in some cases, integration (Schumaker 2001; Tilley 2011).

But rather than being merely another example of anthropology’s implication in the colonial domination of indigenous populations, ethnographic engagement with disease control also demonstrates the fragility of the discipline’s position within colonialism – and arguably, that of the colonial enterprise itself. Malinowski (1929) famously pleaded for a ‘practical anthropology’, promoting the study of local systems of law, kinship, and exchange as key units of analysis for colonial development. Native health receives only a passing reference in this influential manifesto, but significantly in terms of the negative consequence of social dislocation introduced by forced labour and rapid urbanisation. At the end of *Primitive Mentality* (1922), a book widely read by colonial officers and literary critics, Lévy-Bruhl showed that mass vaccination failed if local conceptions of epidemics were not considered – a lesson he drew from his visit in the Philippines as an expert for the US colonial government in 1920. The vulnerability of subjugated populations to illness and disease was a key space for critique even when advancing a discourse of the civilising value of colonial occupation. Ethnographic interest in local remedies, healers, therapeutic rituals, and ethnobotanical knowledge reinforced that degree of critical distance, providing anthropologists an empirical line of inquiry that could shed comparative light upon, but not be determined by, Western medicine (Anderson 2006; Feierman and Janzen 1992; Tilley 2011).

Disease outbreaks, however, posed a distinctly more fraught object of ethnographic inquiry and more often than not, colonial medicine (Vaughan 1991). Episodic and exceptional in nature, epidemics are a real-time crisis that compels immediate response (Rosenberg 1992). The devastation disease outbreaks can inflict across populations tends to obviate culturalist interpretations of sickness or health – or at the very least, have made it difficult for local explanatory models to garner the same medical relevance as they have in the context of mental health (Béhague et al. 2008; Kienzler 2008; Kleinman 1992). Social structures and convention retain a certain epidemiological importance, but solely as routes of transmission rather than avenues for cultural exegesis (Trostle 1986). Classical anthropological interrogations of epidemics have therefore either tended to be circumscribed by the immediate demands of containment – for instance, sensitising public health teams to indigenous illness beliefs, identifying problematic customary codes of practice, and enhancing patient-physician trust (Hewlett and Hewlett 2008; Epelboin 2009; Inhorn and Brown 1990; Nichter and Nichter 1996; Janzen 2011).

The double-framing of cultural practice as a vector of disease and as a platform for health promotion links early-twentieth-century tropical hygiene reforms to the health development initiatives implemented by post-colonial states, and finally to latter-day global health security and preparedness programmes (Leach and Scoones 2013; Pigg 1997; Richards 2016). Beyond enhancing the cultural appropriateness of disease containment strategies, anthropological attention to local explanations and experiences of epidemic events provided a critical space to interrogate the differing social impacts of outbreak response and the forms of social exclusion, blame, and panic these interventions surface (Baer et al. 2003; Lindenbaum 2001). Arguably, then, this line of anthropological inquiry is to understand epidemics as *plagues* – what Herring and Swedlund (2010) characterise by ‘cycles of shame and blame, stigmatizing discourses, isolation of the sick’ (2010: 4–5). Not merely epidemiological trends, but ‘critical events’, outbreaks have the capacity to reorder social relations (Das 1995) and generate new subjectivities (Lynteris 2014), precipitating not only physical suffering but moral crises that can upend collective modes of existence (Alcabes 2009; Lindenbaum 1979).

The outbreak of HIV/AIDS shifted and amplified the dimensions of anthropological engagement with epidemics. For many anthropologists, the scale of the outbreak exposed the shortcomings of conventional ethnographic emphasis on disease as symbolic practice detached from history and political-economic context (Scheper-Hughes and Lock 1986). On the one hand, the stigma associated with the disease problematised a straightforwardly culturalist approach that failed to denounce extreme acts of public health negligence (Schoepf 2001). On the other hand, the effectiveness of anti-retroviral treatment obviated social-behavioural risk, as epidemic control came to hinge upon the distribution of life-saving pharmaceuticals (Brandt 2013; Hardon and Dilger 2011). Anthropological attention focused on the biopolitics of therapeutic access and the structural inequities that underpinned the vast discrepancies in health outcomes between and within populations (Farmer 2004; Fassin 2007; Lock and Nguyen 2010). Bearing witness to



the suffering visited upon infected individuals by the global political economy, anthropological work was put to the service of global health advocacy and activism (Robbins 2004; Biehl and Petryna 2013).

