

INTRODUCTION

A Life Science in Its African Para-State

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The twenty-first century is an age of *para* phenomena, not simply in the sense of a “millennial” age of mirage, specter, and occult imaginaries (e.g., see Comaroff and Comaroff 2000), but also in its reliance on absent presences. The prefix, denoting “beside, near, behind, and from” as well as “opposed and contrary to,” captures a conflation between original and copy, object and imprint or shadow—or between model, mold, and cast object—that challenges contemporary social scholarship. *Para-* helps us to avoid alternative descriptors such as *post-* or *anti-* as in postdemocratic, postdevelopment, antipolitical—which draw attention to important features but miss the peculiar sense of things changing without losing their form. Democracy becomes para-democracy when its institutions and routines persist but democratic control evaporates, which is different from twentieth-century anti- or non-democracies, for example, in their various military guises, but yet not postdemocratic; the economy becomes a para-economy if informal or illegal transactions, and formal ones cease to be distinguishable, and when this conflation operates across economic scale, from African bicycle mechanics to British MPs; even contemporary “revolutions” have a whiff of para-about them—neither fundamental political-economic ruptures nor obvious counterrevolutions. The remnants of older social and political forms appear sometimes as “mere” performance, empty shells, and sometimes solid and durable; insidious changes rather than obvious ruptures can be observed anywhere: more of the same things, and yet something very different.

In this edited volume we are particularly interested in the *para-state* in Africa—the ways in which the state, albeit changed or in unexpected ways, continues to work as structure, people, imaginary, laws, standards, and so on. The term helps us to avoid older normative understandings of the state,

as well as the resulting misleading notions of “weak” or even “disappearing” African statehood. The state, the authors in this collection agree, remains indubitably present and potent—if not always in control or fulfilling legitimate expectations of control. Specifically, we shall explore the para-state through one of its foundational fields of action and main manifestations in the lives of its citizens: medical science.

Biomedical Science in Africa

Medical and medical-related bioscientific knowledge has been generated from and applied to tropical Africa for over a century, transforming global medical knowledge and health in Africa. Medical science, government, and citizenship were intertwined in this process, evolving from early twentieth-century concerns with the health of imperial soldiers and settlers and the maintenance of the African workforce, through visions of health care as part of the Christian mission endeavor, to mid-twentieth-century projects of melioration and progress embodied by the British Colonial Welfare and Development Acts of 1940 and 1945 and subsequent postcolonial developmentalism and internationalism (Packard 1989; Comaroff and Comaroff 1991; Vaughan 1991; Ranger 1992; Iliffe 1998; Hunt 1999; Harrison 2004; Tilley 2011).

While medical science’s structures resembled those of other life sciences—linking metropolitan institutions and collections to imperial stations and experimental sites—and shared their legitimizing narratives about enhancing the (ex-)colonies’ value and uplifting their inhabitants’ lives by triggering development, what marks biomedical science is its particular moral valence. Preoccupied with saving lives and reducing suffering, medical research is a science of human life itself, which intertwines technical, political, and moral action, as early missionaries were the first to appreciate. Further removed from economic calculus than, say, agriculture, livestock, or plant sciences, medicine’s good is hard to contest. Medicine occupies the high ground, and other life sciences often bolster their moral justification with claims to medical, life-sustaining effects beyond economics (often through arguments of nutrition, from colonial cash cropping to current GMO debates).

The “developmental state” of the late colonial and early postcolonial era tightly intertwined health, medical science, government and population, and social good. In theory a textbook biopolitical regime (if in reality less extensive and coherent [Vaughan 1991]), it envisioned government-paid

and regulated doctors and scientists, networked from metropolitan centers and capital cities to the margins of emerging national territories, conducting research on citizens to produce knowledge, which government then used to improve the health of the citizenry. Implicit to this was a particular notion of scientific knowledge as tool to improve human lives, of the state as an advocate of its people, and of citizens as default subjects of research and government.

Some historians of Africa observed that this developmental nation-state was only a brief moment in the African *longue durée*; an imposition lacking the European original's underlying experience, and presumably with less lasting effects (e.g., Vaughan 1991; Cooper 2002). While nation-building processes in Africa and Europe were obviously different, such historical relativization of the African state should not distract one from its promissory character. For generations of Africans, the state has shaped what the world looks like, where one places oneself in it, and where one wants it to move. Its institutions and processes have proven surprisingly durable, but it is collective hopes and individual aspirations attached to the state that had the most long-lasting imprint on African lives and institutions (which might be the case in original European nation-states as well). In particular state medicine and medical science continue to emanate not simply power and sometimes fear, as Masquelier (2001) had it, but civic purpose and hope for (better) life (Prince 2013).

In recent decades this quintessentially modern tie between government and medicine has been affected by changes: epidemics of HIV, cancer, and noncommunicable diseases emerged; care facilities decayed, services were privatized, and market-inspired funding mechanisms and private insurances expanded; nongovernmental, transnational interventions became vital sources of disease-specific health care; and scientific research was, together with other life science work, reconstituted alongside decaying public institutions (see, e.g., Langwick 2011; Livingston 2012; Marsland and Prince 2012; Prince 2013; Prince and Marsland 2013). Doctors move between government hospitals and private practices to gain livable incomes; patients with little hope of obtaining medicines from their government seek treatment from NGOs and research organizations; and medical scientists court global drug trials and seek international scholarships. As a consequence of this situation, visions of scientific government and government science have turned into nostalgic memories of past hopes in many postcolonial countries (e.g., Mbembe and Roitman 1995; De Boeck 1998; Werbner 1998a;

Ferguson 1999; Masquelier 2001; Geissler 2011; Tousignant 2013; Droney 2014), and long-standing African misgivings about bioscientific technologies and associated economic interests have expanded from popular rumors to public arguments about the political economy of science (e.g., Feldman-Savelsberg, Ndonko, and Schmidt-Ehry 2000; White 2004; Fairhead, Leach, and Small 2005; Yahya 2007; Nordling 2012; see also Kelly and Fassin in this volume).

Despite these societal changes, the state has not disappeared. As the cases in this collection show, it remains tangible in the many people enrolled in its workforce, its buildings and circulations, and its habitual procedures and paper trails; it also remains present in people's claims for care, in state providers' determination to define policies and standards, and even in foreign donors' insistence on working through state "partners." And the state also persists in people's memories of (better) functioning government services, which far from being "mere" nostalgia direct their longings for a better future. All this is not quite the same as the developmental state of old, but it is not yet something altogether different either—hence the *para*- tag as analytical parenthesis.

The loosening of the biopolitical compound between state, medicine, and science has also opened creative spaces. New formations of government (for example, NGOs, transnational sovereigns, global philanthropy, humanitarian interventionism, public-private partnerships, pharmaceutical multinationals, nationalist anti-science) and new modes of collectivization (sometimes labeled "biological," "therapeutic," "pharmaceutical," or even "clinical trial citizenship" [Rose 1996; Ecks 2005; Nguyen 2005; Rose and Novas 2005]) have filled some of the spaces vacated by the nation-state without providing a similarly totalizing collective whole. The aim of this edited volume is to explore the place of medical and related life science work in Africa within these changed frames, trying to avoid tropes of totalizing rupture, and keeping the state in view, attending to its partial, residual, or lingering, lateral, mimetic, or mediated, that is, *para*, effect in contemporary biopolitics. Medical experimentation and intervention have been critical in the making of twentieth-century, modern Africa; they remain central for our understanding of twenty-first-century Africa and its place in a world in which life as such has become a focus of government and knowledge production.

A Sense of Change

The millennial present feels different from the time of our childhoods during the last third of the twentieth century. This sense of discontinuity has been given different labels, depending on disciplinary origins, political orientation, and geographical location, focusing on different facets of a diffuse experience, or trying to capture convergences between disparate phenomena. Some broad terms have equally rapidly expanded their currency and lost purchase: *globalization*—for some producing homogeneity, for others diversification—provided an encompassing but somewhat vacuous analytical concept during 1980s and 1990s; *neoliberalization* was then helpful to foreground concrete political-economic processes—global and national wealth redistribution and evolving class conflicts—but tends toward economic determinism, capital-conspiracy narratives, or overstretching causalities, which obscures attendant political opportunities (see Ferguson 2010).

Different *post-* concepts such as *post-Cold War*, *postsocialist*, *post-nation-state*, *post-democracy*, or, from an African vantage point, *post-postcolonial* (Ombongi 2011) or *second postcolonial* (Comaroff and Comaroff 2000) focus on historical comparison, but by emphasizing rupture they lose specificity; they also raise the question of whether we really are *post-* in the sense of beyond, and what we are in rather than after. Other descriptions focus instead on exemplary contemporary phenomena, such as humanitarianism and emergency (Fassin and Pandolfi 2010; Bornstein and Redfield 2011), nongovernmental politics (Feher 2007), biosecurity and epidemic preparedness (Dry and Leach 2010), or bioeconomies (e.g., Rajan 2006; Cooper 2007). This array of interrelated “key traits” of the contemporary configuration then raises questions about the proportional weight of particular phenomena, causal connections, and points of convergence.

