

Geographies of Power, Legacies of Mistrust: Colonial Medicine in the Global Present

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The globalization of western biomedicine in the past quarter century has unfolded at an intersection of belief systems and participated in a war of ideas. Yet important historical precedents provide a critical framework for interpreting biomedicine's expansion. Whereas modern medicine has couched its global interventions in the language of relief, it has operated in a colonial syntax. Utopian ideals have undergirded such operations since at least the late nineteenth century, yet a powerful violence has also consistently marked both the culture and the political economy of international health. The assumptions that are reflected in the contemporary logic of international health programs and policies – as well as the long memories of colonized populations – reflect a powerful legacy of mistrust that tightly links economic, cultural, and political globalization to the New Imperialism of the late nineteenth century.

This essay explores the genealogy of the suspicion and resentment that cloud both sides of the biomedical encounter in the postcolonial world. At least since the late nineteenth century, western biomedicine has been a polarizing force for much of the world's population. This is because for most of that population, the initial experience with western medicine was one with *colonial* medicine – that is, a therapeutic tradition with roots in western scientific rationality, but one that also operated across a rift of political and economic inequality.¹ In an era of rapid globalization, colonialism's legacy has shrouded a number of medical and public health programs, leading to their deeply ambivalent reception in former colonial territories. This inheritance of colonial mistrust cuts in two directions. While many patients in the developing world eagerly seek the medical aid of western agencies, many also see western health officials as aligned with forces of economic and political power. By the same token, many physicians see their patients as recalcitrant and superstitious, incapable of compliance with biomedical regimens. This essay examines this tension

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by exploring parallels between European colonial medical interventions and the contemporary globalization of public health. More than similarities of rhetoric and lexicon, I argue that these parallels are a function of divergent systems of thought about the nature of sickness and healing – epistemologies that were themselves both forged and set in high relief during the colonial encounters of the late nineteenth and early twentieth centuries.

Instead of focusing in depth on any one specific geographic or historical context, I am attempting to provoke thought about the breadth of possible relationships between colonial ideologies and contemporary global health interventions and to hypothesize about the mechanisms of their connection. I therefore point to a wide range of examples that help to reveal the persistence of the colonial past in the biomedical present, including missionary medicine, colonial plague surveillance, disease eradication efforts, and the role of humanitarian aid in the war on terror. Rather than an exhaustive survey, the goal of this essay is to signal an array of areas and instances that merit the closer attention of social scientists of medicine and health. The essay begins by exploring stark analogies between the roles of medicine in colonial Algeria and in the Iraq war, highlighting common patterns in the militarization of medicine and aid in conflict zones. It then describes how the mistrust that surrounds medicine in these periods is characteristic not only of medicine in wartime, but also in many general and ostensibly benign encounters between an expansionist western biomedicine and local ideas about health and illness. A function of both divergent medical epistemologies and crushing socioeconomic inequalities between practitioners and patients, this suspicion, reflected especially clearly in efforts to control infectious disease and the resistance they have historically generated, often frames these encounters as struggles over the foundations of knowledge itself.

There are of course major differences between colonialism and globalization. My intention is neither to equate one with the other, nor to argue that colonialism or globalization corrupts an otherwise beneficent medical tradition. It is rather to note the ways in which the language and practices of many international health programs cloud distinctions between the “civilizing missions” of the colonial era and projects for modern “development.” The methods of social studies of health and disease offer useful tools for rethinking the relationship between past and present in contemporary global encounters, with the capacity to shed new light not only on a crisis in global health, but also in the central mechanisms and ideologies of global healing.

Conflict, Mistrust, and the Humanitarian Predicament

In late October 2003, some seven months into the U.S. invasion of Iraq, an assault on the headquarters of the International Committee of

the Red Cross in Baghdad killed dozens of the organization's aid workers and injured more than 200 others. *The New York Times* noted that, unlike heavily armored military installations, the facilities of organizations like the Red Cross are often seen as "soft targets" – those with minimal security whose destruction can be exploited to instill terror in local and foreign populations.² A spokesperson for the United Nations, which had itself suffered an attack two months earlier and had subsequently withdrawn much of its personnel, described the attack as striking at "the very symbol of humanitarian aid in Iraq."³ For *Times* columnist Thomas Friedman, the attack was "a new low," an act without restraint in which "all civilizational norms were tossed aside."⁴ Yet this was merely the beginning of a weaponization of medicine and humanitarian aid in the Iraq conflict. The execution of CARE Director Margaret Hassan by her kidnappers and the American and Iraqi assault on the Falluja General Hospital in November 2004 attest to both sides' violation of the allegedly sacrosanct domain of care-giving and relief.

Yet despite Friedman's claims, medicine, humanitarian aid, and warfare have long operated in a symbiotic relationship. Modern western medicine's history connects seamlessly with that of European colonial expansion in the nineteenth century. Quinine enabled European armies to enter previously forbidden terrains with impunity. Medical officers helped to sanitize dangerous spaces and environments, but also introduced indigenous populations to the purported benevolence of European rule.⁵ Medical visits and public health inspections were key tools for the ordering of colonial space. Crucial instruments for surveillance, they gathered extensive data that offered keen ethnographic insight into the demographics, behaviors, and habits of the colonized.⁶ Biological knowledge reinforced conceptualizations of racial difference that were the bedrock of imperial ideology. Effective medical interventions and vaccination programs helped to maintain a healthy native labor force for the exploitation of raw materials and simultaneously demonstrated the "magical" capacities of western science.⁷ To cite Hubert Lyautey, the French field marshal who conquered Morocco and served as its first colonial administrator, "the physician, if he understands his role, is the most effective of our agents of penetration and pacification."⁸ At the same time, empire provided a space for prodigious developments in medicine. It was in British Egypt that Koch discovered the cholera vibrio; it was in British Hong Kong that Alexandre Yersin isolated the bubonic plague bacillus; it was in French Tunisia that Nobelist Charles Nicolle discovered the mechanism of typhus transmission.

These attitudes and perspectives have carried over into the postcolonial era. A wave of studies concerning sickness, health, and empire in sub-Saharan Africa has found the colonial/postcolonial divide to be much more permeable than most have suspected. From the perspectives of political economy, cultural anthropology, women's and gender history, and literary criticism, they have illuminated continuities between colo-

nial and postcolonial medical discourses in specific settings.⁹ Yet while these fascinating studies have illuminated isolated continuities, few have explored the rhetorical, political, and ideological links between colonial health programs and the global yearnings of biomedical interventions in the present.¹⁰ Moreover, some historians see contemporary global health programs and policies as marked departures from the colonial past,¹¹ while others continue to see medicine as what Lyautey called “the only excuse for colonialism.”¹²

Critical examination of the politics of colonial medicine reveals stark parallels with the deep inequalities and suspicions that persist in the present. In an essay published at the height of the Algerian War, psychiatrist Frantz Fanon outlined what remains one of the clearest formulations of the fractious nature of colonial medicine. For Fanon, it was

a good thing that a technically advanced country benefits from its knowledge and the discoveries of its scientists . . . But the colonial situation is precisely such that it drives the colonized to appraise all the colonizer’s contributions in a pejorative and absolute way. The colonized perceives the doctor, the schoolteacher, the policeman through the haze of an almost organic confusion.¹³

Fanon based his convictions on the notion that the clinical relationship is one based on trust. By virtue of their illnesses, patients are by definition vulnerable. They expose their vulnerability to physicians in exchange for medical care. As part of this relationship, and with the understanding of confidentiality, they share intimate information with physicians that they would never offer to the policeman or the schoolteacher: information about family history, about sexuality, about behavior, about addictions. They do so because they trust that the free giving of this information is essential for their care: they place their confidence in the physician’s authority.

For Fanon, mistrust and resentment originated in the colonial physician’s violation of this implicit contract between doctor and patient. Not “socially defined by the exercise of his profession alone,” the doctor represented the vanguard of an occupying force (*DC*, 135). The patient was an object of derision for colonial physicians, a being who is “told that [he is] a savage because” of his medical customs and his noncompliance. Patients thus understood their doctors’ instructions as “a manifestation of the conqueror’s arrogance and desire to humiliate” (*DC*, 125-6). For their part, doctors found their patients superstitious and stubborn, presenting with diffuse complaints rather than clearly defined ailments, and unable to translate their experience of illness into a comprehensible symptomatology. But where the physician saw this as noncompliance based in ignorance, Fanon argued that these patterns demonstrated how medicine was already a soft target for anticolonial resistance: to reject medical authority was to reject colonialism itself. In wartime, the doctor was an even more

problematic figure. As the Algerian war broke out, French authorities “weaponized” medicine, prohibiting Algerians from accessing nearly all medical supplies, including bandages, alcohol, antibiotics, and surgical instruments. Claims that medicine and science were objective sciences now appeared particularly perverse. Physicians had violated their claims to neutrality by participating in acts of war and defending colonial interests above their Hippocratic commitments.

Like the murder of aid workers, the murder of a physician appears incomprehensible. Yet two brief, grisly scenes from Gillo Pontecorvo and Saadi Yacef’s 1966 film *The Battle of Algiers* frame the problematic status of medicine in colonial warfare particularly clearly. Placed side-by-side some two-thirds of the way through the film, they depict the city of Algiers in the throes of war. Algerian terrorists fighting with the FLN have placed a number of bombs in cafés and airports, killing dozens of European men, women, and children. In response, the French-Algerian government has called on the elite paratroopers to restore order in the city. The first scene is excruciating to watch, depicting the *paras*’ tactics for eliciting information to break terrorist cells in the city. Algerian men and women seized randomly in round-ups in the Casbah are tortured with blowtorches, near-drowning in bathtubs, and electricity. Jaded soldiers smoke cigarettes as they watch the victims. A suspect looks on in terrified anticipation of duress; tears stream down a woman’s cheeks.

The next scene in the film is apparently unrelated to the first. Two Algerians throw a murdered physician’s body from the back of an ambulance; as the ambulance speeds away, the passenger begins shooting randomly into crowds that line the city’s streets. The passenger then throws the steering wheel to the left, ramming the ambulance into a crowd gathered at a bus stop in a suicide attack. The sequence reinforces the notion that there is no moral high ground in a struggle between terror and torture. But the clip is also prescient, paralleling the attack on the Red Cross, the attack that Friedman called “a new low.” Following the film and Fanon, it was the physicians themselves who abandoned civilizational norms by participating in interrogations and torture: in effect, by mobilizing medicine in the service of colonialism. The juxtaposition of these two scenes in the film is an intentional one: it portrays the shock of the French community at the assassination of a physician (“A doctor – He’s been stabbed!” “C’est horrible!”), but frames this murder as a response to physicians’ involvement in torture. Henri Alleg, editor of the left-leaning newspaper *Alger Républicain*, noted this complicity in his wrenching memoir of torture in the El-Biar prison in Algiers. After days of enduring beatings and electric shock, French physicians tended his wounds, both to strengthen his enervated body for a prolongation of his pain and to eliminate physical evidence of his ordeal.¹⁴ In the police station, a doctor judged how much punishment the body could take; in the courtroom, a doctor testified that no torture had taken place.