In addition to providing ‘empirical lanterns’ to individual and social suffering (Biehl 2016; Das et al. 2001), anthropologists have interrogated the discursive configuration of HIV/AIDS within an emerging regime of biosecurity (Caduff 2014; Collier et al. 2004). In 2000, the United Nations Security Council took the unprecedented step of declaring the HIV/AIDS epidemic a threat to international security in Africa. While justified by the global health community as means to garner international attention to the crisis, inscribing infectious disease within the language of danger and risk effectively normalised techniques and administrative practices that cast infected individuals as a form of national threat (Elbe 2008). The militarisation of public health reached an apotheosis in the wake of 9/11, whereby preparing for emerging disease became a central arm in the pre-emptive war against terror (Cooper 2006; Masco 2014). Illuminating the geopolitical contours and consequences of biosecurity, anthropologists have demonstrated how epidemics, or rather their perennial imminent threat, provide the pretext for the extension of governmental power across all forms of life and manner of living (Caduff 2014). That scholarship also shows how the radical expansion of strategies of containment ultimately works to narrow the scope of public health practice, giving precedence to the projected risks posed by imagined catastrophic contagious events rather than to the everyday social inequalities and global inequities that determine who becomes infected in the first place (Fee and Brown 2001; Lachenal 2015).

Epidemics, Charles Rosenberg suggests, are described as terrifying phenomena that ‘create an imperative need for understanding. Such explanatory efforts necessarily reflect a particular generation’s cultural and intellectual assumptions, its repertoire of available tools’ (1992: 34). In bringing together anthropological engagements with the field of epidemics, this volume seeks to develop tools to examine these phenomena and their wider social impact. Three thematic threads link the chapters of this book: the study of zoonotic disease or interspecies transmission of pathogens, the infrastructural and material aspects of epidemics, and counter-epidemic intervention. This is not because these are the only themes explored and examined by anthropologists interested in epidemic disease today, but because we believe that it is on the lines of these themes where the anthropological study of epidemics is producing analytical insights and unsettlements most relevant to anthropological thinking as a whole. Rather than being yet another collection of disease ethnographies, this volume aspires to bring epidemics to the forefront of anthropological debate, as an exemplary arena for social scientific study and analysis.

### **Interspecies transmission and zoonotic pathogens**

The idea of zoonosis, or the infection of humans by diseases carried by animals, is a distinctly modern medical notion. Initially applied to rabies but acquiring its

full semantic and epistemic force in relation to plague in the first decades of the twentieth century, zoonosis is today widely recognised as one of the most complex and pressing epidemiological questions. Anthropological interest in zoonosis has flourished in the past five years. Whereas anthropologists have long studied diseases of zoonotic origin, such as HIV/AIDS, it is only recently that these are studied *as zoonoses*, with anthropological focus placed on animal to human infection (Keck and Lynteris 2018). This turn has been catalysed by the importance of zoonosis for the broader paradigm shift in virology and bacteriology known by the name of Emerging Infectious Disease: the idea that pathogens hitherto only carried by non-human animals are able to mutate and ‘spill over’ to humans, causing great mortality in populations never exposed to them before (King 2002; Quammen 2012). Rather than this remaining a scientific arcanum, increased media coverage of the zoonotic aspects of epidemic like SARS, influenza, and Ebola, coupled with cinematographic configurations of animals as the source of killer viruses threatening humanity with extinction (Ostherr 2005), have placed zoonosis well into the public eye.

Anthropologists have thus tried to negotiate a particularly entangled situation. First, by critically engaging with epistemological frameworks of zoonosis and disease emergence as these are developed in scientific communities. Second, by accounting for the public appeal and spectacle of zoonosis, as a source of existential risk, and the way this is used to generate or direct global health policy. And third, by understanding both historically and ethnographically the social aspects and dynamics of animal to human infection, and the impact of zoonosis as a scientific doctrine and a popular imaginary on the ground. From explanatory model to inductive method to charismatic prophesy, zoonosis is quickly developing into a cornerstone social fact of twenty-first-century globalised societies.

A key aspect in the anthropological examination of zoonosis, and one that has particular significance regarding anthropological debates outside the confines of medical anthropology, regards the broader field of interspecies relations. In the last twenty years, social anthropology has undergone what has been called an ‘ontological turn’, which should be understood in two ways. First, it refers to a new gaze on non-human animals, which is not caught up in the symbolic webs of culture but is rather attentive to the interactions and entanglements between co-evolving species. In this new mode of anthropological description, animals are not considered as passive carriers of long-term human symbols but rather as actors in unstable and vulnerable networks of co-existence. Second, the ontological turn leads ethnographers to take seriously the claims of societies that attribute actions to animals, and brings them in a conversation with other commitments about animal agency. Notions of local knowledge taken from ethno-zoology are thus reactivated in the wake of the challenges raised by zoonoses, raising new questions on the modes of agency of pathogens transmitted from animals to humans. These two meanings of the ontological turn in social anthropology rephrase the general idea, common in evolutionary biology, that humans, animals, and microbes co-evolve in bounded ecosystems, but in a way that pays attention to the local configurations of these forms of interaction and to the global effects of the transgression of what

appears as ecological boundaries by ‘spillover events’. The transmission of tuberculosis between humans and elephants in Southeast Asia as a ‘reverse zoonosis’ following the rise of ecological tourism (Lainé 2018), or the enigmas of the transmission of MERS-CoV between camels and humans in the Arab Peninsula without a bat reservoir after the development of international camel racing (Cabalion et al. 2018), have thus led to investigations of interspecies entanglements at the local and global levels.