Irrespective of the labels, for those who gained consciousness in the 1960s and 1970s, it suffices to switch on the kitchen radio to realize that ours, indeed, is a different world: delimited military-cum-humanitarian interventions in global zones of abandonment and global scares about emergent infections and travelling, drug-resistant pathogens transform the face of public (now “global”) health; persistent low-level conflicts at ever-shifting margins, suicide bombings, drones, and extrajudicial rendition and executions reference a new face of politics; and impoverished and diseased masses, dependent upon transnational food and treatment programs points toward an emerging global economy of survival.

In Africa this experience of rupture is accentuated by political and economic upheavals and violence (see, e.g., De Boeck 1994, 1998; Ferguson 1999). “Things fall apart” again, including the modernist edifice that Chinua Achebe once had accused of disrupting an older social fabric. Nostalgic (or ironic) comparison between the present and one’s grandparents’ 1960s and 1970s is common in everyday conversations, political discourse, popular literature and music, and reflections about professional practice (see, e.g., Simpson 1998; Werbner 1998b; McGregor 2005; Nyairo 2005; Prince 2006), and not least among academics and scientists whose conditions of life and work have radically changed (see Arnaut and Blommaert 2009). Such temporalities of contrast do not merely account for historical processes and experiences but also give—interwoven with the materiality of present life and traces of pasts—texture to the present and orientation to actions and aspirations (De Boeck 1998; Tousignant 2013).

This particular sense of time and of one’s place in time—the temporality of things-having-changed—marks contemporary social experience. Looking back, the past before the change, whatever content and value one gives it, lies behind the rupture: the time of the long 1980s, between the postcolonial then and an as yet unclear now. The *para*-state idiom aims to grasp this layering of temporal experience. In its temporal sense, *para*- also refers to the blurred vision produced by the filter of change; neither post one thing and not yet quite something else, *para*- captures a sense of historical uncertainty, a temporality of doubt framed by the figure of historical contrast.

New Biopolitical Forms in Africa

One characteristic of the present is its focus on life. Many new social forms have physical well-being and optimization, scientific knowledge of life, the utilization of bodily materials, and mere human survival at their core. Concerns with epidemics and pharmaceutical treatments; humanitarian emergencies and interventions; and the prominent role of the life sciences in economic value creation, in imaginaries of progress (and threat), and in debates about ethical values share an interest in life as such.

The government of life has been a feature of modern biopolitics throughout the past centuries; what, according to Rose (2001, 5), is different in the present is that “the ideal of an omnipotent social state that would shape, coordinate, and manage the affairs of all sectors of society has fallen into disrepute. The idea of ‘society’ as a single, if heterogeneous, domain with

the national culture, a national population, a national destiny, coextensive with a national territory and the powers of a national political government has entered a crisis. In this new configuration the political meaning and salience of health and disease have changed.” As a result of this, bodies are no longer approached collectively, as in old-style public health, but as containers of “somatic individuality” (Rose 2001), bearers of traits and risks, and targets of individual management and maximization. Taking these insights to Africa implies a shift: while among Western middle classes the new vital politics may be primarily about optimization, for many others, including many Africans, life is increasingly about survival. Somatic individuality is here less about striving for physical perfection than about an individualized struggle to keep the body going (see Marsland and Prince 2012).

This difference notwithstanding, Africa is particularly suitable for exploring the new vital politics. Contemporary political-cum-economic-cum-epidemiological changes of science and care, academia and government are more visible here than in European post-welfare societies, where lasting infrastructures, bureaucratic institutions, and administrative habits maintain a façade of stability and where decaying structures are overwritten by new ones. The proliferation of “nongovernmental politics” (see Feher 2007) is more obvious where kleptocratic governments have turned their backs on their nations. Privatization and reduced government budgets hit hard among people without personal equity; class contradictions become more radical here, separating those participating in global opportunities from the majority without access to education and employment and those who rely upon decaying public provisions from those who benefit from new private insurances and care providers. People’s survival depends here on innovative biopolitical forms—refugee camps or food drops, vaccination campaigns, treatment programs, or clinical trials.

Africa has for long been described as a “laboratory” (Tilley 2011), a site of knowledge production and “experimental governmentality” (Bonnieuil 2000), where medical (and other life science) practices were tried out together with novel social orders. In fact, the trope of experimentation predates historical analysis and derives from the colonial lexicon itself (see Lachenal 2010). Recent decades witness an intensification and enlargement of experimentation, from small-scale experiments, which served as pilots for larger programs, to large-scale experimental interventions, producing and validating evidence as they go (see Nguyen 2009; Rottenburg 2009).¹ In the near-absence of government health care, experimental formations have be-

come vital for people's survival and well-being; this includes experimentation *sensu stricto*, clinical trials, which provide health care and treatment. Medical experimentation has thus a particular place in contemporary Africa, referencing a wider spectrum of novel biopolitical forms between nation-state and medical science, which can be discerned more clearly and earlier in Africa than elsewhere.

The Nation-State Past

The origin and counterpoint for the designation of the present as para-state is the nation-state, in which territory and population, home and people fall in one and in which the influence of government extends from centers of power and knowledge toward the margins. Life as an object of knowledge and of regulation had a particular place in the modern nation-state, familiar from Foucault's studies of "biopower." Irrespective of its actual historical realization, this mid-twentieth-century vision of the government of life—represented, for example, by the British social theorist Richard Titmuss (1907–1973), whose work shaped the National Health Services in Britain and postcolonial Africa (Oakley 2004)—has been steadily eroded by the replacement of society (as in people, territory, and state) with market as organizational metaphor and the spread of the liberal dichotomy of the state versus the people (rather than the idea of the former as democratic embodiment of the latter).

Over the course of a few decades, the generation of scientific knowledge, previously a privilege of state institutes and universities, has been changed by new modalities of funding, management, and audit and new notions of intellectual ownership and value; simultaneously, the utilization of scientific knowledge has been progressively privatized and moved out of the taken for granted core domains of national government—health care and education. These changes affect the lives of citizens and their understanding of the nation as the principal space of rights, claims, and obligations: gradually the modern republic disappears from view. As noted, African institutions and idioms of nationhood of recent origin, dependent upon external funding and riddled by historical contradictions (see, e.g., Bayart, Ellis, and Hibou 1999), suffered particularly from these political-economic assaults.

This said, African nation-states are not simply "weakened" (see Roitman 2004) or reduced to an image or a specter (e.g., Masquelier 2001). The state remains in existence, embodied by millions of civil servants, the institu-

tions they work in, and the regulations and standards they uphold; it is revealed in the control and force it exercises over its boundaries and its people, and it serves as projection of expectations and claims and memories of past hopes. In many if not most African countries the state “works” less well for the majority of its people than it should (and maybe did, at some point), if *working* implies availing the possibilities of education or health care to the population at large, but the state’s place in biopolitical order has changed, not diminished.

A Para-State

To capture this transformation, our title uses the shorthand *para-state*. This term has historically shifting meanings; according to the *Oxford English Dictionary*, a *para-state* is “an organization which takes on some of the roles of civil government or political authority; an agency through which the state operates indirectly; [also] an industry which is partially state-run,” while *para-statal* is “an organization or industry, now esp. in some African countries, having political authority and serving the state indirectly” (*OED*, online). In Africa the term historically often refers to state-owned industries and state interventions into the market, such as commodity boards. This use of *para-state* denotes an ambiguous conflation between state and non-state spaces—the state meddling in non-state spaces to bolster its power—which is antithetical to 1980s liberal economic policies (e.g., Colclough and Manor 1993; Tangri 2000).

Our own use of the term shares connotations of ambiguity and transgression, but it references the opposite operation: modeled upon a more recent version of para-statal reorganization, it describes a chunk of the original nation-state that is parceled out and run differently, shaped by market operations. This para-state “takes on some of the roles” of the nation-state without being part of or coextensive with it, evolving next to, around, or in the interstices of the state, thriving in its cordoned-off segments, upon the traces and detritus of the state, and interpreting memories and visions of nation and state toward different ends.

The *para-* prefix references—as in other *para-* phenomena, such as parasience or para-politics—a creative relationship between new (bio)political forms and the state. The para-state emerges at times within the ruins or carcass of the older nation (for example, new regulatory, ethics, or patenting agencies implanted by global policies into older government structures);

it evokes images and memories of past forms or projects older visions and hopes onto the emergent structures of the future (as in resurrections of nationalist rhetoric in neoliberal economics); at times it revitalizes, zombie-like, partially and temporarily, older state structures or limbs of those structures (for example, HIV clinics within neglected hospitals, research outfits in decaying universities); at other times it utilizes, sometimes drains, what is left of state institutions (for example, recruiting drug trial participants from public clinics or hiring qualified professionals from government hospitals into disease control programs).

At the same time, the para-statal formation creates new organisms, unexpected life forms and associations, homunculi and phoenixes, such as the South African HIV Treatment Action Campaign, which challenges the nation-state on its own grounds, calling for scientific progress and demanding the equal distribution of its fruits (see Robbins 2008) or the momentary rebirth of an assertive nation-state, as in Fassin's example in this volume of the South African government's attacks against transnational science in defense of its territory and people (see Comaroff and Comaroff 2000). Even when these new formations reject or attack outright the biopolitical institutions of the nation-state (proposing an activist nongovernmental alternative), the nation-state remains the point of reference. This is why the term *para-state*, retaining the state in focus by directing one's gaze slightly beside its original locus, seems suitable as a cover under which to explore the novel biopolitical spaces on the African continent.