This juxtaposition is a raw condensation of a much more complex scenario – one that appears hyperbolic on the screen, but which also reflects the experience of Algerian nationalists with French biomedicine. While the conditions of war exacerbated tensions between French and Algerian communities and forced an entrenchment of positions – European doctors defending European ideals, Algerian nationalists rejecting medicine and science as symbols of imperial domination – one sees a common pattern to the implantation and development of European medicine in the colonial, and now the postcolonial world, and the responses it has engendered. In the provision of care and in campaigns for public health and disease eradication, biomedicine and the body have historically been sites of contestation – a battleground over the high stakes of civilization.

This view helps to place the Red Cross attack in a new light. Far from accusing the ICRC of complicity in torture – indeed, the opposite is true, as the Committee's reports impugning American military abuses attest – the point is rather that medicine itself has become suspect.¹⁵ Papers in major medical journals have revealed “grave breaches of international or U.S. law” by U.S. Armed Forces medical staff, including doctors, nurses, and medics.¹⁶ As Robert J. Lifton reported in the *New England Journal of Medicine*, physicians and other medical personnel in the Abu Ghraib prison and at the Guantánamo detention center have violated a number of legal and ethical conventions by concealing evidence of physical and psychological abuse, failing to interrupt torture, and revealing prisoners' confidential medical records to interrogators as a means of promoting the exploitation of prisoners' vulnerabilities.¹⁷ According to both interrogators and released prisoners, the Army's Behavioral Science Consultation Teams (BSCTs, or “Biscuits”), including psychiatrists and psychologists, are wholly integrated into the interrogation process. One psychiatrist who worked at Guantánamo, speaking of his profession's capabilities, told *The New Yorker's* Jane Mayer that “we know how to hurt people better than others. We can figure out what buttons to push.”¹⁸ Ironically, this is the only medical attention many detainees have received. A recent Human Rights Watch report on the Army's torture of prisoners in Iraq pointed to two direct parallels to the use of medicine during the Algerian war: the systematic withholding of medical care to wounded detainees as a technique for eliciting information, as well as the extensive roles of physicians' assistants in concealing evidence of abuse. An environment in which medicine's role is almost exclusively one bound to torture cannot help but exacerbate the mistrust that is already a constant backdrop in a war-ravaged landscape. As one sergeant interviewed by Human Rights Watch argued, “If he's a good guy, you know, now he's a bad guy because of the way we treated him.”¹⁹

Complicating matters further, Army medical divisions are often closely involved in the provision of relief to injured and displaced civilians on the ground in war zones. This practice has shrouded humanitarian aid in Iraq

and Afghanistan in the same “haze of organic confusion” that surrounded colonial medicine in Algeria.²⁰ As the *Times* reported even before the Red Cross attack, crisis zones such as Iraq are of course hotbeds of chaos. One must therefore question “whether smaller aid groups ... are actual targets for terror attacks,” the story noted, “or are mistaken as part of the American occupation forces.”²¹ This predicament resonates powerfully in aid circles. A report in *Humanitarian Exchange* recently noted the “broad agreement that the Iraq crisis has resulted in a dangerous blurring of the lines between humanitarian and political action.” Aid groups, as a result, “are seen as the ‘mendicant orders of empire’ – the compassionate face of a hard-nosed globalisation.”²² Pronouncements by public officials exacerbate this tension. Echoing Lyautey in a 2001 address, Secretary of State Colin Powell described American “non-governmental organizations” as “a force multiplier for us, such an important part of our combat team.”²³ Such declarations, along with conditional offers of relief in Iraq and Afghanistan (making aid contingent upon the provision of information about insurgents, for example), put groups such as the Red Cross and Médecins Sans Frontières (MSF) “at great security risks.”²⁴ This in turn exacerbates risk for the vulnerable populations of war zones: for example, the murder of five MSF workers in Afghanistan in June 2004 led to the group’s withdrawal, depriving the population of desperately needed competent physicians.²⁵

Such violent consequences, according to critics, should “come as no surprise,” given the politicization of humanitarian aid in the wake of the September 11 attacks. Islamic charitable organizations have come under intense scrutiny in the United States and abroad: federal agents have raided the offices of a number of Islamic charities, apprehending their officers, seizing documents, and accusing their operatives of secretly financing terrorism. Such groups – including the Red Cross offshoot, the Red Crescent – have therefore been severely restricted in their activities in Iraq.²⁶ The absence of identifiably Muslim aid organizations, concealed by the culturally laden symbol of the ICRC, has combined with the Bush administration’s labeling of the “War on Terror” as a “crusade” to bring western aid under deep suspicion of proselytizing and political action.²⁷

Responses to medical aid are so impassioned precisely because medicine is such a seductive force. This is one of the crucial reasons medicine was so instrumental to empire: as medical missionaries have long noted, it created the opportunity for conversion. Yet inflamed passions also surround the provision of care because the body and its wellbeing are so deeply personal. The pedantry of physicians and public health campaigns often meets with intense resistance. Even when their methods are effective – when they are based in something as apparently irrefutable as modern science – their adoption requires a submission to authority. But when their methods prove to be self-serving or ineffective, when science proves inconsistent, and when universal knowledge fails in local contexts, resentment of this authority feeds rejection and resistance. When these shortcomings

are applied to the body and its regulation, responses frequently take on a new significance.

Ways of Knowing, Ways of Healing

Another story that ran in *The New York Times* in fall 2003 demonstrates that medical mistrust operates in at least two directions and extends beyond the crass militarization of medical relief. A report based on surveys in Botswana, Uganda, South Africa, and the United States noted that African HIV/AIDS patients demonstrated far higher compliance with antiretroviral therapy (ART) than did Americans. Where Americans were about 70 percent compliant with their regimens, Ugandans, for example, proved to be about 90 percent compliant. Common wisdom saw these patterns as impossible. Following Andrew Natsios, administrator of the United States Agency for International Development (USAID), Africans and other poor populations “don’t know what Western time is.” Populations without watches or clocks, without infrastructure, without physicians could not possibly follow the complex regimen that ART required; if provided with the drugs, they would only breed drug-resistant strains of HIV. The apparently astonishing findings of a range of studies demonstrated that “most African patients are” in fact “zealous about their regimens,” and “are also more truthful when estimating their adherence.”²⁸

What is most notable is that the findings appear to be not merely counterintuitive, but indeed shocking. How, after all, could a recalcitrant population follow such a complicated medical regimen? How could a population that had done nothing but frustrate international health officials for decades determine that following that regimen served its best interests? This sentiment, in which the reporting echoes the official line of USAID and many physicians and health workers, indicates a degree of intolerance and impatience in the west’s attitudes toward the developing world, as well as a powerful note of resignation and mistrust.

Where ideas about sickness and health are concerned, the roots of these attitudes include the tensions between western and indigenous forms of knowledge. Anthropologists since E.E. Evans-Pritchard, who documented a clear nosological and etiological system among the Azande, have recognized rigorous, organized, coherent belief systems about nature, health, and illness among a broad range of non-Western and non-literate populations.²⁹ As Clifford Geertz has argued, the logics inherent in such local knowledge systems constitute regional forms of common sense: practical, straightforward explanations of the operation of the natural world. When such explanations place the blame for disease on sorcery, many westerners find them “unscientific” or “superstitious.” Yet as Geertz also notes, western common sensibilities based in scientific knowledge function in similar ways. We know that hygienic practices have roots in both sanitarian and bacteriological principles, yet we conduct them more

as ritual or custom than as consciously scientific practice. An extreme case is the Nazis' perverse injunction to hygienic discipline in the deadly miasma of Auschwitz: "Nach dem Abort, vor dem Essen/ Hände waschen, nicht vergessen."³⁰

Despite its universalist claims, biomedicine is a peculiarly western idiom. Biomedicine is of course not a monolith; nor are its practitioners helpless to act outside of a specific professional mindset. Yet as medical anthropologist Arthur Kleinman has argued, the shared assumptions that support much of biomedical theory and practice betray a common set of roots in the major themes of western scientific and intellectual culture. In the modern western scientific tradition, nature is material. It is thus visible, identifiable, knowable, and ultimately changeable. Nowhere is this clearer than in much of western medicine's obsession with the concept of disease: the imperative to locate in the patient's experience of illness an identifiable biological dysfunction with a clearly defined causal chain.³¹ Even in a monocultural setting, the processes of diagnosis and treatment therefore amount to an act of translation that only the physician is qualified to conduct. By this conception, the patient's psychological, social, and emotional suffering is noise that masks, rather than reveals, the biological signal of disease and disorder. This is responsible for biomedicine's greatest successes, as well as its most insuperable stumbling blocks. For many diseases – those with microbial, and increasingly genetic, origins – the physician's capacity to distill diffuse, generalized suffering into a localized pathology susceptible to treatment leads to a rapid and effective cure. Yet this same intense focus on a single source of disease often leads to the practitioner's failure to acknowledge the patient's suffering as anything but a field of interference that obstructs diagnosis and treatment, rather than a critical element of the patient's illness with complex social and cultural dimensions. Where the physician sees a herniated vertebra, for example, the patient might experience not only pain, but also disability and a crisis of identity. The biological problem of the underlying "disease" is straightforward, but its social sequelae present extensive complications. In a gendered social order, a woman with the affliction might see herself as a failed mother because she is unable to lift and hold her child, while a man might suffer a crisis of masculinity because his pain prevents him from working.³²

The failure of biomedicine to recognize suffering as an important component of illness is especially a liability in cross-cultural settings in which linguistic, political, and economic divides often compound the inequities of the clinical encounter. Yet the point is not that biomedicine is a good practice that becomes corrupted in colonial or global contexts. Rather, despite its clear efficacy in many cases, biomedicine is a knowledge system and set of practices with significant potential to alienate patients both from healers and from their suffering. Perhaps most significant is what Kleinman calls the "monotheistic" roots of modern biomedicine:

the exclusive recognition of “a single, underlying, universalizable truth,” and a concomitant rejection of medical pluralism. As historian David Arnold has controversially asserted, all of western medicine, regardless of the site of its practice, has historically been at least implicitly “colonialist” in its attempts to exercise monopolistic control over the annexation of the body, the naming of its parts, and the control of its functions as its rightful dominion.³³ Although inflammatory, the assertion might usefully account for a widespread intolerance toward alternative beliefs in much of biomedicine. Any attempt at contesting or negotiating biomedical protocols – whether by the homeopath, the chiropractor, or the shaman – amounts to heresy. Pluralism is an act of resistance; folk knowledge is itself a target for eradication, a goal accomplished through medical evangelism and the conversion of a recalcitrant mindset.

