

Securitizing Networked Flows: Infectious Diseases and Airports

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This is where an outbreak would probably hit, where the international airports are.^{398a}

Monumental terminals of glass and steel designed by celebrity architects, gigantic planes, contested runway developments, flights massively cheaper than surface travel, new systems of “security,” endless queues—these are the new global order, points of entry into a world of apparent hyper mobility, time-space compression and distanciation, and the contested placing of people, cities and societies upon the global map.^{398b}

One of the key features of globalization, regardless of how it is defined, involves the increased and intensified level of connectivity between diverse sites across the world. It must be kept in mind however, that such connectivity is predicated upon flows that essentially give material form to the interconnections between those sites. Thus as Callon and Law observe, “The notion of connection is not enough. Something has to circulate too. There has to be movement between points of action at a distance for mobilization to be possible. If one place is to be ‘globalized’ then it has to be linked to others.”³⁹⁹ These connecting flows can take many different forms, as: commodities, information bytes, ideas, capital, labor, and as will be the focus of this chapter: pathogens, people, and airplanes. As many of the chapters in this volume attest, the movement of such flows can only be main-

tained through the establishment of physical infrastructures that are consciously designed to facilitate their movement from one node to the next through various networked systems (e.g., sewage systems, the electrical grid, communication satellite networks, roadways, and so on). The disruption of flows in any of these networks dramatically reminds us of our inherent dependence on these networked systems as we are forced to deal with the unexpected and sudden disruptions of everyday routine practices that arise in the wake of interrupted flows. Network failure often leads to a great deal of public scrutiny as demands are made to discover the “cause” of the interruption of flow. As a result, various government-sponsored investigations are commissioned, but more often than not, these tend to focus on technical matters or operator failure rather than on the organizational and political context within which the (dis)functioning networked infrastructure was embedded. However, the social context is very important to consider because as we will see in the case of the global outbreak of Severe Acute Respiratory Syndrome (SARS), the ability to mobilize resources to address network failures can be either inhibited or facilitated by these very factors.

It should be noted at the onset that one peculiar aspect of analyzing the flow of pathogens is that the disruption to society occurs because of the *continuance* of flow. Thus,