Para-Statal Organizations

Specifically, we take the term from the para-statal scientific institutes, which were founded across Africa in the late 1970s as a new institutional form of the life sciences after the decline of national universities and government research bodies and in response to new transnational funding opportunities and changed scientific interests, practices, and technologies. These para-statal bodies are nominally "national": linked to ministries and with politically appointed chairs, their names and rhetoric evoke the nation, and their legitimacy—scientific validity, ethic justification, and legal and economic accountability—is predicated upon this nation-state connection.² Yet, at the same time, they are not integrated into governmental processes and resource flows or the national educational project—they don't implement policy, spend tax revenue, or provide degrees.³ Instead, they are commonly

constituted as corporations, holding private property rights and assets and generate income and profits independent of the government budget. Apart from basic infrastructure, they are not government funded, and although nominally national, they depend upon transnational agencies and private partners' support. They are collaborators: entities that can only exist in conjunction with something else, enacted and stabilized through practices glossed as *collaboration*—the contemporary version of the social contract—as implied by the prefix *para-*, “analogous or parallel to, but separate from or going beyond, what is denoted by the root word” (*OED*, online).

As the chapters in this collection illustrate, much bioscientific work in Africa today is conducted in para-statal frames, relating to but not part of the state, labeled variously as *public-private partnership*, *collaboration*, *statutory institution*, *nongovernmental organization*, *local partner*: HIV positive populations (and care providers) depend upon treatment programs run by nations outside Africa, creating para-statal sovereignty and citizenship (see Nguyen and Poleykett in this volume); scientists in public African universities link, through citizens' viral materials, to private U.S. university researchers, founding new interstitial institutions and appropriating spaces left by receding national science (see Lachenal and Poleykett in this volume); para-statal research institutes in conjunction with a Euro-American national public health institution create scientific research stations and field sites (see Gerrets, Geissler, and Kelly in this volume); civil servants gain their living, expertise, and identity oscillating between state employment and transnational collaborations (see Whyte and Poleykett in this volume); patients move between attachments to transnational health care experiments and national referral institutions, making new associations in between (see Meinert and Poleykett in this volume); an African public institution conjoined with foreign private charities or corporations runs disease eradication programs (see Beisel in this volume); and all of a sudden, the allegedly dead nation-state raises its mighty head in nationalist (or Pan-Africanist) resilience to transnational scientific and economic intrusions (see Fassin, Kelly, and Geissler in this volume).

What can be designated as *para-state* is more or less prominent in different countries and with regard to different institutions—and more or less camouflaged by nationalist discourse, which has a different historical rooting and salience in different African nations; in some cases, institutional segments of the nation-state are used or revived; in others, state forms are copied, referenced, or translated; and in other cases again, state functions are

picked up temporarily by non-state others. Moreover, the “slippery” (Gerrets in this volume) para-forms may look differently—and indeed operate to different effect—depending on one’s vantage point: for some they appear as genuinely national institutions, for others as fraudulent mirages of statehood, for others again as spaces in which (some) Africans play the games of foreign donors or as territories of opportunity that can be utilized, albeit indirectly, by national scientists for collective social interests. The diverse phenomena grouped by the term *para-state* have in common that the state remains an absent presence; like the blind spot at the center of the eye, the state is always part of the picture.

Collaborative Sites

An exemplary materialization of para-state science are the large, well-equipped, and highly productive research sites, which are featured in many of the chapters in this book, that have grown in most countries of sub-Saharan Africa since the 1980s, constituted of nominally national African institutions and governmental, public, or charitable bodies and leading universities in Europe or the United States (see, e.g., Crane 2011). They mark the northern partners’ spheres of interest in terms of study populations, clinical sites, and geographical-administrative areas, and they invest in infrastructure such as buildings, laboratories, transportation, and staff within the demarcated and securitized spaces they control.⁴ While some of them have antecedents in the late colonial period (see, e.g., Kelly and Poleykett in this volume), most of them emerged during the past three decades.

As several chapters in this collection point out, rather than integrating research work into the existing geography of national health care provision, referral systems, public health programs, or national academic institutions, these sites often create separate spaces that provide perfect technical and managerial conditions for scientific work (International Organization for Standardization [ISO] accredited laboratories, high standards of health care and surveillance, controlled accounts, adherence to ethical regulations), set apart from the decaying governmental infrastructures around them. Due to their monopolization of technology, expertise, and participant access, they increasingly concentrate world-leading epidemiological laboratories and research. This constitutes a shift, not only with respect to the developmental nation-state of immediate postcoloniality but also from the situation thirty years ago, when medical research was conducted by a multitude of overseas

and (African) national students and researchers using national infrastructure and attached to national ministries of health or universities.

Despite their impressive structures, these research sites are not permanent, depending for resources and expertise on time-limited externally funded projects. The looming threat—characteristic for transnational outsourcing, for example, of manufacturing industries—that the foreign partners move on to a different site and country means that national governments exercise only limited de facto control over these new entities.

The elusiveness of such science sites is part of their very constitution, which leaves many questions unanswered. *Collaborative partnership* emphasizes equality, symmetry, and mutual independence and glosses over divergent interests, inequalities, and dependencies, as well as ambiguities and contradictions (Okwaro and Geissler 2015; for participants' perspectives see also Molyneux et al. 2005). Who leads the collaboration? Who employs staff? Whom do staff, participants, and wider publics perceive as in control? Who is responsible for research outcomes and long-term effects and side effects? And who takes care of participants after a trial or in the case of adverse events? From these unanswered questions arises a configuration of power, which seems harder to contest (by actors or anthropologists) than older regimes of experimentation—for example, imperial scientific domination or contemporary for-profit clinical trials—where contradictions and conflicts of interest were more obvious.⁵

Given the independence of these entities from the nation-state, why is the state still necessary for para-statal science? The answer is that it provides legitimacy and rationale to the scientific undertaking: the national government retains legal responsibility and liability for research activities; it underwrites regulatory rules and provides ethics approval; it sets laboratory, pharmaceutical, and professional standards (although increasingly transnational standards such as ISO and Good Clinical Practice [GCP] are adhered to).⁶ It allows legitimate access to citizens' bodies and avails public medical facilities for the recruitment of participants, for clinical trial procedures, and for the referral of participants after the end of research projects. And finally, it serves as the ultimate destination of findings, which ideally translate—after circulation through global scientific journals and health policy agencies—into national health policies.⁷ Thus the state remains crucial to the activities, but it no longer functions as one center around and from which activities are assembled.⁸

The Archipelago of Science

Para-state science sites are unlike national centers—public universities, referral hospitals, or government ministries—of nation-state science. These radiated across territory and population, extending the purview of scientific knowledge, making the population known, and applying and distributing knowledge to it. Instead, the para-statal configuration consists of networks of enclaves—specialized laboratories, clinical research centers, donor-run patient support centers, research wards, experimental huts and villages, and demographic surveillance systems. These are dotted across the nation, linked to one another and transnational circulations of expertise, data, resources, and policy, which crisscross the globe without necessarily touching upon national structures of knowledge generation and use. Thus, epidemiological and demographic data produced in collaborative surveillance systems is analyzed by transnational scientists and institutions, before it is shared with local administration or national authorities; research wards cannot change care standards in surrounding hospitals or dispense care after the end of a trial; laboratories and data-processing units are established in air-conditioned high-quality buildings or pre-equipped containers adjacent to crumbling health facilities; transnational scientists working in these sites train their (African and overseas) graduate students in leading European and American universities, rather than national universities. While Thomas Moore’s archetypically modern republic of Utopia was an island governed from its center reaching out to its shores, the para-state configuration is in this instantiation an archipelago of well-protected islands of modern science and government, enclosures in which the fruits of modernity—wealth, health, opportunity, innovation, freedom—are confined and contracted (Geissler 2013).

From a certain angle, this may not look so different from the past: isolated mission hospitals in the jungle (see Manton in this volume), and colonial nutrition experiments in the desert (see Kelly in this volume). As historians of colonial medicine have shown (e.g., Vaughan 1991), African public health and care provisions have always been patchy, and academic institutions have always remained somewhat separate from their surroundings (see, e.g., Nyamnjoh 2004); there has never been a totalizing African republic of knowledge and welfare. The radical difference between the present archipelago and previous configurations is then not just the geographical forms—that science sites are not at the center of any territory, that bound-

aries are fortified, and that circulatory flows are global—but the directionality of relations between “islands” and remaining territory: early colonial hospitals were envisaged as bridgeheads for the arrival of modernity; developmental state experimental sites were envisaged as “pilots” for the scientific government of national territory—both being mere starting points for larger projects. Contemporary enclosures of evidence production operate more like localized “sensors” of a global system; like weather stations, enclaved “surveillance systems” feed data into global knowledge streams, and while one hopes that this knowledge will have a benefit, somewhere and eventually, the connection between sensor and its surrounding is neither that between starting point and trajectory nor between model and reality.

The image of the archipelago emphasizes the isolation and separation of its constituent islands, and it is indeed one important trait of scientific spaces, like the above mentioned research stations, that they are fortified and accessible only to some. The way they are construed—administratively as well as architectonically—does pose an obstacle to localized circulation. At the same time, their boundaries are also always constituted by movement across them: by staff members entering in the morning and leaving in the evening; by research participants and biological specimens being brought there, and formal and informal information being taken outside; by clinicians moving between their commitments to transnational science, the government health care system, and their own private practices; by pharmaceuticals, money, and other forms of value circulating beyond their limited spaces. In other words, while these are enclosures, they are anything but hermetic, and their boundaries are demarcated in processes of continuous transgression. Rather than merely tracing new boundaries and discerning novel regimes, ethnography is to attend to these processes and pay attention to the less obvious relations between enclaves and the surrounding territory.