These theoretical and political questions within the debates of anthropology have met with interdisciplinary collaborations at the level of global health. Indeed, veterinarians and ecologists are increasingly required to collaborate with microbiologists and epidemiologists to provide knowledge on the transmission of pathogens from animals to humans and thus anticipate the emergence of zoonotic pathogens. The efforts to manage the ontological complexity of pathogenic circulations, labelled under the term ‘One Health’, operate across radically uneven political landscapes, and in their appeals to ecological holism they can obviate and exacerbate pre-existing vulnerabilities between species and among humans (Craddock and Hinchliffe 2015). They also provide a framework in which information on pathogenic mutations is standardised, mutualised, and exchanged through shared databases, which tends to evacuate the diversity of professional habits in collecting materials from animals (Fortané and Keck 2015).

The ‘One Health’ initiative can thus be described as an attempt to produce purified information from the impure circulation of animals across the globe. Indeed, scientific frameworks of zoonotic infection have singled out animals alongside an ‘included’ versus ‘rogue’ binary (Fairhead 2018b). Dating back to the identification in colonial India of the rat as the main source of bubonic plague (Evans 2018), the idea of rogue zoonotic sources has been tied to notions of invisibility which, while predating bacteriology, became a key aspect of epidemiology as a result of Pasteurian emphasis on bacterial attenuation and recrudescence (Lynteris 2017a, Lynteris in print; Mendhelson 2002). In the age of ‘emergence’, colonial strategies of sliding scales of medical blame, involving both native subjects and animal species (Evans 2018), continue to inform epidemiological practice. Fairhead (2018b) thus argues that in the context of the Ebola epidemic in West Africa, rogue status shifted according to context from the virus, to the bat, to bushmeat hunters, to the sick themselves. What, however, differentiates zoonotic framings in the age of emergence from those in the time of what we may call high-modern epidemiology (roughly 1870s–1970s) is that ‘Rogues connote not only the age-old threat that the excluded pose to power, but also its new emergent unknowability’ (Fairhead 2018b: 175). Whereas high-modern epidemiology relied on a doctrine of progress, accompanied by one of a hygienic utopia, envisioned in terms of an efficient separation of humans from pathogens and the animals that carry them, the age of emergence is pervaded by a pessimistic outlook of the world, that necessitates new forms of power and knowledge for the maintenance of human mastery over human/non-human relations (Lynteris 2017b). This is a state of affairs that is evident in the ways zoonosis is being visualised both in scientific and popular representations of disease and infection.

Growing historical and anthropological interest in the way epidemics are visualised has led to studies that go beyond the usual illustrative or representational focus on epidemic images. Seen as a process that contributes but also challenges epistemological and political aspects of epidemics, visualisation is thus becoming a new terrain of medical anthropological research. Studies of what Lynteris has coined ‘epidemic photography’ (2016c) have led to a closer understanding of the way in which photography has been used to render epidemics intelligible and actionable: from uses of photography in mapping epidemic terrains (Engelmann 2018) and the importance of photographic practices in the rise of colonial regimes of epidemiological knowledge (Poleykett 2017) to the photographic configuration of live animal or so-called ‘wet markets’ in China as the ground zero of the ‘next pandemic’ (Lynteris 2016c). More than simply being a permutation of medical photography, epidemic photography captures the past, present, and future of epidemic events and processes, drawing out an epidemic potentiality across social existence. Epidemic photography does not simply render the causes, victims, or drivers of epidemics visible. Rather, it forges a powerful dialectic between visibility and invisibility. Contra the ontological focus of proponents of the ‘bacteriological revolution’ (Latour 1993; Cunningham 1992), it is through their constant visualisation (rather than in spite of it) that infectious diseases have remained at what, following Smith (2013), we can call the edge of scientific sight; a state of constant epistemological unsettlement that has been further enhanced by what Nicholas King (2004) has described as the emergence of infectious disease emergence frameworks.

In the present volume, Lynteris examines how photography operates after the end of an epidemic outbreak so as to foster a suspension of epidemiological certainties that often solidify in response to infectious disease in the course of outbreaks. He examines the photographic output of the Chinese-Russian plague expedition to South Siberia and Mongolia, led by Wu Liande and Danilo Zabolotny, following the end of the devastating pneumonic plague epidemic in Manchuria in 1911. The photographs produced and collected by Wu neither confirmed nor disavowed his hitherto held belief in the implication of marmots in the spread of plague. Instead they opened up a space of doubt and uncertainty that remains invisible in textual records, which, by contrast, stress Wu’s conversion into the idea that marmots had nothing to do with the disease. In its verbal silence, epidemic photography thus allows us a closer, phenomenological view of scientific research, its epistemological lacunas and suspensions, in a space where scientific imagination can be deployed and developed.