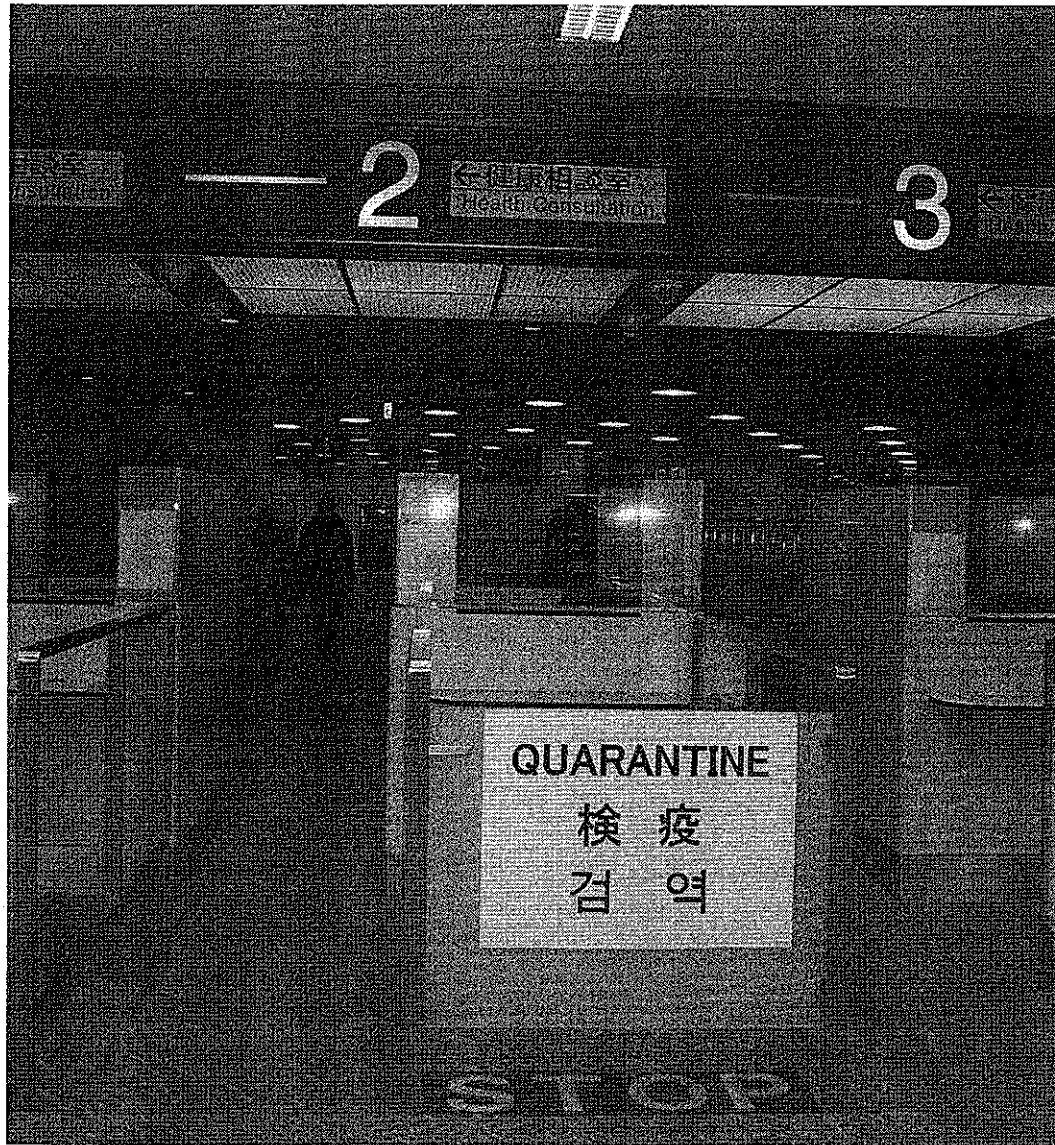


Figure 7.1 Warning sign in Mass Transit Railway (MTR) station in Hong Kong, 2006. Source: Photograph by Roger Keil.

efforts are not directed toward the restoration or resumption of flow, as would be the case in restoring electricity or sewage flow when an infrastructure network ceases to function properly, rather, in the specific case of pathogens, the idea is to break the chain of transmission; that is, to disrupt the viral flow so that outbreak can come to a conclusion. At the same time, however, the flow of “healthy” individuals and goods should be maintained as much as possible so as to ensure the other necessary activities required of a functioning society and economy are retained. As will be discussed throughout this

chapter, the pressing and ongoing practical challenge during a disease outbreak situation is to strike a balance between halting one type of flow while permitting another type of flow. An effective strategy in this light will need to be taken into account the fact that these two flows (i.e., viruses and people) are intimately intertwined. That is, quarantine and isolation are used to halt the transmission of the virus, but such actions should not halt the mobility of the uninfected. Because of the peculiar biological characteristics of the SARS corona virus, particularly its viral reproduction rate, to stop an outbreak of this

disease, public health officials needed only to block viral transmission in about half the infected cases. Notably, this is very different from the case of pandemic flu (e.g., Flu A or H1N1) where an almost 100 percent containment rate will be required for the effective disruption of viral flow.⁴⁰⁰

Efforts taken to interrupt the flow of pathogens do themselves rely on the functioning of various networks, particularly those dedicated to disease surveillance. For example, the data concerning case incidence and secondary contacts gained through epidemiological surveillance practices, such as contact tracing, are usually entered into a computerized databank and shared amongst a network of local, regional, national, and supranational public health officials responding to the outbreak at different levels. These epidemiological data are collected at certain nodal points in the institutional network of society, such as hospitals and airports. Notably, these nodal points also serve as sites toward which outbreak containment actions such as quarantine and isolation are directed. The role of hospitals in interrupting the flow of the SARS coronavirus has been considered elsewhere,⁴⁰¹ we will therefore focus here on airports.