Science in Its Neoliberal Landscape

The archipelago of enclosures, superseding older versions of modernity as expanding, colonizing, encompassing, and improving territories and populations, is not limited to scientific production. Enclosures, enclaves, spaces of exception have been described by anthropologists such as Ferguson (2006) and Ong (2006) as characteristic expressions of a twenty-first-century political economy, reflected in phenomena as diverse as resource extraction arrangements, export production zones, and urban condomini-

ums. The fact that publicly funded public health science and gold mines, sweatshops, and high-class urban enclaves share a similar geography today seems no coincidence; yet, as overarching causalities of the “neoliberalization” type have limited explanatory value, the task for the anthropologist remains to figure out relationships and interactions between similar patterns.

Widening economic differences, reflected in shrinking African government budgets (further decreased by decades of misuse of funds), play a role. As national academic, scientific, and medical institutions lose their ability to perform their tasks, integration with well-resourced external institutions becomes more challenging, and the greater the discrepancy between resource rich entities and their surroundings, the greater is the need to control flows. Such economic effects are sharpened by the imprint of external partners’ policies and ideology: if the mandate of a foreign organization is, for example, to protect the health of its own population, then building a sustainable African national health system is not on the agenda; if the imaginary of a big charity is focused on quick technological fixes achieved with high, targeted capital input, this does not favor health system integration.

Global technological, medical, and scientific developments contribute to these separations: bioscientific research has come to depend upon high-end technology with a rapid turnover and innovation rate—automated laboratory tools, sequencing equipment, MRI scanners, the newest diagnostic tests and reagents, high-speed data networks—and global rather than national standards, which carry high costs and complex international supply, maintenance, and training arrangements. If good science needs high capital input and innovation, driven and funded by global centers of excellence (such as Euro-American academia), then a structure of globally interconnected scientific enclaves imposes itself.

Technological shifts are accompanied by changed management and the evaluation and audit of science: if valid outcomes—vital for sustained funding—are defined by publication in few world-leading journals and translation into global policy recommendations by transnational agencies, rather than in relation to local circulation, clinical practice, and public health intervention, then the gap between transnational science production and national public health contexts necessarily widens (see, e.g., Feiermann 2011).

Finally, enclosures and scientific experiments share a topography and temporality. In order to achieve validity, experiments are confined to a particular place, different from the world at large (see, e.g., Gieryn 1983; Shapin 1988): the scientific laboratory, or the experimental “field,” with its demar-

cated territory and population. Spatial boundaries come with limitations in time: the experiment runs until it has achieved its predetermined outcome (open-ended experiments would imply different epistemology and political economy). The contemporary emphasis on valid experiments—epitomized in the proliferation of “randomized controlled trials” in public health research and beyond it into social and economic policy—rather than, for example, clinical, observational, or operational research, enforces the topography of enclosure. The convergence between the topography of science and other political-economic processes can thus partly be explained with the particularities of the experiment itself. Experiments constitute states of exception, which anthropologists like Aiwa Ong (2006) or Mariella Pandolfi (e.g., Fassin and Pandolfi 2010), among others, identified as critical to the contemporary political-economic order, exemplified by phenomena as diverse as humanitarian emergencies and export production zones. Emergency interventions and economic zoning—experiments in their own right—are based on a state of exception, limited to a particular “hot spot” and the time of a “crisis.” As Nguyen and others show in their contributions to this collection, the global scientific response to the HIV crisis provides an exemplar for the convergence between experiment, emergency, and wider political economy and the processes of deterritorialization these entail.

New Collectives

In step with the deterritorialization of bioscientific work in para-statal science, the collective that is the target of bioscience—the source and destination of its knowledge—has changed. The national citizenry, which was central to the nation-state’s efforts at generating and utilizing scientific knowledge, is turned into an assemblage of individual bearers of bodies and ailments, rights and claims, such as HIV “clients” in transnational treatment programs or clinical trial “volunteers.” If these “somatic individuals” recollectivize in the process of their engagement with, for example, medical research, they do so not as one citizenry but as multiple and shifting new collectives: “peer groups,” “patient advocacy groups,” “community” representatives and advisory boards, and the like (see, e.g., Prince 2012a, 2012b). These multiple, overlapping, and ephemeral biosocial collectives are governed by similar biopolitical techniques like the ones employed by the older, disciplining nation-state: registration and identity cards, statistics and demography, laboratory values and bodily measurements, enhanced with

contemporary biometrics, data networks, and satellite-based surveillance technology. And just like their common biopolitical ancestor, the national population, these collectives generate subjectivity, as exemplified by “HIV identities” (see Dilger 2009; Nguyen 2009) or by clinical trial participants’ sense of belonging (see Fairhead, Leach, and Small 2005; Geissler, Kelly, Pool, and Imoukhuede 2008).

What is different is their topography and timeline: the new biopolitical technologies do not usually create, or aim for, one larger, lasting collective—as in the unitary civic public of the nation-state people, defined in terms of shared residence, biogenetic ties, language, or history—which can serve as a frame for political contestation and intentionality, as a target for education and science, and as a space to negotiate effects and distribution of scientific outcomes.⁹ Instead, they continuously evoke overlapping entities, which come and go, shrink and enlarge, overlap and merge—akin to media publics, constituted by ongoing processes of address, reception, and (mis) translation. These multiple publics are still subject to governmentality, but they are not governed in one overarching direction—for example, population well-being or improvement—but in many different (usually short-term) directions, shaped by contested interests.

Some anthropologists have attempted to capture these novel collectives in the idiom of multiple (biological) citizenships (e.g., Biehl 2004); while this can be fruitful (e.g., Petryna 2002), this becomes problematic if an inflation of plural citizenships questions the privileged position of citizenship as social and political aim. Reserving the term *citizenship* for the latter encompassing project, by contrast, allows for the comparison of the implications and possibilities offered by diverse collectives and the assessment of their contribution to a larger emancipatory political project or not. Citizenship then remains a placeholder for an unfulfilled project, rather than a handy label. In a similar vein, the notion of the public—as in public health and public science—might best be reserved for particular formation of medical science and for a political direction in this regard.

Anthropologies of Public Science

The interest, across this edited volume, in the changing role of the state is linked to the fact that all contributions are about *public* health science: publicly funded and publicly accountable biomedical work. Indubitably, the texture of “the public” has changed and its umbilical tie with the nation-state

has loosened (see, e.g., Prince and Marsland 2013). If the public evoked in Richard Titmuss's writings on public health in postwar Britain referenced one lasting project, contemporary publics are multiple and have less defined territories: they may cover fragments of the older national public, combine pieces from different locations across levels of scale, or escape topographical and scalar location altogether. They wax and wane, merge and split up, are evoked and disbanded. And the distinction between public and private appears today often less obvious than in older versions of public health.

Yet, there remains an important conceptual and political difference between public science—as in spending tax revenue and being accountable to democratic institutions, led by publicly employed scientists publishing in academic journals, and referencing the social justice project of “public health”—and scientific research or health services for profit, conducted by pharmaceutical and biotech corporations. The promiscuous paradigm of “public-private partnership” and collaboration, discussed above, and the intrusion of corporate funding and models of intellectual property into academic institutions should not distract from this analytical and political distinction. Precisely because public science is today threatened, its particular frames and its actors' intentions deserve attention—as reminders of past aspirations and to give orientation in ongoing struggles about the politics of science and health.

Recent anthropological literature on transnational medical research has focused on nonpublic medical charting of the “free market conversion of clinical research” (Elliott 2010) or even the emergence of “biocapitalism” (Rajan 2006), showing that global outsourced markets of human experimentation have grown in recent years, being driven by the pharmaceutical industry's search for surplus value, and that poorly regulated clinical trials have become part of the valorization of the human body in contemporary global bioeconomies (e.g., Cooper 2008; Fortun 2008; Fisher 2009; Petryna 2009; Abadie 2010). Even if this literature might exaggerate the significance of bioeconomies, biological innovation-cum-exploitation is indeed a salient feature of contemporary public imaginaries of global futures—hence the resonance of the recent novels of, for example, Margaret Atwood (2003, 2009) or Kazuo Ishiguro (2005).

However, it is no coincidence that most of these analyses focus not on Africa but on Eastern Europe and Southeast Asia, where (since the early 1990s) poor medical care provision is combined with an underpaid but well-trained medical workforce and reasonably well organized public medical

institutions. Just as with other “free market conversions,” the new bioeconomy does not seem to work in quite the same way in most of Africa. Contrary to dark tales of the *Constant Gardener* type (Le Carre 2000) (echoing the 1960s Tuskegee scandal [Reverby 2009]), in which Euro-American scientists, paid by inscrutable global corporations or, with equally sinister connotations, the U.S. government and army, experiment on black people to generate profits from vulnerable, disposable bodies, most medical research in Africa today is open to public scrutiny, publicly funded (albeit not necessarily by the national government of the population enrolled of the trial), and by and large free from immediate corporate profit interests.¹⁰

To say that this research is more “public” is not simply to say that it is morally superior, but it poses different analytical and political challenges. For example, the aimed-for outcomes of public health research are more varied than those of industry research and development. Although (public) drug and vaccine trials have become more common in Africa in recent years—partly in response to some large charities’ preference for pharmaceutical rather than public health solutions (see, e.g., Biehl 2007)—much bio-science experimentation in Africa is not after valuable new drugs but aims for affordable prevention strategies (see, e.g., Gerrets in this volume) or commercially marginal “adapted” medical solutions (see Kelly, Beisel, and Fassin in this volume).