On the other hand, literary and cultural studies scholars (Boluk and Lenz 2010; Gomel 2000; Ostherr 2005; Schweitzer 2018; Wald 2008) have showed that fictional accounts (films, TV programmes, paperbacks, videogames) of the ‘next pandemic’ as an event posing an existential risk to humanity give rise to imaginaries of ends of the world. Following Deborah Danowski and Eduardo Viveiros de Castro (2016), these should be seen not simply as apocalyptic fantasies, but as normative scripts about the relation between humankind and the world which both generate and unsettle visions of mastery over human/non-human relations

(Lynteris 2017b). Imaginaries of viruses as mutants and as enemies mobilise different regimes of norms and ontologies of human–animal relations (Keck 2015). This visual culture has had a pronounced applied aspect as regards epidemic control. Riding the wave of zombie visual culture, and the image of the epidemiologist as a culture hero promoted by films on pandemic catastrophe (Lynteris 2016b), the US CDC’s 2011 pandemic preparedness campaign mobilised popular fascination with the ‘undead’ in what has been hailed as the most successful communication stint of the agency (Fraustino and Ma 2015; Halabi et al. 2013; Kravand and Silver 2013): *Preparedness 101: Zombie Pandemic* (Silver 2011).

Such collusion between public health agencies and the cultural industry may be said to contribute to what Briggs (2017) has identified as communicative inequities, in the context of epidemics and epidemic threats. The idea of communicative inequity is a powerful anthropological tool that underlines the ways in which, beyond global health fantasies and fetishisations of data sharing, on the actual ground what counts as meaningful and actionable evidence, how information is distributed, and the way this accrues value depend on pervasive racial, gender, and class hierarchies. Whether these are photographs, maps, or diagrams, images and their visual economy play a key role in epidemic communication not only in terms of educating and convincing, but, more importantly, as a way of defining and policing what counts as knowledge and what can be discounted as rumour, stories, or anecdote. From a visual anthropological perspective, this clearly points out the fact that images of epidemics and zoonoses are not mere representations of infectious diseases and their social impact, but rather actants in a broader political economic arena of power and knowledge.

### **Infrastructures and materialities**

The inequities that Briggs tracks through outbreak narratives, biosecurity discussions, scientific explanations, and public health dialogue gives semiotic depth to the ‘social machinery of oppression’ that preoccupies anthropological accounts of HIV/AIDS (Farmer 2004: 312). A key empirical advantage of a linguistic purview on epidemics is the attention it draws to pragmatic practices of exchange – the flows of knowledge, circulation of information, and communicative systems – that stabilise a crisis into an object of intervention and transform populations into compliant subjects or sites of resistance (Briggs 2011; see also Leach and Tadros 2014). Recent anthropological interest in urban infrastructure develops this ethnographic concern with the systems that enable circulation, exploring the intersections of material and immaterial, visible and invisible boundaries that contour the operations of social, economic, and political life (e.g. De Boeck 2015; Lockrem and Lugo 2015; Simone 2004). This scholarship provides an exceptionally fertile ground for conceptualising epidemics not only as objects of public health and scientific concern, but also as dynamic fields of pathogenicity, moving between material surfaces, objects, and human and non-human bodies.

Disease ecologists have developed a rich vocabulary to articulate the heterogeneous pathogenic interaction that drives epidemics. Terms like ‘hot spot’

and ‘viral chatter’ capture the spatial and temporal contingencies that can lead to the emergence of a disease and its establishment in a human population (e.g. DeGroot et al. 2008; Johnson et al. 2010; Wolfe 2011). Transmission, this work teaches us, is never simply the matter of a single moment or point of contact, but rather is varied and disproportionate, amplified through particular characteristics of individuals, populations, and environments or, for instance, in the case of the Broad Street Pumps, contaminated things (Lloyd-Smith et al. 2005). Taking their ethnographic cue for this relational approach to viral space, anthropologists have shifted their attention to the experiences and understanding of disease to the material practices and proximities of everyday life that prompt infection (Brown and Kelly 2014; Singer 2017; see also Fontein 2011). ‘Infrastructural-thinking’ has allowed a transgressive ethnographic approach. On one hand, attending to the convergences of pathogenic potential collapses formally distinct public health (and to a certain degree, anthropological) domains of the household, the hospital, the farm, the market, and the forest. On the other, understanding the social and political conditions that occasion those convergences demands a historically nuanced understanding of the entanglements – between for instance, colonial-era plantations, village farms, and a population of migrating bats, or between farms and markets of live chickens – that persist in a shared landscape. In contrast to an ‘outbreak timeline’, these anthropological accounts do not reconstruct a single route of infection, but rather excavate a latent pathogenic milieu.