The early intersection of colonial medicine with religious mission work demonstrates how such conversion efforts sought to seduce colonized populations by presenting biomedicine as a superior form of knowledge about body and nature. A classic example of this is the dispute between the “rain doctor” and the “medical doctor” in David Livingstone’s African journal, which anthropologist Jean Comaroff has found emblematic of early western medical encounters with African knowledges. Livingstone insists to the rain doctor that he cannot “charm the clouds by medicines. You wait till you see the clouds come . . . and take the credit which belongs to God only.” The rain doctor is not so easily persuaded:

“You give a patient medicine. Sometimes God is pleased to heal him by means of your medicine; sometimes not – he dies. When he is cured, you take the credit of what God does. When a patient dies, you don’t give up trust in your medicine, neither do I when the rain fails. If you wish me to leave off my medicines, why continue your own?”

Livingstone responds that he treats “living creatures within my reach, and can see the effects, though no cure follows.” By contrast, the rain doctor, according to Livingstone, merely “pretend[s] to charm the clouds, which are so far above us that your medicines never reach them. . . . Could you make it rain on one spot and not another?” The rain doctor’s response is priceless: “I wouldn’t think of trying. I like to see the whole country green.”³⁴

Livingstone frames the conversation as a means of proving the irrationality of the rain doctor’s grounds for argumentation. In the clash between European and indigenous belief systems, impasses such as this one amounted to struggles over the foundations of knowledge. To call biomedicine a belief system is not to deny its efficacy, but rather to situate it properly in the historical and cultural contexts from which it emerged and in which it continues to evolve. Most westerners see biomedicine as

universally applicable and scientifically objective, but only because we believe in things like universality and scientific objectivity. Yet by virtue of its claims to universality, such a belief system becomes totalitarian by rejecting that which does not correspond to its model. Where the rain doctor's medicine tolerates pluralism – to each his own pharmacopeia – the disease model and its conceptual underpinnings repudiate the social, experiential, emotional, and conciliatory domains of illness as obstructions to knowledge.

With the expansion of European influence in the course of the nineteenth century's "New Imperialism," the lines between the respective epistemologies of the rain doctor and the medical doctor hardened. As ethnological and philosophical interest in "primitivism" surged in the early twentieth century, many saw these disputes as evidence not of incompatible orderings of nature but instead as evidence of the irremediably primitive mentality of the colonized.³⁵ Just as the native must, by the logic of colonial ideology, be cast as ignorant, superstitious, and in need of salvation, so too, it appears, must that superstition constitute the native's basis for resistance and noncompliance. This offers a means of understanding the militarization of colonial medicine and sanitarianism in their efforts to stamp out the alleged ignorance and barbarism that lay behind the egregious public health conditions of many colonial terrains. It also offers a means of explaining how it was that colonial medical officers – and more recently, members of global health organizations – came to see themselves as thinking rationally on behalf of "benighted" native populations.

Colonial health campaigns often revealed an astonishing bellicosity. Militant rhetoric was pervasive and reflexive, as many colonial physicians held military positions and organized their programs with military support. In French North Africa, for example, physicians and administrators sought to achieve what one official called "the moral conquest of the native" through the deployment of a scientific arsenal.³⁶ Defending their methods by extolling "the civilizing work of benevolent France in its expansion," they sought to "develop the manifestations of modern life, above all from the hygienic point of view" in a region where "everything remained to be done." As one physician in Rabat insisted, "It is indispensable that Morocco benefit not only from the material advantages that French civilization has procured for it; but also that the population feels in its physical and psychological health the benefits that today's medicine is capable of bringing."³⁷

Historian Nicholas King has argued persuasively that while epistemological divides drove these conversion efforts in the colonial period, in the post-Cold War era a logic of "integration" has taken their place. Speaking the language of development, an increasingly globalized form of biomedicine presumes the universality of its principles, and seeks less to convert a recalcitrant mentality than to integrate marginalized localities into a global marketplace. Although invoking egalitarianism, this logic

reinforces profound inequalities by privileging the biomedical order as the foundation of global health.³⁸ Yet while this approach clearly characterized the mid-1990s – with the Clinton administration’s fetishism of globalization and growth – the United States’ increasingly Manichaeian stance in the aftermath of the attacks of September 11 has witnessed a return to the notion of conversion and its limitations. An absolutist political rhetoric that consistently distinguishes good from evil, “with us” from “against us,” and “civilized” from “barbaric” has forced a resurfacing of the epistemological divides of the colonial era.

Indeed, the militant denunciation so paramount in colonial campaigns has remained a marked characteristic of contemporary struggles against infectious disease. Current global health policy – as shaped by U.S. and European interests – balances the carrot of medical relief with the stick of epistemological violence. The ambivalence of colonial discourse – a rhetoric that blames the “uncivilizable” native rather than inadequate resources for the failures of global assimilation – has returned in full force. Economic, social, and political interests conceal the subjection of whole populations to multiple orders of marginalization: what anthropologist Paul Farmer has called structural violence, or the constraint of agency through forces beyond individual control.³⁹ What remains overt is the politics of blame that pins responsibility for the spread of disease on already vulnerable populations. Andrew Natsios of USAID thus speaks of the futility of treating African AIDS with drugs, citing the impossibility of teaching Africans to tell time. At the same time, Randall Tobias, former head of the pharmaceutical giant Eli Lilly and current American global AIDS czar, argues that condoms are ineffective at reducing the spread of HIV, and promotes an abstinence-only agenda. To accentuate the imposition of domestic politics abroad, U.S. government agencies – including the State Department, USAID, the CDC, and HHS – have withdrawn support for the United Nations Population Fund, an agency dedicated to promoting maternal and child health, citing the fund’s alleged support for abortion. As a tragic consequence, leaders in developing nations embrace the agenda of American evangelists and promote its ideas to their populations as a means of securing U.S. funding.⁴⁰

Such policies re-center debates about the global AIDS crisis squarely around sexuality. In this new civilizing mission, the bar is set impossibly high for populations at extreme risk. The promise of “conversion” is inclusion in a project of global citizenship through health. Yet the political economy of globalization and the policies adopted to promote this inclusion perpetuate the inequities that dissolve social worlds and accentuate vulnerability. Critically, this politics of blame surrounds more than American responses to global AIDS. It has historically been deeply implicated in disease control efforts in settings marked by inequality, revealing the ways that health continues to be a battleground for contests between asymmetrical forces.

Disease Control and Resistance: Medical Force and Rumors of Power

The raw deployments of authority that have marked programs to curtail plague, smallpox, and now polio set this asymmetry in high relief. Plague measures adopted in British India and French North Africa in the early twentieth century provide telling examples. Despite an explosion of scientific knowledge about plague at the turn of the twentieth century – the Pasteurians Alexandre Yersin and Paul-Louis Simond had published on the discovery of the plague bacillus and the rat-flea-human nexus respectively in 1894 and 1898⁴¹ – the idea of “native” filth, irresponsibility, and ignorance as the root of epidemics continuously marked both British and French approaches to colonial public health. The high prevalence of plague among Indians and its near absence among Europeans led British officials in India to blame the condition of native dwellings and the migration of religious pilgrims for the propagation of plague throughout the subcontinent.⁴² Yet they disregarded the powerful effects of famine and malnutrition on the immunity of the Indian poor. This perspective informed colonial authorities’ partial response. To curtail pilgrimage was to interfere indelicately in religious matters, raising the specter of the Sepoy Mutiny of 1857, and famine relief, as Mike Davis has recently noted, ran counter to discourses of free-market liberalism that the British were so keen to impose on India, to the extent that they suited the needs of Victorian capitalism.⁴³

Yet other responses to plague were swift and direct, relying heavily on colonial power. Colonial authorities forcibly isolated the sick from the healthy and segregated the sick into camps. Inspectors dragged travelers from trains, lined them up by sex, and stripped them for minute examinations. Officials evacuated houses that were then burned to the ground. Forced inoculations with Haffkine’s serum – only marginally effective and with often-dangerous side effects – were the order of the day. In zones showing particularly high rates of infection, houses were stormed and searched for concealed cases. Physicians coerced populations into trials of new vaccines and sera. Public health officials offered rewards for information about cases and threatened severe punishments for concealment. Epidemiological research heaped insult onto these injuries to the human dignity of the colonized. In a series of experiments conducted by the British Indian plague commission in 1905, epidemiologists released rats and guinea pigs into houses suspected of harboring plague, returning days later to retrieve them. Only if such animals proved to be infected did officials then remove the human inhabitants.⁴⁴

In the case of French North Africa, eradication and vaccination campaigns were the province of the Groupes Sanitaires Mobiles, or Mobile Sanitation Squads. These units famously appear in Camus’s novel *The Plague*, which drew heavily on the realities of public health in French Al-

geria.⁴⁵ Organized, active, and protected by military escort, these groups constituted the vanguard of colonial expansion. In the early twentieth century, they moved from house to house and village to village in order to vaccinate settler and indigenous populations against diseases ranging from smallpox to typhus. They exterminated rodents and insects and ran educational programs. Epidemic states of emergency heightened their powers and revealed the arrogant colonial attitudes that drove their programs. In these cases, they enforced the discipline of quarantine, ensured the reporting of cases, and placed households in isolation. Yet they also sought index cases as a means of quelling epidemics, placing extreme pressure on indigenous groups. During an outbreak of plague in Tunis in 1929, Charles Nicolle – Nobelist and director of the Tunis Pasteur Institute – mistakenly singled out a tribe of migrant laborers living in the city as a reservoir of disease. Nicolle authorized and supervised their forced evacuation and confinement. As 400 soldiers stood guard, medical officers stormed their lodgings on New Year’s Eve, and dispatched the 370 workers to a lazaretto in the Gulf of Tunis until they and their residences could be closely inspected by physicians and epidemiologists. Only one – compared to dozens in the rest of the city – tested positive for plague. Yet the press as well as the public health department continued to designate this population as the source of the infection.⁴⁶

Programs for infectious disease control, and especially the eradication efforts of the mid- to late twentieth century, have been the heirs to these traditions in the postcolonial era. The World Health Organization’s (WHO) current polio eradication program provides an intriguing foil for comparison with the colonial struggle against plague. Based on its achievement of smallpox eradication in 1979, the WHO launched its polio campaign in 1988. “Ring immunizations” characterized the smallpox program. As the smallpox virus is spread through contaminated droplets, everyone who might have come into contact with a new victim’s sneeze or cough was quickly immunized, thereby cutting short the spread of the virus. By contrast, polio is a far more complex and labor-intensive target than smallpox. Polio is spread chiefly through water contamination and can survive outside the body for up to two months, meaning that it exploits compromised environments and can reach a much wider susceptible population. The virus infects nearly all non-immune populations. Only a very small percentage of those infected – on the order of one in 200 – become symptomatic, yet they still pass the virus on to others for several weeks. Its eradication thus requires widespread immunizations that cover regions, rather than villages; to complicate matters, multiple vaccinations are required for at-risk children.