The specificity of the African case lies, moreover, in the fact that most medical research in Africa today is conducted in collaborations between government institutions and public academic institutions in Africa and Europe and North America.

These institutions are usually mandated to pursue “public health” aims of equitable improvements to health, and although even public universities of course also pursue other, more managerial agendas, these stated intentions shape public representations of research institutions, personal justifications of scientists and other science workers, and the practices that produce public research, for example, justifying funding proposals, gaining ethics approval, motivating participants, negotiating research practices, and disseminating findings.

Such transnational collaborations are certainly shaped by unequal power and resources but not directly by profit calculations. In some trials, pharmaceutical multinationals contribute drugs or partial funding and thereby gain influence on the trial protocol and management, but even this involvement is often less for direct value creation motives *qua* experiment than for rea-

sons of corporate image and tax savings.¹¹ In these constellations, patterns of black and white, exploited and exploiter, are less clear-cut and thus more interesting for social anthropology: the world of public scientists and doctors trying to generate knowledge between disparate locations and across wide differences of wealth and power—aiming for better knowledge and a common good—is closer to our own than that of multinational pharmaceutical companies. Public health science constitutes, in principle, a critique of the conditions of inequality that cause much ill health and that commercial drug research and development, by contrast, uses for profit maximization. This difference is not trivial.

In order to critically scrutinize changing public health research, and to give political thrust to such scrutiny, the promise of public science, as in public good and public health, needs to remain a conceivable reality. Just as the nation-state cannot be discarded but is needed as a contrast to and ingredient in emergent forms of collectivization, sovereignty, and citizenship, the *public* of public health, singular, serves as a heuristic device and political orientation. Seeing public science in Africa not as a mere version of contemporary “biocapitalism,” on a continuum with the use of humanity as source of primary accumulation, but as something different, pointing to different histories and social processes, guides analyses toward different political struggles. Public health science today is situated and implicated by the inherent, growing contradictions of the global political economy—on occasion threatened by being engulfed by it—but not coextensive with it.¹²

Parallels of Private and Public Science

Once we recognize these different structures and intentionalities, interpenetration and parallels between industry and public health science can be explored ethnographically. This may bring into view private scientists concerned with public interest or even resisting excessive profit maximization (e.g., Petryna 2009; see also Sleeboom-Faulkner and Patra 2011), private companies manipulating the idea of the public for profit (e.g., Hayden 2007), pharmaceutical companies gaining influence in public HIV research (Nguyen in this volume), which in turn may open potential (publicly funded) drug markets, and public universities competing in markets of research funding and policy influence (Crane 2011); and on a personal level, we see scientists make careers in public health research, attain degrees, make livelihoods, invest for old age, and educate their children.

There are also striking topographical parallels between public and private science: industry clinical trials have become dispersed; no longer centered in Euro-American medical school hospitals, trials are spread between specialized subcontractors in diverse locations, from cheap U.S. motels to post-industrial neighborhoods in South Asia; data (and profits) are concentrated in Switzerland or the United States, involving global transfers of resources, equipment, drugs, biological material, and data (Abadie 2010; Rajan 2006). A similar deterritorialization can be observed in public health research, though the motives are less unequivocal: for example, “multisite” clinical trials have become the new standard in HIV prevention and vaccine research, combining findings from multiple subpopulations spread across continents in order to accelerate findings and enhance their validity and applicability. Connected to this, much funding is invested into global networks of “demographic surveillance areas”—interlinked field research enclaves with highly controlled populations available for tightly regulated transnational trials. And while some biological materials still travel across the globe to specialized laboratories in leading universities, increasingly analyses are conducted on-site, in well-equipped collaborative research laboratories, from where data is pooled in northern public institutions, universities, or research consortia.

Connected to these shifting geographies composed of globally networked enclosures, the temporality of public health science changed: originally conceived within a long-term project of national melioration, and attending to entire human lifetimes, today timeframes are more limited. Experiments such as clinical trials have fixed endpoints, when data collection ends and research clinics cease to exist and patients—who have completed their role in the trial but not necessarily gained health—leave the trial clinic’s care. Moreover, recruitment for multisite trials is a race against time, in which sites compete to attract upcoming trials—sources of funding and future output—or to contribute as many participants as possible to a global pool, before the globally determined sample size has been achieved—and thereby gain recognition and authorship. Such trials are not directly shaped by competitive pharmaceutical markets and their search for profit, and their participants or their specimens are not adequately described as commodities; yet there are obvious elements of market competition and managerial logic here, and the relationship with trial participants shows similar spatiotemporal traits as competition-driven pharmaceutical research and development.

Another parallel development pertains to the role of scientists in pub-

lic and private health research: just as global drug development is operated by an anonymous bureaucracy to which individual clinicians are mere “phantom investigators” with little control or scientific creativity (Fisher 2009), scientists in large-scale public health trials are often far removed from actual clinical engagements, which are conducted as routine work by a local workforce, structured by detailed “standard operation procedures” (a concept adapted from the military lexicon), and global standards set by the ISO or the International Conference on Harmonisation (ICH) and overseen by site-PIs, so-called principal investigators who, contrary to their designation, are hired by the transnational trial management after the research protocol has been developed and approved and who thus bear little resemblance to the original principal investigator, as motor of intellectual innovation.¹³ Again, while this process of “outsourcing” is not driven by profit maximization motives, similarities with dispersed and routinized practices of pharmaceutical research and development are striking.

Finally, commercial and public research operate within the same context of economic, political, and scientific-technical inequality and face similar ethical and political problems—standards of care, regulatory weakness, exposed populations. It does make a difference whether those conducting an experiment use poor participants, bad health care, and weak oversight to reduce costs and liability or whether they actively try to strengthen African regulatory authorities, improve standards of care within the limits of public budgets, and employ globally agreed upon ethics codes (however weak these may be) to protect vulnerable participants. Yet irrespective of the actors’ different intentions, it remains a source of political contradiction that people suffering a high prevalence of disease and few medical provisions rely upon clinical trials for their survival or that health professionals on low salaries in under-resourced facilities are dependent upon medical research to make ends meet and find professional satisfaction. This contradiction is obvious when it is cynically manipulated as a source of private gain; it becomes more interesting when this constellation is engaged by actors (and institutions) despite their stated intentions: when mobile public scientists with egalitarian convictions engage these structures to produce public science—with the ultimate aim of reducing inequality and the suffering it creates; or when African scientists enact scientific partnerships, keenly aware of the fundamental inequalities that remain unaddressed by this idiom (Okwaro and Geissler 2015; see Redfield 2012; Wendland 2012). These contradictions, arising from trying to do the right thing in the wrong

context—trying to do something—produce public health science in Africa today. The ethical and political choices faced by public scientists under these conditions might not always differ from those involved in for-profit pharmaceutical trials (see Petryna 2007; Patra and Sleeboom-Faulkner 2009); the difference is that whereas pharmaceutical research and development works in spite of personal dilemmas, public health research needs to address these contradictions; it cannot afford ignoring them if the *public* in public health is to make sense in the long term (Geissler 2013, 2014).

Ethnographies of Biopolitical Longing

Apart from the deliberate focus on public rather than private science, and connected to that on Africa, the chapters in this book—resulting from the authors’ ongoing conversation about medical science in Africa over several years—share some premises. First, none of the chapters portrays science as a complexity-reducing tool of (postcolonial) domination or (developmental) discipline; the anthropological “critique of biomedicine” is by and large absent. Partly this move away from the anxieties of 1980s medical anthropology critique is because post-Foucauldian and post-Marxist analyses have become a foundation of our thinking, and partly because our interest has shifted back to the possibilities and responsibilities of science. It also may be shaped by the experience of fieldwork in an age of receding, crumbling medical services and growing medical needs, and among people who if anything long for rather than loath the discipline and control that public health was once said to emanate (e.g., Lupton 1995). Indeed, most of the authors in this collection share a commitment to bioscience and public medicine—engaging an ethics of (always ambivalent and contested) “promise” rather than of suspicion and containment (see Fortun 2005). Even Nguyen’s “deconstructing” analysis of HIV interventions in this volume aims ultimately for “meaningful long-term investment in public health.” Little can be heard here of the medical relativism of old, where people knew better than doctors and biomedicine was just one, tainted and “reductionist,” knowledge among many; by contrast, the authors seem to accept the primacy and the desirability of medical science.

An associated shift applies—for many of the chapters—to perceptions of nation and state. The authors do not position “the state,” with its biomedical technologies, in opposition to people or locality, as in the “state versus people” imaginary of liberal anthropology (e.g., Scott 1998). Instead, they

share an interest in the mutual, open-ended constitution of health and larger collective forms and in the political possibilities of collectives engaged or evoked by scientific and medical action, including the collectives of state and nation. Beyond the celebration of ever-multiplying collectivities—publics, citizenships, sovereignties, “civil society”—they point toward the question of what it is that marks the singular national collective, and the nation-state, among this emergent multitude. This does not mean that all authors agree on a particular collective form—beyond political commitment to the pursuit of health as collective project—or unanimously long for the lost national collective of public health. But their analyses open up the way toward a new look of the nation as a particular frame for scientific work and public health.