In her chapter in this volume, Genese Marie Sodikoff explores rat burrows in Madagascar as a complex non-human infrastructure implicated in seasonal outbreaks of plague on the island. What does it mean to examine the recurring outbreaks of human plague on the island through the lens of ‘multispecies, multilayered infrastructure[s] of *Y. pestis*’? Sodikoff argues that what makes rat burrows particularly important is that they do not simply connect humans with the natural reservoir of the bacterium in that region (the rat), but that they do so by means of an entanglement with human cadavers and their resting places. Whether this occurs in reality or only in the epidemiological imagination, the way in which the interlinkage of living rat infrastructures and infrastructures of human death is invested as catalytic for the maintenance and periodic return of plague back to the living is of key importance for social life in the plague-affected areas of Madagascar: ‘by forging imagined routes between rats and buried kin, [burrow systems] also link marginalised rural communities to the state in undesirable ways, sustaining a historical resistance to biomedical authority’.

Indeed, a key focus-point of anthropological attention to the infrastructure of epidemics is technologies and materiality of response. In their examination of the techniques of epidemic control, Lynteris and Poleykett (2018) have argued that ‘as anthropologists, we need to take seriously the self-positioning of epidemic control as technologically advanced, and consider the contemporary entanglement between counter-epidemic technologies of different historical provenance on the ethnographic ground’. If, as Wolf and Hall (2018) have shown, preparedness ‘organizes people around specific emergency infrastructures and communication routines’, regimes of exception employed with increasing ease in response

to outbreaks rely on the spatial organisation of epidemic spaces in terms of infectious inflected zones (see also Nading 2017).

While radically out of step with the humanitarian ethic of global health, there is a seductive resonance between pre-bacteriological public health practice and contemporary biosecurity preoccupations with disease emergence. Anthropological attention is needed, then, to the shifting material forms attendant not only to the control of epidemics but to the material production of anticipatory knowledge related to practical interventions in the field. Disease ecology is a complex mediation between standardised controls in a laboratory setting and local conditions in the field (Anderson 2004; Kelly and Lezaun 2017; Lezaun and Montgomery 2015). The distributed quality of epidemiological credibility depends on an assortment of practices and techniques, including reference materials, good laboratory practice (GLP) protocols, quality control panels, training, procurement regulations, and clinical algorithms.

But further ethnographic insight is needed into the local forms of biosecurity practice and containment upon which livelihoods depend. Natalie Porter's chapter in this volume gives ethnographic contour to the everyday organisation and disruption of containment by examining the stories of transnational migration and return among export labour migrants from Bac Giang province in rural northern Vietnam. She demonstrates how the infusion of foreign capital in rural economies transforms poultry production patterns in ways that engender new disease vulnerabilities for animals and humans. New forms of casual labour arising from a fragile, but increasingly transnational, entrepreneurialism upend kin-based systems of land management and livestock care upon which the health of animals depend. Biosecurity in this context is a feature of social stability; the capricious arrival and departure of migrant kin, cascading obligations, and expectations of financial gain, took families away from their flocks or lead them to compromise standards of poultry containment (see also Porter 2013). The examples Porter draws of the embedded sociality of epidemic control unsettles dominant narratives of that focus on urbanisation and spillover, by attending to the complex aspirations, capacities, and investments of increasingly mobile, and increasingly wealthy, rural populations.

Knowing epidemics, in other words, poses a distinct challenge concerning the relationship between credibility, anticipation, and efficacy: in contexts of primary health care, humanitarian intervention, and epidemiological research, the issue is not only how credible scientific results are produced, but what can be done with them, and by whom.

## **Intervention and collaboration**

Intervention in epidemics, in the form of containment and control, has been a subject of intensive study by historians of medicine like Anderson (2006), David Arnold (1993), Alison Bashford (2014), Mark Harrison (2012), and others. Stressing the colonial genealogy of contemporary counter-epidemic interventions, more recently anthropologists have drawn attention to epistemic lacunas

and unsettlements in colonial approaches of epidemic diseases. Underlining that the production of epidemiological knowledge and forms of population control has been intricately intertwined, they have shown that colonial responses to epidemics relied on frameworks of pathogenic tropicality. Importantly, these studies can help us understand key but misrecognised aspects of contemporary forms of epidemiological knowledge and practice. To give but one example, if Pasteurian concerns with hygienic burials of plague victims in Madagascar in the 1920s (Poleykett 2018; Sodikoff this volume) anticipate anxieties over ‘traditional’ burials during the Ebola epidemic in West Africa in 2014–15, this should not be seen as simply a colonial relic, but rather as part of persistence of the infectious corpse as an epistemic object of modern epidemiology and as a locus of public health intervention (a double ‘sliding object’ in this sense) that continues to generate fear, concern, research, and policy today (Lynteris and Evans 2018; Fairhead 2018a).