By 2003, the virus was endemic in only six countries, demonstrating the campaign’s remarkable success. Most populations welcomed the program, yet in some areas the campaign resuscitated the bitter resentment and resistance that surrounded disease control programs under colonial

rule. In Uttar Pradesh, for example, many Muslims refused to immunize their children because of rumors that the polio vaccine was part of a BJP conspiracy to sterilize Muslim children. The result was a dramatic case incidence upsurge in the region.⁴⁷ A similar resurgence followed like rumors that circulated in the Kano province of Nigeria, a Muslim stronghold.⁴⁸ A result of this phenomenon, along with the reappearance of polio in the Hudeida governorate in Yemen following the Mecca pilgrimage, has been the scapegoating of Islam as an obstruction to eradication.⁴⁹

Coverage of the crisis in the medical press has mentioned the spread of rumors as an obstacle to immunization, yet has failed to consider the deeper implications of such rumors for public health programs. In the Indian case, *The Lancet* noted such rumors as one of the “various problems” with which “vaccination teams have had to contend.”⁵⁰ Other studies – including some conducted by Indian epidemiologists – pitted the entire blame for the resurgence on the rumors and argued that these “prevailing misconceptions and adverse attitudes” were an obstacle “to be tackled urgently and sensitively to make the programme successful.”⁵¹ These same studies have ignored, however, the gross disparities in health and income between Hindu and Muslim populations in Uttar Pradesh, where the poor Muslim minority has long borne a significant brunt of the disease burden. Nor did they consider the rational basis for such rumors among a population naturally suspicious of state public health interventions, associated more closely with the coerced sterilizations of the Emergency period than with a genuine concern for the well-being of the poor.⁵²

As for Nigeria, Kano’s residents in particular have good reason to approach vaccination campaigns with trepidation. In 1996, during a devastating outbreak of bacterial meningitis, Pfizer conducted an extensive trial of Trovan, a new oral antibiotic, on two hundred children in Kano, an impoverished city of two million people. The study included a number of serious and possibly lethal ethical breaches. Company researchers tested the experimental drug in some cases on dying children who could have been saved by the standard treatment, ceftriaxone.⁵³ In addition, researchers tested the drug against a much smaller dose of ceftriaxone than recommended. Such comparisons likely favored outcomes for Trovan patients, but also placed patients in the control group at high risk at the height of a deadly epidemic. The trial concluded that Trovan and the smaller dose of ceftriaxone worked equally well. The result is that had physicians administered the recommended dose of the standard treatment to the 200 patients in the trial, both the experimental and control groups would likely have fared better in the epidemic. Some thirty children – that is, 15 percent of participants – either died or suffered serious injury as a result of their participation.⁵⁴ With such experiences seared into recent memory, it becomes understandable that parents in Kano could believe the worst about another orally administered medicine stemming from a Western initiative.

The targeting of Islam is itself a legacy of the colonial era. For the British physician James Christie, stationed in Zanzibar in the late nineteenth century, the Mecca pilgrimage was a ritualized annual diaspora of sickness. The gathering of millions of pilgrims from the far reaches of the Islamic world, who often arrived in a state of wretchedness after months of deprivation on the journey; the polluted water at Mecca; the effluvium resulting from the sacrifices; and the transportation of the sick and the dead back home made the site a hub of disease. Religion and its practices, and not poverty or living conditions, were for Christie the root of health inequities.⁵⁵ Likewise, disease rumors and official responses to them echo reactions to colonial epidemics a century earlier. Writing of plague in Bombay in 1902, a British medical officer implicated “the Oriental imagination” as the primary barrier to effective disease control and surveillance in the colony. The officer ascribed riots, attacks on British officials, and “organised opposition to the plague measures” to the actions of “fanatical” and “crafty agitators” who manipulated public terror and gullibility to promote a radical anti-British agenda. Among the rumors that circulated were stories that the English had poisoned the water supply with cobra venom, and that a boy had been burned alive by plague officers. The author expressed his astonishment that the “most preposterous fabrications against the English officials were eagerly accepted, even by educated Hindoos.”⁵⁶

To government and medical officials in these situations, rumor is a source of obstruction. It is evidence of the superstitions of a credulous population. As anthropologist Nancy Scheper-Hughes has argued, belief in such rumors is condemned, even mocked: The rumors of the poor are a source of entertainment for social elites. And yet rumors like these are reflections if not of “truth,” then of lived experience. In an environment in which life is an accumulation of crushing inequalities, rumor offers a powerful means of explanation. Catastrophes such as epidemics, natural disasters, or widespread deaths foment the spread of rumors as a means of establishing the truth of devastation and contesting insuperable social, economic, and political forces. Rumors, in turn, “feed a culture of suspicion and fear,” and exacerbate the “fatalism and despair” of the marginalized.⁵⁷ As with rumors that the CIA deployed crack cocaine and AIDS into America’s inner cities as a dual-pronged program of chemical and biological warfare against African-Americans, they reflect both the moment of their creation and a long historical memory of oppression and resistance.⁵⁸

Rumors also operate as tools for bridging epistemological divides. As Luise White argues, they “naturalize the unnatural.”⁵⁹ They serve as a means of explaining the incongruous in readily understandable terms that reflect the experiences of the marginalized. An example of this incongruity is the tension between the “vertical” strategies that have characterized biomedical approaches to the health problems of the developing world, and the “horizontal” strategies that might appear more sensible on the

ground. Again, the struggle against polio offers a critical example. The eradication of a painful, unpredictable scourge that disables children and condemns many to a life of wretched subsistence is of course a worthy goal. But the project has already cost more than three billion dollars, and will almost certainly require at least another billion. This is an enormous outlay, considering the goal may never be reached: resurgences across Africa and in the Middle East have placed eradication in doubt. Given the staggering logistics and the long history of failure in high-profile eradication efforts, this is a puzzling use of such scarce funds, which might be better dedicated to improving disease ecologies in which polio and a host of other infectious diseases thrive.

Vertical strategies that aim significant resources at a single target can be effective, as the smallpox campaign demonstrated. Yet the search for technological solutions to single problems consumes resources that might be used for raising water quality standards, ensuring nutrition, and providing essential medicines: efforts that could have a decidedly deeper effect on health in the developing world.⁶⁰ This point is not lost on the populations targeted by the grand designs of the WHO. As Paul Greenough has demonstrated, when the smallpox campaign intensified in its final years, health workers resorted to increasingly aggressive tactics. Epidemiologists working in particularly “hot” zones in South Asia employed bribery, coercion, and in some cases physical violence to ensure widespread vaccinations. Resistance to the campaign included religious objections similar to those that Hindus had voiced a century earlier against British vaccination policies. But other logics of resistance were also evident, as in the case of a starving Bangladeshi woman who refused vaccination unless also given food. According to the health worker who confronted this woman, she argued that “if I didn’t care whether or not she died of starvation, why should I care if she got smallpox?”⁶¹ What is clear from this exchange is that the woman’s life assumed far more value as a cog in a larger machine than as a suffering individual. Where her famine represented no threat, her potential infection could undermine a two-decade project.

Eradicationism is a natural consequence of a medical epistemology that focuses relentlessly on disease as biological malfunction. Yet a single-minded concentration on particular diseases – targets for eradication because of their virulence, but also because they *can* be eradicated – combined with indifference toward the collapse of whole ecologies involves a logical gulf: the “unnaturalness” that Luise White signals as a fertile environment for the growth of rumors. Rumors assimilate this unnaturalness to lived experience. When life is the sum of experiences of defeat at the hands of powerful economic and political forces, such policies are easily ascribed to the operation of those forces.

The epistemological conflict that supports these interventions also reinforces the marginalization of populations in the developing world. Many of the assumptions built into the processes of biomedical education

and professionalization – especially the rejection of pluralism that Kleinman locates in practitioners’ “monotheistic” tendencies to see Western medicine as the exclusive pathway to health – circumscribe the agency of populations targeted by these campaigns, assigning them to a condition that philosopher Giorgio Agamben has called “bare life.” Taking up Hannah Arendt’s distinction between the Greek *bios*, or the “good” political life, and *zōē*, or brute, animal existence, Agamben argues that a reduction of *bios* to “bare life” is a principal function of a twentieth-century politics of population. For Agamben, populations of refugee camps, for example, exist in a “pure space of exception,” the domain of bare life. Like the targets of eradication campaigns, they have been divested of political life. It is their loss of citizenship that raises the question of “human rights” *per se*; that is, rights that are naturalized, but not nationalized, which exist outside of the political life of the citizen. In many cases the state is the author of such disenfranchisement. As anthropologist João Biehl has noted in his study of Brazil’s widely celebrated program that claims to treat all AIDS sufferers, many homeless, mentally ill, and petty criminals have been written out of official statistics on epidemiology and treatment.⁶² Yet as Agamben also points out, humanitarian aid organizations also “can only grasp human life in the figure of bare life.” Aid groups have isolated their subjects as biologically alive yet politically dead: the starving child who is the essential image for fund-raising is also the “cipher” of bare life whose agency has been co-opted by the rational forces of biomedicine.⁶³

Conclusions: Politics and Public Health

Public health in the modern period has operated at least as much in the domain of law as in the domain of medicine. Authoritarianism and its capacity to marginalize have been evident wherever inequality has shaped risk for exposure both to disease and to the interventions of the state.⁶⁴ This mechanism has had uniquely American as well as global manifestations, as Judith Leavitt, Susan Craddock, and others have argued in social histories of vulnerability and disease in immigrant populations.⁶⁵ Moreover, the militaristic campaigns of colonial public health have had long-term consequences. As Greenough argued in his study of smallpox eradication, the oral cultures of the developing world in particular can be crucibles of resentment, as memories of violently coercive public health measures circulate through oral accounts and rumor rather than the written record. By fostering “avoidance and opposition,” this resentment is “as great an enemy to public health as the disease.”⁶⁶ The close surveillance of villages, cash incentives for identifying concealed cases, house-to-house searches, and resistance on religious grounds that have characterized the smallpox and now polio eradication campaigns evoke memories of the colonial order that prevailed in epidemic circumstances.