The first two chapters, by Nguyen and Manton, set the stage with two contrasting arguments, one charting a radically transformed biopolitical landscape, the other one expressing doubts about its novelty. Reflecting on U.S.-funded HIV treatment programs, Nguyen discerns a new transnational regime in which African lives rely upon sovereignty beyond the control of “their” nation-state. Legitimate domination is here not only exercised through taking lives but also to maintaining them. The scope of AIDS relief, dwarfing national medical budgets, combined with its sense of emergency, amounts to a “government by exception”: “experimentality” as global health’s new mode of governmentality. One could discuss whether the present constellation is “unprecedented” or extends colonial biopolitics and whether it comprises “entire populations,” since HIV sufferers remain a minority, and whether this description underrates the persistent purchase of the nation-state in citizens’ lives (as well as other sources of government—for example, churches). Yet Nguyen’s hypothesis of a new mode of African medical-shaped governmentality provides an inspiring lead into the subsequent chapters.

Manton, the only historian, expectedly objects to any “bland description” of the historical process in terms of grand transformations. He questions the contrast between the present constitution of science outside and beyond the state and an imaginary past of “successful integration of research and public health” around the monolithic figure of the nation-state. After a sensitive ethnographic description of a Nigerian leprosarium in the present—ant-eaten patient files registering the dysfunction of health care and science, and the suffering of patients, doctors, and scientists—Manton examines the interactions between university laboratory, pharmaceutical industry, and

mission medicine in early postcolonial Nigerian leprosy research. He reveals a “collage of non-state actors” not dissimilar from the contemporary para-state and argues that the “reach of the state . . . always relied on the arms of missionaries, adventurers and capitalists.” This is a caveat against too clear-cut descriptions of the present by contrast to the past (and of the historical process as radical shift). At the same time, Manton’s cautious approach helps us to capture the prehistory of the present para-state in the “infancy of the elaboration of new global research relationships and capacities.”

The chapters by Lachenal and Geissler both engage critically with narratives of historical rupture—“neoliberalization” as extended biopolitical regime—one pointing to the futility and ineffectiveness of the supposedly disciplinary regime, the other tracing historically sedimented contradictions within its territory. Lachenal’s analysis of “extractive, privatized, and internationalized” Cameroonian virus research draws attention to a symptomatic, if not obvious, trait of contemporary science: “medical nihilism,” reflected in “non-interventionist interventions,” that is, outbreaks of intense but ineffective action, hyped-up “hotspots,” public health as performance and spectacle set against a backdrop of nonexistent or extremely deficient “real” public health. While such nihilism can be found in the colonial past (see Lachenal 2010), Lachenal suggests that it has become a central feature of the present. His description of highly publicized, well-funded, and self-consciously urgent “virological extraction” by entrepreneurial scientists from U.S. and European universities resembles the economic nihilism of speculative finance, underlining parallels between scientific and political-economic changes (despite the fact that the “virus hunting” is funded by Euro-American and Cameroonian state agencies, interspersed with specific commercial interests). Patterns of non-intervention, hubris, and absurdity in projects such as “viral forecast” and “epidemic preparedness” pose a challenge to late twentieth-century understanding, inspired by Foucault, of African public health as a “disciplinary” project. What emerges instead is a new pattern of biogovernment, maybe even (pace Nguyen’s hypothesis) an “anti-governmentality.” Lachenal emphasizes that his observations are derived from particularly futile “non-interventions” and suggests that ongoing HIV mass-treatment programs—instituted after this fieldwork—go beyond a mere “specter” of public health. Despite the obvious difference between life-sustaining treatment for millions and the imaginary of future viral threats, Lachenal’s attentiveness to “nihilism” is helpful to provide a constructive critique of hubris and absurdity, even within seemingly more

efficacious interventions, for example, the Presidential Emergency Program for AIDS Relief (PEPFAR), a “historic commitment . . . the largest by any nation to combat a single disease” (PEPFAR website).

The logic of “non-intervention” could also be examined around the transnational clinical trial site described by Geissler, where three decades of major scientific discoveries that shaped global health policy effected few lasting improvements of the local health system. Instead, Geissler conducts an archaeological search, on the grounds of this “collaborative” site, for traces of alternative practices and imaginaries of public health research, contrasting to or conflicting with those dominating the present. Within the landscape of a research site dominated by hierarchies of collaboration and, seemingly, by one dominant model of transnational science associated with the era of neoliberalization, he traces different pasts (and past futures) that reveal nationalist visions of public health, contradictions and recalcitrance, and lasting claims for scientific melioration. Following some of the narrative fault lines embedded in this place of science, he opens up for diverse readings of the present and of future possibilities.

The next two pairs of chapters attend to the workings of bioscientific intervention. Gerrets and Whyte question the alleged disappearance of the state—one by attending to the nation’s persistent role as institution and vector of intentionality, the other by attending to the lasting appeal of government civil service. Whyte draws our attention to the many Ugandans who still are employed by government, derive vital sustenance from this, and dispense government services. This group continues to exercise societal influence, in spite of growing economic instability, and new, shifting, employment opportunities in the expanding nongovernmental sector and transnationally funded AIDS interventions. Exploring “working-class citizens” (including health care workers’) experience, Whyte shows how the comparison between different ways of making a living—between the relative stability but poor remuneration of state employment and the lack of security in other kinds of work—forms a part of contemporary Ugandans’ lives and choices. The stability of government work not only pertains to government employees but also forms the backdrop to everybody else’s thinking about work, employment, and public health under conditions of generalized insecurity—be it in the informal business sector or in the world of temporary NGO contracts. Throughout Whyte’s account runs the notion of the “original Uganda,” which references, in the parlance of older Ugandans, the pre-civil war nation, marked by stable government employment and

collectively shared hopes in science-based futures. It is this “original” that across dysfunctional African nation-states lives on, both in the persistence of nation-state institutions and their employees and as memory and counterfoil to present developments. As several of the chapters show, people, funds, and expertise move between state and non-state spaces, and government employment and newer forms of work—for example, public health interventions, medical research—often depend upon one another: pensionable employment in a university or ministry of health can serve as stable basis for temporary engagements with transnational interventions, and the legitimacy bestowed by public sector employment and standards can be transferred to nongovernmental opportunities and converted to higher yields.

These movements are obvious in Gerret’s ethnography of collaborative malaria research by Tanzanian and U.S. public institutions—a somewhat atypical “public-private partnership,” involving bilateral government interactions and little private enterprise. His case presents a step up in scale in the experimentalization of public health, maybe indicative of emerging systems of global health governance: rather than citizens’ bodies, what is intervened upon here is the body of the nation (presumably unbeknown to patient-citizens)—its health policies, procurement, and clinical management. Gerrets confronts the “hybrid” quality of para-state science head-on—but arrives at surprising outcomes: flexibility and openness, even “slipperiness,” function here as foundations of transnational collaboration, but these qualities serve at the same time to promote a public, civic, and national agenda rather than particular interests external to the nation. In response to the moot trope of “inevitable globalization” (e.g., Kickbush 2003), Gerrets argues that transnational “global health” is necessary to counter the nation-state’s inability to deal with global (infectious) disease problems, and he reveals the lasting, crucial importance of nation-state government for allegedly “global” interventions, documenting the lasting appeal of the nation to public health actors (see also Wendland 2012). Gerrets shows those who argue that “global health” governance furthers the neoliberal demise of the nation-state and undermines sovereignty how state institutions and actors negotiate opportunities arising from “slippery” global partnerships to further not only individual interests but also visions of social good, articulating civic commitments that can no longer be realized through emaciated nation-state structures alone: “the partnership’s malleability and its planners’ faith in flexibility and ambiguity opened up new opportunities for representatives of public sector institutions to assert their claims and pursue their interests,

fostering a para-statal space that enabled the state to reassert authority corroded during the preceding era of neoliberal reforms.” The “slippery space” of para-state health science, then, is not opposed to the nation-state—as a panacea against its dysfunction or as a nail in its coffin: “The para-state space was at times quite distant from the state but on other occasions barely distinguishable from it.” In addition to this caveat against simple imaginaries of contrast and shift, Gerrets draws our attention to “the variable forms that para-state spaces take across different historical and political economic context”: postsocialist Tanzania, different from, for example, neighboring Kenya or Uganda, maintains stable and visible government institutions, and Tanzanian doctors, scientists, and patients share decades of mass education and primary health care, which produced a particular vision of civic space, nation, and citizenship (see Langwick 2011).