The biosecurity agenda provides an important context for the most recent turn in the anthropology of epidemics: the call for their inclusion in emergency outbreak response (WHO 2018; DFID-Wellcome 2018). What Stellmach and colleagues characterise as a ‘renewed recognition of the need to understand social pathways of disease transmission and barriers to care’ follows on the heels of the 2014–16 Ebola outbreak, for which the lack of community engagement and unilateral disregard of local practices were regarded as chief amongst the reasons for the exacerbation of crisis (Stellmach et al. 2018: 1; WHO 2015). Building upon the insights of work on HIV/AIDS and biosecurity, anthropologists pointed to the determining role of entrenched poverty in epidemic amplification (e.g. Farmer 2016; Wilkinson and Leach 2015) and the profound health inequities attendant to the sensationalism of the emergency response (Kelly and Marí-Sáez 2018; Lacheval 2014; Nuñez 2016). However, the visibility and presumed epidemiological relevance of a particular set of ‘cultural traditions’ – for instance, those involving burial, secret societies, healers, and witchcraft – provided a fulcrum for anthropological engagement with the Ebola response (Martineau et al. 2017; Sams and Desclaux 2017). ‘Cultural practice’ provided an epistemic common ground for anthropologists, policy makers, and public health professionals operating under conditions of radical uncertainty (Bolten and Sheper 2017).

Rather than this being a recent development, or one restricted to anthropologists, the relapse to ethnographically procured cultural certainties in the light of biological uncertainty has showed itself a constitutive element of epidemiology since its emergence as a discipline (Lynteris 2016a). Indeed, it may be claimed that having historically emerged in tandem within shared institutional and ideological frameworks, anthropology and epidemiology have much more in common than their current self-presentation may allow us to believe. Key to both disciplines has been the notion of contagion, a pre-epidemiological idea that with the rise of bacteriology and the systematisation of the study of disease transmission accrued scientific value by the end of the nineteenth century (Harrison 2012; Wald 2008). At the same time that contagion was being transformed through laboratory science and statistics, it formed the basis for understanding social processes in foundational anthropological and sociological works by James Frazer, Gustave



Le Bon, and Gabriel Tarde (Lynteris and Evans 2018; Rosental 2011; Sampson 2012; Wald 2008). Indeed, ideas of social contagion are still prevalent today not only in anthropology (e.g. Grøn and Meinert 2017) but across Western societies where it and its synecdoches (virality being the most prevalent) are no longer simply a metaphor for economic crises, riots, terrorism, or social media trends (Magnusson and Zalloua 2012), but as ‘a cause-effect relation *literally* underlining’ such phenomena (Lynteris and Evans 2018: 4). In other words, contagion is conceived as both an anthropological universal (e.g. Caprara 1998) and as ‘the dominant modality through which to describe that which might simultaneously realize and destroy the social’ (Lynteris and Evans 2018: 7). Contagion, as Lorenzo Servitje and Kari Nixon playfully put it, ‘is endemic to our contemporary culture’ (2016: 1).

In his chapter for this volume, Carlo Caduff thus asks: ‘What makes a disease communicable in our culture of media?’ Arguing that ‘the mass media has found in the idea of the next pandemic an ideal opportunity to corroborate its own discursive problematic’, Caduff explores the idea of epidemic seriality: ‘At its root, the world of preparedness entails a political form attuned to economies of mass production. It thrives on serial figures that are proliferating in technomediated milieus’. The demand of the serialisation ad nauseam which forms the backbone of the culture industry is thus shown to be linked to forms of pleasure associated with the ‘promise of making repetition a moment of renewal’. Drawing on the affinities between global health and capitalist mentalities through the mythic ‘demand to consider what’s next’ (the next pandemic, in epidemiology, the next deal in the market, the next show in mass culture), Caduff expands Brian Massumi’s turn from biopower to ontopower (2015), so as to show that what he calls the ‘serialisation of serialisation’ generates a temporality with no closure in sight. Through the generation of ‘provisional ends’ ‘the next unfolds and reinvents itself by virtue of a constitutive reiterative openness that never brings rest to the now’.

Andrew Lakoff, in his chapter for this volume, asks a different question, derived from Ian Hacking’s historical ontology: ‘What is an epidemic emergency?’. The problem he raises is how epidemics are declared to start and end, and how these official classifications make them real. In the series of continuous mutations and transmissions of pathogens, public institutions frame an epidemic as a significant course of event, that also gives rise to meaningful narratives in the media. Taking Ebola and Zika as two examples of recent epidemic emergencies, Lakoff shows that controversies were raised precisely on when epidemics started and ended to justify public health interventions. Preparedness, concludes Lakoff, is more than a constant state of readiness to the continuous mutations of microbes: it is a measurable condition, requiring methods of testing and sets of standards.