THE GLOBAL EPIDEMIC OF SARS

The outbreaks of SARS between November 2002 and July 2003 resulted in the infection of 8,100 individuals and 800 deaths worldwide.⁴⁰² The SARS epidemic was unique and notable in several respects. First, it was often referred to as the first infectious disease epidemic of the “global era” because of the rapidity at which the virus traveled around the world. Second, on a related note, the epidemic was the first of its kind in terms of the extent to which airports and airlines were instrumental in the spread of the disease.⁴⁰³ Third, it was noteworthy that the outbreaks



Figure 7.2 Temperature screening post, Port of Hong Kong, returning from Macau, 2006. Source: Photograph by Roger Keil.

did not occur in cities of the Global South (where it was thought the most serious of infectious disease outbreaks would first establish themselves), rather the virus surfaced in some of the most developed and advanced cities of the world, that is, in global cities such as in Beijing, Hong Kong, Toronto, and Singapore.⁴⁰⁴ Finally, the technical response to the epidemic was exceptional. Within a few weeks of the initial outbreaks in global cities, a virtual network of scientists and public health specialists was established through the coordinating efforts of the World Health Organization (WHO). Temporarily casting aside competitive aspirations, epidemiological, virological, and clinical data were shared by these scientists. The collaborative efforts led to the successful identification of the causal agent of SARS and the subsequent characterization of its genetic code, in the record time of two months.⁴⁰⁵

AIR TRAVEL AND THE POLITICS OF PUBLIC HEALTH

The political issues related to infectious disease spread have a long history that is closely associated with the development and institutionalization of modern public health and international public health diplomacy. The SARS outbreaks have revealed that many of the same issues that have plagued historical attempts to contain disease spread via shipping in the time of mercantile capitalism remain in today's age of jet travel. Perhaps the most significant and persistent of these issues involve the tensions between public health and international trade. As early as 1851 when the first International Sanitary Conference was held by European states to discuss cooperation in addressing the transboundary transmission of cholera, plague, and yellow fever, the preferred method of response was quarantine.⁴⁰⁶ However, state-imposed quarantine practices interfered with the ability of nation-states to engage in trade, thus violating the internationally agreed upon Westphalian principle of minimum state interference with international travel and trade. The response to the SARS outbreaks by the WHO blatantly violated this long-established political principle, as it "regard[ed] every country with an international airport, or bordering an area having recent local transmission, as a potential risk for an outbreak".⁴⁰⁷ And on this basis, the transnational public health agency publicly recommended (for the first time on April 2, 2003)—through various press announcements and postings on their Internet site—that potential international travelers postpone all but emergency travel to areas of local SARS transmission. By taking such action, the WHO was essentially influencing the course of international trade and travel. Such "interference" by this supranational organization was unprecedented and the economic impacts of the WHO travel advisory were significant, especially in SARS-affected

cities that had to deal with the cancellation of conventions, the drastic decline in tourist travel, and empty inbound airplanes.

The WHO also "recommended" that airports in SARS-affected areas adopt certain surveillance practices including: temperature screening of departing and transiting passengers, the provision of information leaflets to travelers, exit questioning, and the completion of a mandatory health declaration form by passengers.⁴⁰⁸ The issuing of these recommendations violated another principle of the long-held Westphalian political order, namely the principle of state sovereignty; that is, that the nation-state holds the exclusive right to govern domestically in an autonomous manner free from external influence. Although these recommendations appeared as voluntary, in effect they were not because if the nation-state did not adopt the WHO recommendations, then the travel advisories would remain in place, thus having a continued, and undesirable economic impact on SARS-affected cities. The issuance and continuance of the travel advisory therefore represented ways of ensuring compliance of the nation-state to WHO demands, and in this connection it was noted by one infectious disease specialist involved in the Toronto SARS response that:

The WHO had suggested airport screening, this had not been implemented, there was a whole bunch of rumours going around. And it was like the WHO was really pissed off with Canada and then, this was sort of how we got our hand slapped, with the travel ban.⁴⁰⁹