The next two chapters, by Poleykett and Meinert, use ethnography of HIV research to attend to affective and relational dimensions, which further complicate narratives of rupture and transformation. Poleykett sets out to trace postcolonial “survivals” of sanitary regulation in contemporary transnational HIV research in Senegal. At first sight, her old state clinic, with a long-established cohort of prostitutes, providing archived data, insufficient care facilities, and regulatory means of enforcement to U.S.-based HIV research teams, lends itself to a simple narrative of biopolitical domination, combining postcolonial governmentality and twenty-first-century bioscience. However, looking closely at the “porous boundary between regulation and research,” observing everyday work at the clinic and in trials, Poleykett finds herself unable to discern any “single project” of “research piggybacking” on postcolonial governmentality: “the two bureaucratic forms do not come together as part of a concerted effort and their interweaving is much more a product of care, obligation, reciprocity, curiosity, and creativity than cynical or opportunistic profiteering.” Somewhat counterintuitively, Poleykett observes that disciplinary medical practices, and even their architectural framing by a distinctly colonial edifice, are appreciated *as* care, which is reminiscent of recent discussions about *care* in the social sciences (Mol 2008) that fosters “deep mutual respect and care” between prostitutes and staff and a sense of belonging and citizenship: “the pleasures of membership” within which even invasive clinical practices instill “feelings of security and pleasure.” For the mostly female state employees, mediating regulation, research, and care provides new opportunities and responsibilities, resembling other anthropologist’s observations about changing gender roles and

social-professional mobility in transnational bioscience sites (see Meinert in this volume); in this case extra resources available from transnational collaboration do not simply represent additional income but also enable circulation and opportunities to meaningfully deploy professional capacity. For the research participants, on the other hand, membership in the trial clinic allows new forms of association, like the formation of a radical sex worker organization, which gradually gains independence from the trial, enabling lay expertification and political struggle.

Meinert's ethnography of one family's engagements with a HIV research project conducted by the world's largest public health agency in collaboration with a Ugandan para-statal research institute shows that experimental networks intersect, extend, and play off against existing associations, expand and break existing relations and groups, and establish new ones. The research project creates new, bounded spatial formations on various levels of scale: through intensified technologies of surveillance, a "study area" is demarcated within which study participants must reside in order to benefit from trial care and transport, a well-equipped "clinical research center" is carved out of the government hospital compound, and special rooms are set aside for research patients in the hospital ward. Yet while these constitute enclosures, Meinert observes that their boundaries are crossed and that they also serve as embodiments of the desires, hopes, and expectations that patients and doctors initially bring to the bioscientific project—thus they constitute manifest structures of ex- and inclusion and discipline, but they also point beyond the present condition. Meinert also remarks upon the peculiar experimental temporality discussed above—research procedures, employment contracts, laboratory and clinical facilities, and not least anti-retroviral treatment (ART) are time-limited—and shows how patients and professionals think critically about these limitations, weighing short-term opportunities against long-term needs. The denizens of the experimental regime explore and use its opportunities rather than simply succumbing to experimental governmentality. Moreover, although the HIV experiment does constitute a rupture in governmental practices and people's lives, there are continuities too: the family Meinert stays with, which is drawn into multiple engagements with the antiretroviral (ARV) experiment (including the anthropologist's choice of residence), is a chief's family with a mission background; experimentality is mapped here upon older forms of governmentality; all protagonists continue to reckon with the nation-state, partly as memory, reference point for comparison with the past, partly as enduring

contemporary structures, and partly, still, as a project, a hope for how things should become. Meinert's careful documentation of the persistence of the state and the national collective in people's lives contrasts sharply with the obliviousness to the state in the cited American researcher's claims that there isn't any national health system. Together with the preceding ethnographic chapters, Meinert's case complicates the patterns drawn by historical ruptures, spatial enclosures, and temporal limitations.

The collection ends with three chapters engaging the changing nation itself: a multinational corporation taking the role of the nation, the performance of nation-state territory in the operation of scientific models, and a case of two nation-states, South Africa and the United States, engaging in a contest on the territory of public health, science, and rationality. Beisel's example of a transnational gold-mining company that takes on national malaria control provides an extreme case of para-state science. Rather than a simple tale of corporate power usurping the nation-state, corporation and state fuse here, but the nation remains a source of legitimacy and authority, convincing citizens to submit to control practices by company employees and the Global Fund to avail US\$158 million to a corporate responsibility program. There are some ruptures away from old-style nation-state public health: funding and expertise circulate in transnational networks, actions are governed by a company, interventions are time-limited projects, workers are company employees on temporary contracts. But there are also continuities, underlined by the aesthetic similarities between contemporary spray men and colonial public health spray teams. Public health interventions, notably in the developmental nation-state era, were marked by infinite, not rarely futile, iterations of action and experiment (for example, sleeping sickness control [Hoppe 2003; Malowany, Geissler, and Lwoba 2011]; public health administration [Lachenal 2010]; malaria and onchocerciasis eradication [Geissler 2011]; agriculture and nutrition [Bonneuil 2000]). The fusion between intervention and investigation in the contemporary campaign revives older features of national public health, maybe by contrast to the 1990s detached transnational science as mere provider of evidence, to be "translated" via policy back into action.¹⁴ Similarly, the way in which Beisel's control program engages its population—"top-down," aiming for education and behavioral change—seems to refer back to older forms of government-led public health, prior to the era of "participation" and "community engagement." Beisel denounces the democratic deficit of such authoritative public health, especially in the hands of a mining company—legitimate claims to

company responsibilities are conveniently ignored. Yet it remains to be debated whether Beisel's recommendation to conduct malaria control as "real-world experiment" instead, drawing civic negotiation into scientific decision making, would remedy this democratic deficit. One might argue that the novelty of the current situation lies less in a particular form of "public engagement" in specific experimental activities (or the lack of it) and more in the lack of democratic organization and institutionalization of science on a national level of scale—due to the roles played by the multinational mining corporation and the Global Fund. To remedy this democratic deficit, the inclusion of citizens into the nitty-gritty of a particular experiment may not be sufficient—potentially deflecting from the larger political task—to establish democratic governance.

Making explicit historical comparisons, Kelly explores how experimentation by British scientists in the miniature "laboratory nation" of the Gambia articulates nationhood, expertise, and public health around the Second World War and in the present—the beginning and end of British-Gambian science. Relations between science and territory, and model and reality, have changed: the first experiment constructs a microcosm envisioned to be subsequently expanded across territory, a "pilot" for national welfare and development. The second experiment disconnects expert knowledge and national concern: transcending scalar modeling, it aims for translation into global policy; it is an exemplar of contemporary deterritorialized experimentation, by contrast to past governmental science (but see Beisel in this volume for corporate-cum-national public health as another possible realignment in the present). Underlying this change are continuities: both trials are part of the same British institutional setup; both are technical-cum-social experiments, which emplace scientific innovation, taking into account local social and economic practices, incorporating populations and using local staff; and scientific work relies in both cases upon particularities of place (and the laboratory scale of the mini-nation itself). Moreover, both experiments rely upon institutional assemblages: although funding changed from public sources to transnational big charity "collaboration" with the nation-state, unstable alliances and unpredictable realignments are here found already before decolonization, which thereby becomes prehistory rather than historical contrast (see also Manton in this volume). This pattern of continuity-in-change is personified by the village health workers used in the recent experiment: created after the 1978 Alma Ata conference to build primary health with local volunteers as a national bottom-up project, they are revived in 2004 as trans-

national research staff on temporary contracts; continuously linking government, people, and the UK Medical Research Council (MRC), they embody a new regime in an old form (see also Kelly 2011). Eventually, both experiments fail to produce the anticipated extension in scale—one due to economic pressures, the other due to environmental conditions—and while one results in a shift (back) from adapted technology to a plantation economy, the other ends with a decision to close down the research site altogether. At the end of her chapter, Kelly directs our imagination beyond the contemporary biopolitical regime: the MRC station is closed because, as Kelly argues, “long-term commitment to the Gambia is anachronistic . . . as research has less and less to do with specific places than with experimental networks”—the archipelago turns into a mirage. Intertwined with this further deterritorialization of science, the nation returns with a vengeance—maybe as a backlash—in the Gambian president’s militant (indeed violent) stance against multinational pharmacology and AIDS treatment (see Cassidy and Leach 2009). Like other antiscientific neo-nationalist public health outbursts elsewhere in Africa (see Fassin in this volume), this may serve as a reminder of the risks entailed by visions of return to the national collective of public health.

Fassin’s “political biography of Nevirapine” charts the rise and fall of a wonder drug for the prevention of maternal transmission of HIV. The narrative of media-amplified scientific and political hype—transnational scientists and organizations build momentum around a health intervention and temporarily silence objections to full-scale “roll-out”—is familiar from the history of public health, from malaria eradication in 1955 to male circumcision in 2007. What is new in Fassin’s story is the role played by the state: this young nation-state calls for caution against the progress of science, even stops experimentation; it aligns itself with marginal scientists rather than dominant scientific institutions; it poses national public health concerns—about drug resistance and the budget and the demographic effects of targeted HIV interventions—in opposition to a popular, rights-based demand for the extension of scientific discoveries. These public health arguments are intertwined with a nationalist discourse about protecting Africans from global exploitation, black bodies from white experiments; opposition to global science becomes part of the nationalist struggle against racially defined transnational exploitation. This peculiar disjuncture between dominant science and national government is played out jointly with a third force, that of postliberation popular activism, which, while originally politically aligned with the new government, finds itself now scientifically opposed.