In their chapter, Keck and Lachenal add another element to Caduff and Lakoff’s diagnoses of preparedness. Through a review of different forms of simulations of epidemics in Asia and Africa they explore, by means of the anthropology of ritual, how exercises and drills mobilise humans, animals, and artefacts to produce the imaginary of the epidemic to come, be they organised in a closed room with computers or in the public space with actors. Critics of exercises are always raised in

terms of the realism of the simulation, because what counts in the exercise is the engagement of actors in the reality of the epidemic to come. Simulation, Keck and Lachenal conclude, has become a technique of government in neo-liberal societies because individuals and states are assessed on their capacity to engage in a test which produces its own forms of reality.

In these tests of social reality provided by epidemic outbreaks, anthropologists are supposed to engage themselves, because they are required to define the formats of the tests and to include a wider range of actors. Indeed, the post-Ebola global health landscape offers exciting opportunities for collaborative engagement. Arguably for the first time, anthropologists are being actively sought – as part of institutional policy – to participate on national and international decision-making bodies for epidemic preparedness. Though perhaps remarkable considering the discipline's penchant for long-term immersion in the field, anthropologists are currently being cast as facilitators in the rapid production and uptake of knowledge, the fast-tracking of community outreach, and the real-time integration of behavioural and epidemiological insights (Abramowitz et al. 2018). The question for anthropologists is the extent to which these will frustrate or catalyse methodological innovations and conceptual advances for the discipline. If the hallmark of an anthropology of HIV/AIDS was a 'historically deep and geographically broad analysis' (Farmer 2004: 309) – an interpretive frame that would evidence the role and reach of institutionalised racism – the anthropological project currently envisioned for epidemic emergencies is one suited for the accelerated deployment interventions; we are being brought into the fold to corroborate and extend the forms of counting that characterise both epidemiology and the broader global health project (Adams 2016).

There is tremendous potential here to make anthropology count for policy and moreover to make its methodology available for the populations we study; anthropologists working within the field of humanitarianism have repeatedly shown how in urgent situations local staff have profound ethnographic potential (see Allen and Schomerus 2008). However, if the critique of structural violence remains a theoretical framework and moral imperative for anthropology, its normative orientation within epidemic preparedness and emergency epidemic remains somewhat uncertain. The Ebola outbreak, for instance, provides examples of what can be occluded by a focus on contagion in contrast to the configurations of power and knowledge epidemics put in motion. It was a public health disaster but also a research opportunity: vaccines that had been conceived in the context of a post-9/11 biosecurity agenda were rapidly developed in emergency clinical trials. The intense scramble for Ebola cases that began following the wane of the outbreak, shows how humanitarian crises have also become an engine for capital (Erikson 2015; Kelly 2018; see also Sunder Rajan 2006). There is a concern that the operational demands of outbreak control might blunt the critical force of ethnographic accounts, particularly with regards to how epidemics are constructed as matters of public health, humanitarian, and biosecurity problems (Stellmach 2013). Vinh-Kim Nguyen's chapter in this volume is a testimony of the engagement of a group of anthropologists in the aftermath of the Ebola crisis. Noting that the moral

question for anthropologists is that of the discrepancy of speed between different modes of intervention in the temporality of the crisis, he shows that the problem of how to connect viruses at different speeds of evolution is also raised by molecular epidemiology at the level of the infrastructure. The interspecies zone, concludes Nguyen, is a space where these different speeds can be negotiated to avoid violent confrontation because no species barrier or disciplinary boundary defines in advance the limits of contagion and collaboration.

Death – particularly on the scale of epidemics – tends to short-circuit processes of signification: to die from infectious disease is in many ways to meet an unspeakable end. An end, moreover, that in the Western imaginary is metonymically associated, at least since Thucydides’ narrative of the ‘plague’ of Athens, with societal collapse (Lynteris and Evans 2018). Empirically unfounded and indeed covering up much more complex sociological and historical responses to disease outbreaks (Cohn 2018), the idea that epidemics dissolve social ties, lead to individualistic behaviour, and ultimately end up in a generalised state of anomy, forms part of distinctly naturalist definitions of human sociality: as a precarious state of ‘culture’ constantly threatened by instantaneous collapse into ‘nature’. More often than not, collaboration and its funding depend precisely on this sociological fantasy, which anthropologists are called to critique and demonstrate its impact on the ground.

At the same time as relying on and reproducing meta-narratives about humanity, counter-epidemic interventions also interpellate specific ‘publics’. In her chapter in this volume, Ruth Prince examines how ‘through flows of global funding and transnational interventions’, some groups or populations have accrued ‘social visibility and political traction while others faded into the background’. Introducing the term ‘pandemic publics’ so as ‘to draw attention to the interplay of visibility and presentation, voice, and audience in the process by which particular collectives are brought into being over the course of an epidemic’, Prince stresses that in the case of HIV/AIDS in Kisumu, Kenya, any given group’s success in the competition for resources made available by NGOs and other organisations in the midst of the epidemic depended on ‘their ability to present themselves in terms that global health organisations and actors could understand’. The drive to make themselves visible in a way that stresses ‘their belonging to and identification with “the community”’, while simultaneously ‘striving to differentiate themselves as responsible actors in, rather than as targets of, development’ reproduced ‘lines of social and moral distinction’ in relation to the disease (cf Esposito 2011). And, at the same time, Prince argues, it also fostered a depoliticisation of health care, ‘encouraging individuals and groups to make claims based on needs rather than entitlements, to NGOs rather than to their elected governments and to the state’.