In late April 2003, shortly after the issuance of the travel advisory against Toronto, a Canadian delegation consisting of city, provincial, and federal politicians and health officials visited the WHO headquarters in Geneva to persuade WHO officials to lift the travel advisory. The advisory was lifted under the condition that infrared thermal scanning of passengers would be implemented

at international airports in Canada. Several days after the lifting of the travel ban, a second significant outbreak of SARS occurred at a Toronto hospital leading critics to contend that due to political and economic pressures there was a premature lessening of public health vigilance, as exemplified by the lifting of the travel advisory.⁴¹⁰ Others, argued however, that the threat of imposing the travel advisory represented an obstacle to taking effective public health measures because it meant that cities and nation-states may be less willing or forthcoming in revealing information about potential outbreak situations for fear of potential economic loss.⁴¹¹ Such discussion led to the questioning of the general effectiveness of the travel ban and airport screening as strategies of outbreak control more generally. Second, it raised the related issue of the significance of airplanes and airports as sites for disease transmission. By the end of August 2003, an estimated 6.5 million screening transactions had occurred at Canadian airports with 9,100 passengers referred for further assessment by screening nurses or quarantine officers.⁴¹² Of these, none were found to have SARS. Other countries yielded similarly low results.⁴¹³

SECURING THE AIRPORT INFRASTRUCTURE

“Immobile” platforms such as roads, garages, stations, docks and so on *structure* our mobility experiences.⁴¹⁴ We rely upon these immobile platforms and the networked infrastructure in which they are embedded to support our daily activities, and we often do so in an unquestioning and taken-for-granted manner. Such an outlook may be the outcome of the fact that many infrastructures exist outside of our regular viewscape, such as under the ground, as in the case of sewage and water pipes, or high above the ground, as in the case of power lines.⁴¹⁵ Nevertheless, the existence of these latent infrastructures

can significantly influence the movement and activities of individuals, often, in unsuspecting ways. In this light, Doganis notes that unbeknownst to travelers, the physical and aesthetic layout of airports is consciously designed to exert control over the movement of people in predetermined directions through the use of a multitude of strategies.⁴¹⁶ For example, the physical construction of terminal buildings, including its corridors and walls, is intended to limit the possibilities of movement and action so as to ensure “proper” and “correct” movement through various spaces such as at the check-in counter, the security control checkpoint, the departure waiting area, the boarding corridor, and interestingly, to channel people through the commercial areas of the airport to ensure that they receive adequate exposure to the wares being sold. This is done in a seamless manner in which the passenger is faced with the options of moving only forward or backward thereby creating “an environment that invites an automatic response from the passenger; those who have not been to the airport before intuit their projected path according to their situation.”⁴¹⁷ The airport is also designed to alter the emotional state of passengers so as to discourage personal interaction by creating and maintaining an atmosphere of formality that respects the seriousness of the work of securing the airport:

[I]t is thought by creating an uninteresting, and quite oppressive security environment, the idea in many airports has been to induce feelings of melancholy and, to an extent pressure. They do this in the hope of limiting what people do in these spaces....[T]he emotional state of the passenger—affected by the airport environment—is meant to literally close-off the passenger’s capacity to disrupt the security processing system through, for example, walking the wrong way, or by telling a joke or misbehaving.⁴¹⁸

In this connection, Mark Gottdiener has made a related point very convincingly in his treatment of airports: “The airport has taken

on the characteristics of Simmel's city to an extreme. It has all the trappings of a thoroughly instrumental space with even less of a need for people to interact. In fact, the airport norm is one of *non-interaction*.⁴¹⁹ Thus, airports are characterized by some as "nonplaces," where people coexist or cohabit without living together, in essence creating "solitary contractuality."⁴²⁰ Indeed, the production of this type of place of social indifference and magnified civil inattention may be characteristic to other sites that act as points of convergence for global flows, such as hotels. This is seen for example in Sofia Coppola's film *Lost In Translation*, where "global" actors (or better, Americans) are desperately trying to find humanity in a Japanese city that is commercialized and alienated to the extreme, thus dramatically depicting the tensions that exist between global network space and human (re)pro-

duction characteristic of global flow convergence nodes.