If such forcible and bombastic public health methods continue to

inform suspicion of Western medicine's intentions, then mistrust also continues to characterize many physicians' attitudes toward the developing world. Much biomedical and anthropological research on AIDS in the developing world, for example, has fallen into the trap of pathologizing culture and sexuality.⁶⁷ The persistent notion that the world's poor are incapable of following a complicated drug regimen has had the effect of shoring up inequalities by invoking the grounds of divergent epistemologies as a defense of laissez-faire policies. To invoke Paul Farmer's impassioned critique of health policy toward the developing world, this defense of the universality of biomedical authority has participated in a tragic social framing of disease – one that precludes healing by marginalizing suffering as an effect of culture, rather than disease or poverty.⁶⁸ This two-way culture of resentment often tragically feeds on itself: a paternalistic belittling of the developing world's capacity to comprehend its own interests resuscitates the specter of colonialism and reinforces suspicion of Western interventions.

It is clear that in the eradicationism of the present, as in colonial public health campaigns, the actions of biomedicine in a state of epidemic parallel those of a nation in a "state of emergency." Yet the states of emergency that constitute health crises in both the developing and colonial worlds easily slip from "states of exception" to permanent conditions.⁶⁹ As the war against disease becomes an end in its own right through eradication campaigns, permanent *cordons sanitaires* distinguish, marginalize, and contain populations, stripping them of the rights of citizenship and the power to act. Disenfranchisement of the population is one of the most powerful characteristics of aggressive public health campaigns – an aspect that is exacerbated in colonial and global contexts with exaggerated inequities of economic and political power.

Good intentions are plentiful in contemporary global health policy. A world without smallpox is certainly a better world, and a world without polio would be better still. Yet the suspicion and mistrust that track along axes of geopolitical and economic power in a globalizing world have the capacity to derail even the most idealistic programs. As Farmer has argued, the forces of structural violence that burden the everyday lives of disenfranchised populations are frequently veiled, but not insuperable. The methods that medical anthropologists and social historians of sickness and health have employed to explore the past and present of disease and inequality have the capacity to shed light on the processes that perpetuate the ideological masking of suffering by pointing to the stinging legacies of mistrust that continue to taint both sides of the global medical encounter.

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The Social Shell

Gerry Kearns

Medical geography begins with sickness and health. The policies addressing disease, and the causes promoting good health are, literally, vital. Here, as in social science as a whole, an historical perspective helps: Things could have been different and may yet be different again. Parallels between past and present propose lessons for today. This approach is well captured in Mitchell Dean's summary of Michel Foucault's project as the writing of critical and effective history.¹ Critical history highlights the contingency of the present, and effective history gives us resources with which to consider alternatives. An important and contested area that is illuminated by such a "political historicism" is the nature of the social.² This has both a material and a discursive context and both are essential for medical geographers.³ Its material setting includes the biological conditions of human existence. These conditions are resolutely social. Historians influenced by Foucault have described the emergence of the social as a distinct field of knowledge, expertise and government.⁴ There is now a corpus of important geographical works on the emergence of social policy in the areas of health, sickness, welfare, and urban planning.⁵ Public health is one area where this discovery and invention of the social occurs repeatedly. Far from being the individualistic Robinson Crusoe of liberal or bourgeois ideology, human beings require a social shell if they are to thrive.

Medical geography includes the study of the localizing causes of disease. There has always been a tension between concentrating on the characteristics of the individual and focusing upon conditions beyond the control of single individuals, between lifestyle explanations on one hand and socio-environmental explanations on the other.⁶ This has even led some medical geographers to call for a geography of health rather than a medical geography, seeing the latter as tied to an individualistic, biomedical model of sickness rather than embracing the social, environmental and preventive dimensions of the former.⁷ The first part of the paper examines public health discourses as one of the ways "society" is rediscovered. A comparison of nineteenth-century British public health discourses with current writing about the urbanization of AIDS in the United States shows the repeated and contested discovery of the social. The social shell is revealed by the personal interdependencies that exacerbate vulnerability to sickness. The

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second part of the paper explores cyborg urbanism, or the idea that to survive in cities, people require sets of material appendages. This technology cannot not be provided by and for individuals, but only by and for collectivities. The inorganic is itself part of the social shell. The third part of the paper considers the question of collective action and the way that social movements operate. The social shell, here, consists of solidarities cultivated either in place or across space. I conclude by arguing that the singular importance of the social in public health underlines the necessity for such solidarities. The social shell is vital.

Discovering Society

The tension between individualistic and social explanations is an old one. The form this tension takes varies with local circumstances and ideologies. In the early nineteenth century, the notion of individual rights as a protection against despotic government was prominent in political discourse. John Stuart Mill, however, went further and emphasized individual rights as defense even against democratic government, the potential “tyranny of the majority.”⁸ Bentham had famously dismissed natural rights as “nonsense on stilts.”⁹ They were, argued Jeremy Bentham, nothing more than useful conventions, to be discarded where they did not meet the utilitarian test of collective, social usefulness. Mill argued that where the actions of an individual affected others, there might be grounds for government interference but that the test here would be general utility. The utilitarian basis of individual rights, in the case of Bentham, and of liberal government interference, in the case of Mill, appeared to promise that legal philosophy would seek a secure empirical basis.

In fact, policies continued to be overdetermined, both by empirical arguments and by moral philosophy. Sanitary reform was one such area. In ideological terms, there were arguments from contestable first principles. On one side, the more individualistic strand in bourgeois thought emphasized the idea that individuals, properly trained, could look out for their own best interests. This training of the social body is the focus of Mary Poovey’s account of sanitary reform.¹⁰ Against this was a recognition that no person was a sanitary island, entire of themselves. It is in this way that the public health movement came to diverse, and contested, constructions of the social.¹¹ This was never simply a matter of mere observation. As Chris Hamlin has pointed out, “[i]n this public health some parts of the environment (like sewer design) became part of medicine, while others, like diet and workplace, disappeared.”¹² Hamlin argues that public health reform focused on the physical environment in order to divert attention from poverty. For some state servants, to accept that poverty predisposed people to sickness questioned too much about the Victorian social order, and its Poor Law.

Nevertheless, the idea that sanitary investigations were voyages of

discovery was not pure rhetoric. Although the evidence never determined the details of policy, there was a clear embarrassment behind the so-called “condition of England question.”¹³ The contrast between national wealth and working-class living conditions cried out for explanation. The most comfortable explanations would have been both empirically adequate and ideologically acceptable. Such explanations were not easily produced. It appeared that the rich were not immune to diseases traceable to the living conditions of the poor. George Godwin’s famous account of insanitary London was called *Town Swamps and Social Bridges*.¹⁴ The interconnectedness of city spaces forced middle-class people to a new understanding of urban risk.¹⁵ It was argued that overcrowding in poor tenements would be curtailed only when all landlords were required by law to limit the number of people sharing a room. Only inspection would prevent butchers selling foul meat, since poverty constrained the poor to buy whatever was cheapest. Water and sanitation were provided most cheaply when supplied to all. The sanitary reports from government commissions and local government officials collated and repeated the evidence to sustain these claims.¹⁶ The strict individualism of laissez-faire economics could explain these relations only by agreeing that free markets did not operate here.¹⁷ People were embedded in physical and social environments over which they could exercise little control. There was indeed such a thing as society. This remains the basis for preventive public health programs and is the reason why the so-called New Public Health still looks back to these nineteenth-century antecedents.¹⁸

Those who wish to minimize state intervention retain the assumption that, as Margaret Thatcher asserted, “[t]here is no such thing as society.”¹⁹ Similarly, seeking to justify urban clearance for poor areas of New York in 1966, Roger Starr ridiculed the idea that something as nebulous as “community” might be harmed in the process: “[p]rovided only that a certain homogeneity of social class and income can be maintained, American communities can be disassembled and reconstituted about as readily as freight trains.”²⁰ Yet public health risk remains largely social in character. In hazards research, geographers and social scientists speak of the social distribution of vulnerability.²¹ This is illustrated very elegantly by a recent study of the Chicago heat wave of 1995.²² In Chicago, the heat wave of July 1995 killed about 700 people in one week. When they tried to understand this event, epidemiologists focused initially on the characteristics of individuals that placed them into risk groups.²³ These included poverty, race, and isolation. However, they had to control for locality effects in order to isolate the individual characteristics that interested them. In later work, when they did consider environment, they found that the local homicide rate was a highly significant independent variable.²⁴ They offered no explanation for this relationship. Klinenberg does. He argues that in areas with lively street life provided by street traders and pedestrians, elderly people living alone were not afraid to come down and repair to the air-conditioned

safety of convenience stores. In contrast, areas swept by drive-by shootings and drug-related street crime were considered dangerous by single elderly people, who remain in the apparent safety of their apartments. Without air-conditioning they were cooked to death in these flats. Klinenberg argues that public health officials in Chicago refused to face up to these social factors, yet living alone and being afraid of street crime resulted from other city policies concerning welfare, urban renewal, the regulation of street trading, and policing. Individualistic explanations not only fail to explain the observed mortality; they also narrow the search for solutions. The heat wave required what Klinenberg terms a “social autopsy.”

Medical geography is well equipped to broach this sort of social autopsy. This is a framework suited to the evaluation of fundamental geographical change. We may illustrate this briefly by considering the consequences of recent transformations of inner city areas in the United States. Between 1949 and 1973, one million people were dispersed as some 2,500 neighborhoods in 993 cities were levelled as part of urban renewal.²⁵ Renewal concentrated Black people into housing projects and then used the land thus cleared for commercial and institutional uses. Cities were segmented ever more efficiently into rich and poor districts. Black communities lost their historical bearings. Mindy Fullilove calls this “root shock.” This urban renewal was replaced in the 1970s, 1980s, and 1990s by a policy of withdrawing services from the inner city areas where the poor lived. Deborah Wallace and Rodrick Wallace show how this “benign neglect” produced new depths of segregation and new piecemeal urban clearance.²⁶ For New York, they document a policy of withdrawing fire services from the neighborhoods of the poor. The fires that ensued left an urban landscape fragmented and bedraggled. The abandoned shells of damaged buildings became the resorts of drug users. All who could, left. All who were left could only watch as the urban pathologies took deeper root.