Unfolding thus in an intellectual, institutional, and economic environment defined by emergency and discourses of existential risk, the anthropology of epidemics faces the challenge of two extremes: on the one hand, uncritical engagement and collaboration in the name of human lives, and on the other hand, critical distancing and self-guarded isolation in the name of knowledge. For those who

tread the middle path of critical engagement or engaged critique, the challenge is not only dealing with offended biologists or suspicious anthropologists, but of envisioning what a critical epidemiology may be, what could be its aims, programme, and principles. In her chapter in this volume, Hannah Brown draws on ethnographic experience with two epidemics (HIV in East Africa and Ebola in West Africa) in order to see how ‘models of complexity in social sciences and biomedicine’ interact in the context of managing outbreaks of infectious diseases. On the one hand, Brown argues, the aim of anthropology is ‘to capture nuance and complexity, rendering visible these dimensions of social life to those who read their work’. On the other hand, public health, especially when disease control is concerned, ‘often centres on activities that aim to simplify complexity’. So whereas key plague scientists of zoonotic diseases may admit that, as regards the disease ecology of the latter, we are in a state of ‘epistemological entropy’ (Kosoy 2013), when it comes to controlling such diseases in the context of an emergency ‘straightforward guidelines’ aimed ‘to help people navigate through complex worlds’ become necessary. Yet Brown argues that this is not simply a story of anthropological complexity versus epidemic-control simplicity. Indeed, what is more pressing is the negotiation of different forms of complexity in the two collaborating fields. Focused on risk-aversion, public health professionals ‘see complexity [as] a problem to be dealt with primarily through documentation, organisation, and planning’. By contrast, anthropologists recognise that in spite of all their immersive ethnographic engagement there is a level of complexity (or indeed several of them) that cannot be known but which remains as it were at the edge of ethnographic sight. Rather than assuming the two approaches of complexity are simply antithetical, Brown proposes a dialogical model according to which anthropological attention to the ways in which responses to epidemics unfold on the ground, and the way in which ethnography is attuned to unexpected dimensions of responses to epidemics constitute important sites at which anthropological work can contribute within outbreak response and public health interventions more widely.

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This volume explores the contemporary problem epidemics pose for anthropologists as an object of study and engagement. What has made epidemics a particularly rich field of anthropological study is not simply the multi-layered ethnographic opportunities raised by such phenomena but primarily the methodological, epistemological, ethical, and broader theoretical challenges they pose for the discipline. Following from previous efforts to consider epidemics as an idea (Herring and Swedlund 2010: 2), contributors consider the modes of relationality the epidemic brings to light. As a mode of constitution of social life that has been cast anew by recent conceptions of virality, information, and communication, epidemics necessitate not simply the study of the disease itself but the way it configures social relations. If terms like spillover, hotspot, sentinel, or emergence have been used to capture that contingent, latent, and recursive capacity of epidemics,

anthropological accounts can describe this bio-communicability whose tempos and scales challenge the ways we imagine both social life and the publics of public health (Briggs 2011; Brown and Kelly 2014; Keck and Lakoff 2015).

Moreover, contributors explore the epistemic contours of epidemics. Characterised by their potential to surprise and elude our systems of knowledge, outbreaks are ‘black swan events’ demanding speculative and creative modes of attention, ones that trouble the conventional epistemic contours of social science intelligence (Lakoff 2010). How epidemics are brought into view, what is rendered visible and invisible, requires the study not only of the epidemiological event but the study of its modes of anticipation, visualisation, fictionalisation, and materialisation that render it intelligible and amenable to intervention (Löwy 2010).

Finally, contributors hope to consider the moral questions epidemics pose for the discipline: how do anthropologists balance the corroborative potential and critical demands of ethnographic practice within the investigation of epidemic crises (Bornstein and Redfield 2010; Benton 2015)? Outbreaks are also occasions when global concerns impinge on matters of state, reconstituting the domains of government and citizenship (Lowe 2017; Mitropoulos 2012) and causing deadly frictions between scientific rationalities, public health norms, and cultural processes (Hinchliffe and Ward 2014; Keck 2008; Tsing 2004). Like other catastrophic events, outbreaks have the capacity to exacerbate existing social tensions and create new ones to trigger both administrative collapse and political change (e.g. Choy 2005; Fortun 2009).

This edited volume aspires to be the first comprehensive collection of papers on the anthropology of epidemics, incorporating key theoretical perspectives and overarching questions which make the particular subject pertinent not only to medical anthropology but to the discipline as a whole, setting anthropology at the forefront of social scientific examination of epidemics today.

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