While this narrative, the author claims, has no simple moral, it serves like the Gambian case as a caveat against the assumption that nation-state governments are either naturally aligned with science—sharing one modern rationality—or that the millennial nation-state has left the field of science to transnational experts and agencies. Here the state is a prominent science actor; by opposing the global rational consensus of scientists, the state reasserts its independence. This move appears on the surface as contrary to the widespread claims that the state’s role is weakening, notably in the field of health and science; this state is gaining strength, and it uses the biomedical controversy to make nationalist and in the broader sense “Africanist” assertions. Instead of positioning itself on the side of seemingly self-evident rationality, in this political constellation rationality and evidence are open to scientific and political contestation. Fassin’s observations underscore, again, the importance of history, implying both local specificity and global causality, to specific para-statal configurations. The fact that South Africa won independence recently and late, when the nation-state no longer provided the universally dominant model of political imagination, is the key to understanding the southern African biography of Nevirapine. Moreover, the constellation engaging nation-state government, transnational scientists, and African clinicians and activists has its own historicity and evolved and changed dramatically over a short period of time.

The chapters below share attention to concrete practice, experience, and relations—within and beyond science—and respect for specific historical trajectories and places. Originating from different disciplines, they are committed to new ways of integrating history and anthropology: interrogating historical remains ethnographically—be it Manton’s patient records or Geissler’s remains of older research stations; situating the ethnographic record within larger historical movements; and attending to historical comparisons drawn by the studied people. The chapters below constitute a critical conversation about the proposition that the postmillennial present constitutes a radical shift away from the mid-twentieth-century past. While several chapters attend empirically to both past and present, all contributors draw attention to certain convergent peculiarities of the present, “para-state” configuration—notably territorial, temporal, and scalar changes—and describe reconfigurations of familiar biopolitical entities—experimentality, transnational sovereignty, and alternative citizenships.

While most observe discontinuities, the authors' attention shifts quickly back to continuities, recurrences, traces, and memories. Framed by the two opening chapters, Nguyen's euphoric incantation of radically "novel forms" of sovereignty and biopolitical domination and Manton's historical-archaeological caveat against such claims to novelty, the contributors leave the classic anthropological-historiographic pendulum of continuity versus discontinuity to swing elsewhere and trace, instead, lines and lineages between past and present, applying the narrative of para-statal transformation as a heuristic device.

In this process, they qualify the initial proposition. Almost all emphasize the continued relevance of the nation-state—as institutional framing, a source of legitimacy and authority, providing resources and study populations, as an association of people and source of livelihoods, as a rhetorical device and project. Rather than postulating the replacement of the state by other forms of organized power, attention shifts to how it is that the state still works for science. Taking classic Foucauldian biopolitical governmentality as a starting point, the authors are then less interested in demonstrating how the older biopolitical apparatus morphs into an even more menacing disciplining machine—although Nguyen's text alerts us to this somewhat threatening possibility. Instead, the idea of an extension of biopolitical discipline from past into present is problematized (together with the idea of totalizing governmentality), with reference to the contradictions, persistent weaknesses and failures, resistances, and surprising outcomes produced by "disciplinary" technologies. This opens an agenda for future research. What happens if science and government go different ways rather than colluding in a disciplinary project? How are seemingly absolute biometric forms of surveillance and control used and sabotaged? How do we deal with unpredictable processes of collectivization and consciousness, arising unintended from regulation and surveillance? Where does civic commitment reside, if it can emerge from industry health interventions or post-neoliberal public-private partnerships? And, if the present is unpredictable, what is to happen next? Is the para-state of science the last step before science is definitely disentangled from territory and population, as Kelly suggests? Are we moving toward "global health" nihilism, performance and specter, or toward a global, transnational military-therapeutic complex—or both? What then about the manifold reformulations of the strong nation, be it through mining company public health or through counterfactual rejection of global scientific consensus? Is there hope for alternative outcomes,

scope for contradiction and struggle? True to the implications of the *para*-prefix, the para-state opens a space not only of menace and uncertainty but also of wonder and surprise.

Notes

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- 1 For Nguyen, contemporary experimentality represents “an inversion of the classical model whereby evidence of efficacy permits intervention”; in the contemporary case, “intervention drives the need for self-validating evidence” (2009). This proposition may overemphasize change—did not colonial agricultural and economic interventions also function as experiments, continuously generating new data (see Bonneuil 2000)?—and overrates the significance of HIV; yet a strikingly new feature of contemporary African experimentality is that it often is inserted directly into national government; Nguyen’s example of PEPFAR programs is a case in point (for other HIV-related examples see the chapters by Fassin and Meinert), but also the malaria trial discussed by Gerrets, in this volume, manipulates—viral style—entire government structures into an experimental configuration.
- 2 As the historian of science Hutchinson shows in a forthcoming PhD thesis, the foundation of the new para-statal in the late 1970s was also in important ways a nationalist moment, irrespective of the early neoliberal context, and the overall outcomes of the scientific transformation that it engendered during subsequent decades (Hutchinson, forthcoming; see also Tousignant 2013; Dronev 2014).
- 3 It is precisely because contemporary collaborative science is not integrated in structures of academic education that “capacity building” has become a central concern of these institutions and their funders (see, e.g., Marjanovic et al. 2012). Although it certainly is laudable that the training of African scientists has become an integral part of some funders’ policies, capacity building—usually not providing lasting support for national academic institutions and involving small numbers, often gaining degrees from European and American universities—remains an unanswered challenge.
- 4 Financial investments in these sites are considerable. Although total funding amounts are difficult to assess because funding may be transferred along different channels—core infrastructure funding, specific project funding from diverse funders, expatriate salaries, training programs for individual scientists, and so on—but for the larger sites, annual transfers can amount to tens of millions of dollars. The annual core grant for one such station in Kenya, for example,

- amounted to about \$30 million in 2008, excluding expatriate salaries and separate project grants, dwarfing government budgets for medical research.
- 5 The hard-to-grasp quality of the para-statal situation is evidenced by the allegedly “local” organizations that have emerged over the last few years around the major research centers, combining HIV care provisions (alongside but separate from government health facilities) with scientific research. Nominally “local,” underlined by African language names, these are managed and staffed by leading North American universities (acting as their subsidiaries) and subsidised by HIV aid moneys, notably from PEPFAR, which formally cannot be used for research but for “evaluation” of ongoing interventions.
 - 6 Good clinical practice (GCP) is a regulatory protocol, issued by the International Conference on Harmonisation (ICH), which details practical procedures, including those pertaining to ethical matters (consent, incentives, etc.) around clinical trials. It has been endorsed by the World Health Organization (WHO) and by the U.S. Federal Drug Administration (FDA), which is responsible for licensing pharmaceuticals to the world’s largest pharmaceutical market, and it is therefore of crucial importance to the conduct of clinical trials all over the world, shaping widespread ideas about what the ethics of medical research are about (see, e.g., EMEA 2002).
 - 7 While the rationale for transnational public health research remains, obviously, to inform policy, this process is complicated—probably more so than when research was conducted by government institutions themselves. In the contemporary configuration, data usually have to travel several times around the globe, for processing and analysis, for peer-reviewed publication, and finally to get approval from organizations like the FDA or WHO, before they are turned into national policy, and even then material conditions and resource limitations can make implementation of findings difficult. In response to this hiatus, “research-to-policy” has emerged as an academic specialization, complete with its own dedicated journals, aiming to facilitate the process and thereby to maintain the legitimacy and purpose of transnational public health research (see, e.g., Gilson 2008).
 - 8 Research in emergency situations (civil war, refugee camps, disease outbreaks) is an exception from this state reliance, as in these cases humanitarianism or international or corporate sovereignty may take the place of nation-state.
 - 9 This might be particularly the case in Africa. For a contradicting Southeast Asian case of contemporary biomedical nationalism, see, e.g., Reubi (2010).
 - 10 This does not mean that exploitative pharmaceutical experiments, which utilize weak regulatory and medical structures, high disease burdens, and treatment-naïve populations to conduct experiments with little oversight, do not occur in Africa. The 1996 Pfizer Trovan trial during a meningitis outbreak in Nigeria is the often cited example. See Sarah Boseley, “WikiLeaks Cable: Pfizer ‘Dirty Tricks to Avoid Clinical Trial Payouts,’” *Guardian*, October 12, 2010, <http://www.guardian.co.uk/business/2010/dec/09/wikileaks-cables-pfizer-nigeria>;

see also the forthcoming anthropological work of Morenike Folayan and Kris Peterson on the subject.

- 11 While northern agencies invariably portray their work as economically disinterested, motivated by social good, some African para-statal research bodies have embraced a more entrepreneurial ethos of product development and profit generation in a bid to justify their existence in the changed climate of neoliberal restructuring (e.g., Langwick 2011).
- 12 Cory Hayden's (2003, 2007) work on bioprospecting benefit sharing and on pharmaceutical production in Mexico analyses anthropologically the repositionings and transformations of public-private divides, guided by an understanding of the public as political project.
- 13 The emergence of the African "site-PI" results from a paradoxical interaction between multisite trials designed and managed by a central northern agency and increasing political pressure toward greater "local" African participation. Thus, major American agencies insist today that PIs are recruited among African scientists in collaborating institutions, while at the same time centralizing the process of research design and analysis in locations and among scientific staff outside of Africa.
- 14 Hence, rather than epitomizing a radically new form, Beisel's case inserts itself in an ongoing chain of transformation, beginning with malaria spraying as part of national and municipal public health, moving through transnational malaria science and policy from the 1960s WHO "eradication" to the 1990s bed net trials sometimes directly involving chemical industry, to today's contemporary fusion of corporate-cum-national responsibility (which, in turn, reveals ties back to much older forms of corporate malaria control) (see Schumaker 2011).

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