Fullilove argues that people take care of their home place, they have a deep knowledge about it, and it is vital to their sense of self. These bonds of attachment, familiarity and identity are broken by wholesale or piecemeal uprooting of neighborhoods. The resulting trauma produces nostalgia, disorientation, and alienation.²⁷ Communities lose their resilience and pathologies of crime and addiction arise. These pathologies are highest in the areas that have seen the worst urban destruction, and in these areas people have a poor self-image, they are demoralized.²⁸ This stress has direct consequences for health. The burnt-over areas not only have a high incidence of homicide, but they also have a high proportion of underweight babies.²⁹ The introduction of HIV into this ecology of risk had depressingly predictable results. Not only were the fault lines of poverty and degraded environments etched onto the map of AIDS, but, in the diffusion that followed the early incubation of the epidemic, the suburbs rediscovered their connectedness with the maligned inner city.

Wallace and Wallace show that the level of HIV infection in the suburban areas of different cities may be explained primarily by the level prevailing in the central districts of those same cities. Overall, the connectedness of cities with New York and San Francisco was a fundamental factor in their vulnerability to HIV. Suburban New Yorkers and the citizens of the rest of the urban system of the United States were made vulnerable to AIDS by the planned deterioration of parts of Manhattan and the Bronx. Wallace and Wallace conclude that: “[W]e must rebuild communities so that substances or compulsive promiscuity are no longer needed (or indeed tolerated) to relieve pain. Both economic opportunities and socially functional neighborhoods are the best AIDS-prevention programs.”³⁰ As in the nineteenth century, the individualistic model fails to address either the causes of sickness or any plausible solutions.

Cyborg Citizens

Erik Swyngedouw has described cities as assemblages made of natural and social elements and, to direct attention to this hybrid nature of the city, he refers to cyborg urbanization.³¹ This adaptation of the ideas of Donna Haraway has stimulated a number of studies of the relationship between ecology and citizenship in the city. Matthew Gandy has looked at sanitary systems as one of the many interfaces between technology and the body.³² Gandy has further explored the cyborg metaphor as a way of conceptualizing modern urban dilemmas, both physical and imaginative.³³ He has also followed Mamdani in identifying water rights as a key dimension of urban citizenship.³⁴ Liette Gilbert and Catherine Phillips write of socio-ecological citizenship with regard to rights to home and water.³⁵ Swyngedouw similarly extends Lefebvre’s reading of the city’s right to incorporate access to the necessary material conditions for urban life, a “right to metabolism.”³⁶ Conceptualizing rights in the field of health is difficult, but Norman Daniels’ formulation of a right to “normal species functioning” is most serviceable.³⁷ Like relative definitions of poverty,³⁸ it makes reference to social norms (“normal”) and, in tying itself to dis-ease, rather than well-being, it is more practical than so-called positive definitions of health such as that of the World Health Organization (“a state of complete physical, mental and social well being and not merely the absence of disease or infirmity”).³⁹ We might, then, adapt Norman Daniels’ conceptualization to the case of what we might call cyborg citizenship. The cyborg body should incorporate whatever technology is necessary for normal species functioning. This, of course, will vary with wealth and expectations but in most circumstances imaginable for Western cities will include housing, water, and sewerage services; anything less makes normal species functioning, and even civilized life as we expect it, impossible. It is quite clear that no individual could provide these services for themselves without the scale economies embodied in collective provision.

Furthermore, the only way of ensuring that the negative externalities of waste disposal do not infringe upon the rights of neighbors is for there to be collective regulation. However, these extensions of Haraway's ideas by Gandy, Swyngedouw, and others raise serious questions about the original theory from which they borrow. These questions may be addressed by reviewing British public health discourses of the nineteenth century in the light of Donna Haraway's account of the cyborg.

Haraway's treatment of the cyborg raises two related issues.⁴⁰ The first concerns the nature of human beings. Haraway identified three polarities that she thought were destabilized by recent changes; some of which, at least, may be described as a shift from an industrial to an information economy. These blurred divisions are those between human and animal, between animal and machine, and between the physical and the non-physical. In broad terms, if an individual human being is somehow distributed and articulated through a series of physical and biological appendages that are not part of its given biology, then the boundary between the human and the non-human is called into question. The second is that if the human being is not bounded in this way, then the question of humanism as a theory of social action is also called into question. This remains a highly contentious issue in economics and the social sciences, but, if we can no longer explain social action exclusively in terms of the motives of individual conscious human beings, then methodological individualism is untenable.⁴¹ A whole series of rather different agents have to be theorized and their rules of engagement and forms of calculation explained.⁴² The relations between the first and second propositions appear conditional. That is, it is changes in the technology of life that are presented as reducing the degree to which social action can be explained by individual humans' preferences, intentions, or projects. This understanding of our current dilemma is made questionable by Gandy's and Swyngedouw's reworking of Haraway's ideas.

The public health ideology of Edwin Chadwick illustrates the problem rather well. Chadwick was an innovator of state institutions, involved not only with the New Poor Law of 1834 but also with the Public Health Act of 1848.⁴³ Together these changed the nature of urban governance in Britain. In terms of public health, Chadwick believed in circulation.⁴⁴ He thought that stagnation produced decomposition, which in turn produced mephitic gases that either directly or indirectly caused disease.⁴⁵ Thus, waste products had to be removed. This could have been done in a number of ways. The most common way in the early nineteenth century was for the night-soil man to come around from time to time and pump out cesspits. Chadwick believed that this was inevitably inefficient and something more automatic was needed. For this purpose, he proposed using sewers. Previously, sewers were for the drainage of rainwater from streets. Chadwick suggested that if sewers took both waste-water from houses and the excreta from water closets, they might drain both away from the home.

To this end, he wanted people also to get their water not from standpipes in courtyards, but by constant, high-pressure supply piped into houses. This would ensure that enough water was available in the house to flush away the excreta. At the other end of the sewer would be a farm ready to be fertilized rather than a river to be polluted. The night soil in suspension could be spread over the fields and would thus produce food, which the urban residents could enjoy. The more residents, the more night-soil, the more night-soil, the more food. Chadwick was delighted. He had, he said, "realised the Egyptian idea of immortality by putting the serpent's tail in its mouth."

In terms of the separations Haraway speaks of, it is clear that this ecological thinking treated humans as animals within a web of nature. It is significant that it was based upon the Soil Chemistry of Justus von Liebig, for in this way it connected organic and inorganic material. When we recall that cholera was the index disease to which the public health ideology addressed itself, we can see a certain paradox here. Bourgeois sensibilities were obsessive about the control of bodily fluids. Cholera was a disgusting and shaming disease.⁴⁶ It violated the borders of the body as waste products were expelled in uncontrollable spasms. Precautions were needed to guard against such animalistic lack of self-control and the associated risk of eventual death. Yet the bourgeois body could only be bounded, could only control its secretions, by being placed in communion with a network that rendered those secretions natural in a good rather than a bestial manner. The crucial terms are circulation and conservation. Fluids are disciplined and then indirectly re-ingested, the Egyptian idea of immortality.

This providential view of nature was ultimately grounded in a cosmology, and Chadwick was explicit about his preference for the natural theology of William Paley. This was the idea that the nature of God was revealed in the forms of his creation.⁴⁷ Since God was benevolent so was nature. This was very different to the view of nature as fallen Creation in which it was anything but providential but was rather miserly in its provisions. Chadwick presented his vision of circulatory sanitation as an explicit rebuttal of Malthus. It is also significant that the same vision of conservation and circulation informed Chadwick's political economy and that this political economy was also important to his public health ideology.

Individual consumers were unable to secure for themselves the benefits of the new sanitary system. Indeed, the market did not seem at all providential, for it produced obscene profits for water companies that provided an appalling service. Once again, Chadwick turned to the idea of circulation. The problem was that water, sewerage, and, at times he would also argue, housing were not ordinary commodities. They were commodities where neither capital nor consumers were able to enter or leave the market at will.⁴⁸ Once the fixed capital for a water supply had been laid out, the pipes were an inflexible investment. They would only be used to deliver water. It was, therefore, never worthwhile for a provider to cease providing

water at almost any price. This could only be ruinous in the presence of real competition since there was no incentive for a provider to leave the market rather than reduce the price. The result was that in these cases there was collusion between nominal competitors, and prices were fixed way above the level at which normal profits were guaranteed. Sewerage systems were similarly inflexible. In the case of housing, thought Chadwick, and here he anticipated the central findings of the Royal Commission of 1885,⁴⁹ it was the consumers who were immobile. The workers had to be close to work and yet they were poor. The result was that they had no alternative but to overcrowd and overpay for the housing available near their jobs.

Circulation was again the solution for at least the housing crisis. Suburbanization of industry and cheap trains should unplug the city centre. Chadwick was a believer in municipal investment for these fixed capital projects where the individual consumer could not benefit from an automatic harmony of the socially useful and the economically efficient. He believed that socially useful and economically efficient were coincident, but he did not feel that all commodities gave rise to markets that could produce this. Vested interests or monopoly powers prevented freely operating markets, and in these cases the municipality must intervene and provide the service itself, and through scale economies and by not taking excessive profits it could shadow what an effective market would have done.

Let me return now to the two themes identified in Haraway's work on cyborgs and see how they might relate to this public health ideology. I am not trying to push back into the nineteenth century the full force of her analysis of the implications of the deepening of an information society, but nevertheless there are some interesting parallels here. First, this is a technological fix for human health. Physical and biological coherence cannot be secured by human animals in cities without a series of mechanical and biological extensions to their bodies. Without elevators, all but the fittest of us would never be able to live or work in high-rise buildings. Without drains, sewers, and water pipes we would be repeatedly challenged by pathogens that might certainly make life uncomfortable and may even make it impossible. The city is a sort of shell. Second, this way of looking at the necessary conditions for urban life does indeed raise questions about the separations between human and non-human. In some ways the human organism is dissolved into a circular ecosystem in which it is a component rather than being part of a hierarchical system of which it stands atop.

But Chadwick resists the anti-humanism that deep ecology commits some to. The reason for this lies in the way that circulation relates to providentialism in his organic metaphor. By basing both economy and ecology on a sort of metaphysics of matter, Chadwick can believe that he lives in a world designed by God for the purpose of allowing humans to "go forth and multiply." Thus the free market economy is understood as being as natural as is the ecosystem. Letting both run freely would allow

them to reveal the beneficence of the divine design within both. However, monopolies and vested interests interrupt this teleology with appalling results for the ecological sustainability of the city. Because the earth has been designed for human beings, there is no need to infer or discern distinct purposes in other agents, animal or institutional.

Yet the world did not come as clean as Chadwick could think it. His belief in the value of town sewage as fertilizer depended upon the nature of local soils, the quality of agricultural drainage, the types of crops it was economic to grow, and, finally, the ways the sewage was treated to render it safe for farm workers to move amidst. In each of these ways, his expectations for the profitable use of town sewage was frustrated. Town and country were not so easily made compatible. Calculations about the value of town sewage were not seriously prosecuted by Chadwick. He had to be right to have faith in his Egyptian idea of eternity. Second, the money to be made from selling water was seriously constrained by what the poor could pay. Precisely the same problem undermined attempts at housing reform. In many cities, it was the industrial demand for water, not least for fire prevention that first brought a constant, high-pressure supply.⁵⁰ Calculating on the basis of individuals missed the fortunate point that there were enterprises with calculations and agency of their own. Third, though Chadwick conceptualized society as a group of individuals and the economy as effectively a series of petty commodity producers, he knew that there were other institutions involved. Laws required parliamentary approval, and this required the construction of voting majorities and Chadwick was very attentive to the ways that a majority in favor of public health reform might be constructed.⁵¹ This meant working through parties and finding ways of making the message resonate with whatever ideology was dominant within the House of Commons at the time. On his Select Committees, Chadwick assembled a broad range of ideological opinions. He then managed witnesses and evidences in an attempt to secure the widest possible consensus for his ideas. He then briefed journalists in order to create a climate of opinion in which it was difficult for opponents to get a good hearing. Chadwick wanted to treat parties, newspapers and pressure out of doors as extensions of his arm of government. This is not quite an information society, but it is certainly a very sophisticated construction of a "public opinion" from a diversity of institutions.

Finally, although Chadwick conceptualized opposition to his plans as nothing more than vested interests and implied that these interests were vested in scoundrels and greedy men, in fact the notion of vested interests took him quite close to an awareness of the autonomous agency of institutions. In parliament his tenure at the General Board of Health was ended by what he saw as an unholy alliance of M.P.s holding water company shares. With their dividends threatened, these M.P.s resisted Chadwick's call for the municipalization of water companies. Yet we might as easily conceptualize this as the agency of the companies themselves deploying

dividends to secure the longer-term interests of the enterprise. The center of calculation is the company itself. Indeed, the splitting of people into at once being individuals and yet also acting as executives of the interest of something external to themselves, be it an enterprise or some other association, is one important source of the forms of agency that cannot be captured by humanism's behavioral assumptions. Even Chadwick, himself, in postulating a collective interest in public health, in fact took his standpoint from the Archimedean view of the state itself. Effectively, he conceptualized population as a state asset and then acted as if the state had an insurance property in that population. Indeed, this utilitarianism led him to propose many extremely authoritarian measures that would certainly not be viewed as welcome by all the people they were applied to. In this way, he foreshadowed the eugenic Fabian position in which biopolitics were given very full reign.⁵²

To conclude, Chadwick's organic metaphor paradoxically blinded him to the necessity of conceptualizing at all carefully the ecological feedbacks he implied could be so providential. Although he appeared to be folding humanity back into nature, in fact, he projected onto nature human needs and assumed they were sustainable. His failure to acknowledge the radical otherness and indifference of the natural world was a direct consequence of his theology. Furthermore, although he showed a great aptitude for manipulating institutional logics and potentials, he continued to believe that the individual was the irreducible basis of society. Yet the nature of his practice, and of the opposition he faced, showed agents and centers of calculation that were not captured by his humanist sociology. In this regard, at least, we can push anti-humanism back before the information society developments highlighted by Haraway. The implications of this for how we conceptualize anti-humanism, the relations between the individual and the social, are quite significant.

Perhaps all forms of "time-space distancing" undermine the boundedness of the individual.⁵³ Writing allows action at a distance and even over time. Writing and money allow the development of institutions that can be formulated with interests distinctly their own, interests that individuals serve but do not always own. Politically, this means that reform may require changing the rules of institutions rather than altering the ideas and motivations of individuals. Institutions and other collectivities form an essential part of the context of individual action.⁵⁴ Explanations in the social sciences cannot be bound by the humanist assumption that individual actions are all that need to be described and explained. Furthermore, our consideration of what we might call, following Swyngedouw, urban metabolism shows that in the transformation of nature there are technological arrangements that are so central to sustaining human life in cities that it is only as part of such assemblages that people can survive urban life. Forging second nature not only produces new biota but also creates organisms that can only survive within second nature.⁵⁵ Alongside

animals manufactured, as Haraway describes,⁵⁶ for specific purposes in a laboratory, there are also animals so transformed by selective breeding for agriculture that they, too, could not survive without human management. We might easily go further and recognize that human beings as we know them can also only survive in assemblages of organic and inorganic technologies. The city is perhaps the most important of these.

Reconstructivist Social Movements

In a recent paper, Arturo Escobar has linked together science studies and the study of new social movements.⁵⁷ Following recent arguments in Science and Technology Studies, Escobar argues for a reconstructivist agenda for Critical Development Studies. Scholars should examine the constitution of social action from local knowledges and broader development discourses. The interpellation of individuals is a product of both. Non-modernist logics have to understand the effects that continue to be produced by colonial difference in order to establish a space for autonomous local choice. In articulating the dilemmas of development, Escobar is focusing upon knowledge, its production, status, and use. The AIDS epidemic is one of the most significant events in the history of human populations.⁵⁸ Responding to AIDS raises acutely the issue of knowledge and its deployment. A geographical approach to these matters suggests certain ways that Escobar's account might be revised, particularly with regard to how the "local" is conceptualized. In many studies of indigenous knowledges, and not just in Escobar's, there is a danger that identity gets conflated with locality and, furthermore, that localities are conceptualized in radical separation from broader connections. These two problems mean that the nature of solidarities are not explored as broadly as they could be and also that the role of unequal exchanges is occluded. Both of these are important to the politics of AIDS and are raised by the political programs of social movements around the issue.

Constructivist views of science and technology emphasize the role that social context plays in the selection and direction of research and development agendas. In arguing for a reconstructivist approach in Science and Technology Studies, Edward Woodhouse, David Hess, and colleagues argue that this insight has two sets of implications.⁵⁹ The constructivist moment is one of research that lays bare the ideological and political content of scientific findings and technological solutions. Both are often presented as neutral and objective. The reconstructivist moment goes beyond this and suggests that academics might consider what priorities and directions research and development agendas ought to take. Given the important ways development discourses present economic and technological choices as precisely neutral and objective, the constructivist moment should clearly remain central to any radical, or critical, development studies discourse. There continues an urgent need to show in detail how, in particular policy

arenas, neutrality masks selectivity. Implicit choices should be made explicit so that they might be challenged. At the very least, this sort of critique aims to put onto the development agenda the needs of groups not seen as having distinct interests when development needs are viewed through the neutral spectacles of technocratic common sense. Escobar has in earlier work shown very clearly how essentialist understandings of development precisely close down this diversity in the name of some master subject that is to be the object of development.⁶⁰ Similar conclusions may be reached if we examine other essences such as “the nation” and the way it gets invoked as a singular subject in ways that, again, suspend significant cleavages and conflicts of interest. Inclusive agendas will have instead to be diverse agendas.

The constructivist moment may also be extended to a review of the geography of the production of knowledge. Enrique Dussel argues that whereas for Europeans, modernity is seen as the inception of emancipation from superstition and want, for many other peoples modernity is about the creation of a world economy with a center located elsewhere.⁶¹ Eurocentrism views the second as a consequence of the first. Rather, Dussel invites us to see the first as the consequence of the second. Europeans’ sense of their liberation from want was founded on their appropriation of the resources and labor of others under conditions of the most grotesque military inequality. In making the world their warehouse and their market, Europeans created a global history that they have ever since chosen to see as premised merely upon the diffusion of their enlightened ideas to people who ought to see accepting those ideas as in their own best interest. In privileging the technical and social choices embodied in Western science, we reproduce not only the marginalization of other knowledges but also a view of the world that treats modernity as primarily about the diffusion of ideas and not about the creation of structural inequalities. Yet, it is of course those structural inequalities that allow indigenous knowledges to be so casually marginalized. Postulated as those who should listen to the wisdom of the West, native peoples are not expected to speak for themselves. This is precisely the reason why initiatives such as the Honey Bee Network are so important for, in networking sites of indigenous innovation and expertise, they allow local peoples to profit from the wider adoption of their discoveries.⁶² They can also develop protocols that try to ensure that something like internationally recognized property rights attach to this creativity. Furthermore, they can campaign for greater investment in the pursuit of further creativity by local peoples.

Turning to the second half of the suggestions put forward by Woodhouse and his colleagues, we can see that insofar as the Honey Bee Network has been successful in getting seed capital for indigenous science and technology, it is changing the agenda of research and development. It is thereby moving towards the reconstructivist moment. It is one thing to note how priorities are set by corporate capital or by western academics;

it is another to think how priorities should be set. These issues face any radical reconstructivist approach to science and technology studies; and their importance is clear with respect to the challenges posed by HIV and AIDS.

First, it is not a straightforward matter to answer the constructivist critique. Certainly, development agendas have been exclusivist by pretending to a universalism that seeks to silence all but its master subject. However, inclusion sometimes presupposes that we can identify the component social groups that should be engaged in dialogue. The dangers of this are clear. The discourse of new social movements can sustain a concern with civil society that privileges political forms at the expense of content. In a study of the political innovations of neo-liberal Bolivia in the 1990s, Carmen Medeiros draws attention to the significance of the distinction Nancy Fraser has drawn between recognition and redistribution.⁶³ If inclusion is primarily about recognition, it leaves agendas to be framed elsewhere. In her account of Bolivia's Law of Popular Participation, Medeiros shows that a small-scale and territorial definition of the local disqualified solidarities based on class and also placed beyond consideration issues that went beyond the local. In this way, questions of land reform never made it to the development table, and the question of ecological degradation was likewise incapable of being articulated. Even were it possible to establish something like a parliament of estates that would still presuppose that its constituencies could be identified with some confidence. The matter that needs to be addressed is the cultivation of solidarities. In the context of the funding of research and development, this means that innovative institutional forms need to be created so that new solidarities are explored and formed in the process of setting agendas. Civil society pulses around institutions and these can be designed through being funded.

Second, while the constructivist critique sits well with an account of the marginalization of indigenous knowledges by Western technocracy and corporate capital, this implicit geography begs a rather dangerous primitivism. Fernando Coronil is surely right to call for nonimperial geo-historical categories.⁶⁴ In other words, the inevitable border traffic, to refer to a perspective elaborated by Mignolo and Escobar,⁶⁵ between core and periphery means that, as Alberto Arce and Norman Long suggest, processes of modernity, even considered in its enlightenment ideological form, are transformed not only in the core but also in the economic periphery.⁶⁶ Bruce Willems Braun has commented upon the risks of primitivising indigenous peoples by essentialising their separation from the desires of modernity.⁶⁷ I emphasize desire because it underlines the distance between autonomy and isolation. Autonomy implies making choices for yourself; it need not imply that one exercises that choice only by refusing engagement with external knowledges. A recognition of the extent to which science and technology has been transformed in the to-and-fro between core and periphery does not mean, of course, that the benefits have likewise been

shared promiscuously.

Turning to the question of HIV and AIDS as a context in which we might want to develop a reconstructivist approach to science and technology, there are two aspects underplayed in Escobar's analysis: solidarity and core-periphery inter-relations. These may be highlighted by examining separately the two main components of strategies to limit the suffering caused by HIV and AIDS. First, there must be a policy aimed at preventing infections; then there must also be a policy for treating the infected and later the sick. Prevention is quite specifically about solidarities. People need to change their behavior not only for selfish reasons but also out of a sense of responsibility toward others, be it their family, their lovers or their casual sex or drug acquaintances. There is no question but that AIDS prevention policies are frequently hijacked by people who wish to use AIDS in order to serve some other moralizing agenda. On occasion, people base policies on what they wish were true rather than on the basis of direct evidence. This is very clear in relation to sex education for young people. As Fungisai Gwanzura-Ottmöller and Mike Kesby demonstrate, pundits are inclined to believe that young people are more ignorant than they truly are.⁶⁸ There is also, as Norman Daniels has argued, a refusal to do other than assume that sex education promotes early sexual activity.⁶⁹ An editorial in *The Lancet* described the current Bush administration's insistence on abstinence-only HIV prevention education as "one of the best examples of ideology impeding sound public-health policy."⁷⁰ People insist, for example, on the exclusive promotion of abstinence policies in the face of overwhelming evidence that while they may protect some who postpone and reduce sexual activity in the face of such scary rhetoric, they leave the sexually active completely unprotected.⁷¹ In fact, many states simply distance themselves from dealing with drug users or the sexually active and tolerate a shadow state of parallel institutions that are indirectly funded.⁷² The balance between the sexually active and the sexually inactive is an empirical question, but the only societies that have succeeded in seriously restricting the size of the second have required unconscionable restrictions on the freedom of women and of the young in order to do so. At least, the restrictions seem unconscionable to me and nobody pushing abstinence policies is bothering to find out if they are unconscionable to the women and young people on whom they are being pressed. We know that political leadership is vital if prevention messages are to be installed at the heart of society.⁷³ This surely means addressing both the advantages of reducing partners in contexts where safe-sex cannot be easily institutionalized as the norm for sexual activity, as well as promoting condom use in contexts where it can be made normal and expected. Social monitoring and sanctions depend upon people identifying strongly enough with a group to police its norms on behalf of the group as a whole.⁷⁴ Successful behavioral adjustment programs have relied upon cultivating solidarity, from the emphasis on being a good mate by discouraging unsafe sex in clubs to the

idea that men protect their family by being exclusively condom-users when playing away from home. Awareness of risks works most effectively when people can find safe ways of still pursuing their desires. Solidarities allow people to talk about the compatibility of pleasure with safety: no solidarity, no conversation, no change in behavior. Institutions like clubs, bars, and clinics can be vital in educating and fostering solidarity. It is clear that "all of us, infected or not, low risk or high, bear a responsibility to change our attitudes and behaviors that may promote HIV infection. Without this balance, calls for personal responsibility become almost indistinguishable from that of blaming the victim and are likely to be counterproductive to prevention efforts."⁷⁵

Prevention is also a technology that has been shaped by core-periphery interactions. Many rich countries have been quite successful in cultivating solidarities among drug users and also among gay men. Men having sex with men, but not identifying as gay, have been more difficult to address since they are less likely to engage in the conversations that are fostered by the solidarities among men self-identifying as gay.⁷⁶ Furthermore, heterosexual men and women have been very difficult to reach. This is, in part, because of puritanical public discourses around sexuality in many rich countries. Great Britain, for example, has higher teenage pregnancy than many European countries with comparable or higher levels of teenage sexual activity. Failures in the use of contraception have been related to poor education resulting from a cultural unease with teenage sexuality tout court.⁷⁷ However, it is this very Puritanism that informs the prevention policies the United States now presses upon Africa.⁷⁸ In contrast, many African countries have been much more frank in their treatment of sexuality by means of travelling theater,⁷⁹ and even by means of public advertising.⁸⁰ This has rested in some cases upon the techniques of niche advertising developed by corporate capital to sell trainers or soft drinks.⁸¹ In others, it has been the transformation of forms of entertainment more easily recognized as traditional. Indeed, in some contexts, social marketing has proved to be too "Western" for local Christian opinion.⁸²

Patterns of sexual activity among young heterosexual people are not that different between Europe and many African countries. The sexualization of youth culture springs both from libido and from Western-dominated mass media in both contexts. If African countries can learn from the rich countries, it will be in the area of regulating the risks of drug use and gay sex and, in return, rich countries have much to learn from public discourses of sexuality in many African countries. A reconstructivist agenda would be about the differential geography of best practice. We must also learn the lessons from studies of the cultivation of solidarities together with their emphasis on the importance of institutions. Beyond all else, the preventive technologies for HIV are predominantly soft technologies and rest upon a public recognition that HIV is a general risk and that the infected people remain valuable members of society. It is in this respect

that treatment is often such an important mark both of the care taken of the sick but also of the presence of HIV as an ever-present reality, and risk.⁸³

Turning now to treatment. Organizations like ACTUP (1987) and later the Treatment Action Group (1990) have been very important in developing solidarities around the question of access to drugs. In March 2001, the Global Treatment Access Campaign organized demonstrations in eight countries to show solidarity with the South African government after the government had been taken to court by forty pharmaceutical companies protesting its attempt to access generic drugs.⁸⁴ There can be no doubt but that this international solidarity influenced the so-called Doha Declaration (November 2001) that put a more health-friendly interpretation on international patent law.⁸⁵ In the United States, it was in caring for the sick that solidarities such as buddying came to define, for some people, a new way of being gay.⁸⁶ However, it went further than this and, in the face of criticisms that it only catered to white, middle-class gay men, ACTUP and other gay institutions accepted a measure for responsibility for fellow sufferers who did not identify as gay.⁸⁷ In time, ACTUP became a part of the shadow state and was a voluntary agency receiving government funding to provide services to a clientele that over time became as much non-gay as gay. This cultivation of solidarity by ACTUP was in fact a laboratory in which caring regimes were developed. New forms of hospice care, new practices governing access to trial drugs, and new forms of home care were either developed by ACTUP or provided in response to its activism. Through solidarities that were ever extending, needs were identified and solutions explored. By increasingly making the funding of ACTUP dependent upon its providing broad-based communal services, the government encouraged the development of this institution away from its initial core group toward a more inclusive form of solidarity. This development was, by and large, accepted by gay men because they could see the force of the critique of earlier exclusiveness. However, to the extent that government only responded where HIV threatened *its* own core group of heterosexual, married couples, gay activists and their institutions resisted this incorporation. Broader solidarities rest upon political leaders embracing diversity in public.

The interaction of core and periphery around treatment issues is quite complex. Certainly some of the palliative drugs, such as aspirin for dealing with the symptoms of sickness, are cheap and are even so not widely available in poor countries. Other drugs, particularly those that control the replication of the HIV virus within the body, are very expensive. Some of this expense comes from the intense research effort that went into understanding HIV as a living entity. However, that research agenda was, as many commentators, such as Jon Cohen, have pointed out, also shaped by the commercial possibilities of treatments rather than of vaccines.⁸⁸ It is also clear that intellectual property regimes mean that even in the face

of the greatest epidemic threat the human race has probably ever faced, there is no effective sense in which science and technology can become a universal possession. Drug companies have been shamed into providing a limited amount of retrovirals cheaply to some African populations, but something much more radical is needed. The patents should be bought out by a collective agency and the drugs produced as cheaply as possible in vast quantities, even if this means that in rich countries, too, people get cheap supplies. However, there is an alternative. Generic drugs are being produced in Brazil,⁸⁹ and they could easily be in India. India is a large enough market that the WTO might find it difficult to bully it into compliance. And if China were to manufacture generics, there is virtually nothing the WTO could do. It is also clear that in the too-slow development of vaccines there will be a further to-and-fro between core and periphery, for vaccines can only be tested efficiently in places where background levels of infection are high enough that some in the trial will be exposed to the disease. This means that the bodies of people in poor countries will be borrowed by the pharmaceutical companies of rich countries in order to develop vaccines.⁹⁰ The obvious potential injustices in this situation have been urged by activists in both rich and poor countries with the result that protocols are in place governing the access of people in those poor countries to any vaccines that may be produced. The UNAIDS proposed protocols rest upon the assumption that "making a safe and effective vaccine reasonably available to the population where it was tested is a basic ethical requirement."⁹¹ This is not nearly enough, but it does represent an example of the normally marginalized being heard both through their political leaders and through activist solidarity. In both prevention and treatment, solidarities have developed that shape identity at least as profoundly as does the locality.

Solidarity and Social Relations

In this paper I have argued that historical studies in medical geography can address some of the central issues in the social sciences. Social relations were examined in three areas. First, I argued that medical geography uncovers a distinctly social environment. It is not at all surprising that public health investigations have been seen as central to the development of sociology in nineteenth-century Britain.⁹² Second, in examining the relations between technology and the body in urban sanitary systems, I have suggested that the phenomena associated with Haraway's account of the cyborg precede the development of an information society. Third, in considering how the social construction of knowledge relates to social movements around AIDS, I have suggested that solidarity is an important dimension in the development of identity. In each of these three sections, the status of the individual has been questioned. The interconnectedness of people and of people with places is unavoidable. This is not only a

methodological issue; it is a political one too. Jonathan Mann, who did so much to build a global AIDS campaign, said that solidarity “is based on the knowledge that we need the other; that we are in some basic and clear way incomplete without the other.”⁹³ There certainly is such a thing as “society.” Without it we perish. We enter into social relations with other people in order to live. These dependencies and interactions create obligations at the same time as this co-operation and co-dependency allows for greater physical and biological security. Understanding these responsibilities, needs and benefits should be part of the intellectual agenda of a critical and effective medical geography.

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