Callon and Law ask the general question: How is security and order maintained when people and things are constantly shifting positions?⁴²¹ That is, how can order be produced by managing the multitude of interacting flows? Answers to this can be gleaned by considering the many strategies of social control employed at the airport. By passing through security points, possible threats are meant to be filtered out, thus "resulting in the 'sterilized' passenger who may enter the 'sterile' zone of the duty-free airside concourse."⁴²² Furthermore, since the airport represents a point of contact between the individual and the state,⁴²³ it is also a site where power relations are enacted, as perhaps best illustrated through the common experience of being forced through bottlenecks where "those in the corridors of power may exert influence over those in the



Figure 7.3 Quarantine Station in Narita International Airport, Tokyo, 2008 Source: Judith Versloot, by permission..

corridors of movement.”⁴²⁴ In this context, airport checkpoints are “transfer points” or “places of in-between-ness” where:

“populations” who are mobile can be monitored by various agencies charged with policing that territory; and simultaneously can be researched since they are temporarily immobilized—with in lounges, waiting rooms, cafes, amusement arcades, parks, hotels, airports, stations, motels, harbours and so on. These transfer points necessitate a significant immobile network that is partly concerned to effect surveillance of intermittently moving populations.⁴²⁵

As Foucault has pointed out, the sorting and resorting of populations through tactics of surveillance is fundamentally a political question, implicating the use of power and knowledge in the exercise of social control.⁴²⁶ Since the airport represents a site of considerable sorting and resorting of disparate populations across national borders,⁴²⁷ it is no surprise that surveillance plays a critical role in contemporary airport operation. Clearly in the post-911 era, airport surveillance in the service of “security” has intensified as indicated by the introduction of ever more pervasive surveillance technologies,⁴²⁸ as seen, for example, by the increased use of detention centers, closed-circuit television cameras (CCTV), global positioning systems (GPS), iris-recognition security, intermodal traffic interchanges,⁴²⁹ as well as through the embedding of data codes on airline tickets that digitally enscribe what the passenger is doing and predict other actions that the passenger may take.⁴³⁰ Still further indications of the extent to which the post 911 “state of emergency,” or the exception has become the “rule” is to consider just a few of the many recent state initiatives aimed at “securing” the airport. One example involves the “nationalization” of airport security with the Department of Homeland Security in charge of implementing standardized systems of person and baggage securitization.⁴³¹ A second example, is the U.S. government’s Total

Information Awareness program that integrates and coordinates different types of data from private and public sources, including those from biometric technologies that are able to recognize humans at a distance and the mapping of people’s multiple connections across their social networks.⁴³² While a third example is given by the passenger profiling systems known as Computer Assisted Passenger Prescreening or CAPPs (now Secure Flight), that works to gather as much information about a passenger with the ostensible aim of enabling officials to make informed judgments and risk measurements about the passenger’s propensity to become a threat.⁴³³

These calculative surveillance systems designed to gauge the individual’s potential as a terrorist threat have their parallel in relation to the discernment of a public health threat that takes the form of the infecting other. It is in the context of the latter, that attention to airport security has increasingly been focused upon the development and implementation of strategies of thermal screening, questioning of health status, detention, quarantine, and isolation as part of an overall paradigm of “public health security.” The Quarantine Act, for instance, allows Health Canada’s quarantine officers to detain individuals in order to conduct medical exams. The Act also gives the government the right to impose the requirement that airlines distribute health information and conduct active screening of travelers. During the SARS epidemic, the quarantine responsibilities were transferred from Health Canada to the Canada Customs and Revenue Agency; however, it was noted that the customs staff were never trained for these duties and airport authorities expressed concerns about this, citing inadequacies in the provision of logistical support.⁴³⁴

THE SECURITIZATION OF SPACE

Spatial considerations are central to both national security and public health security

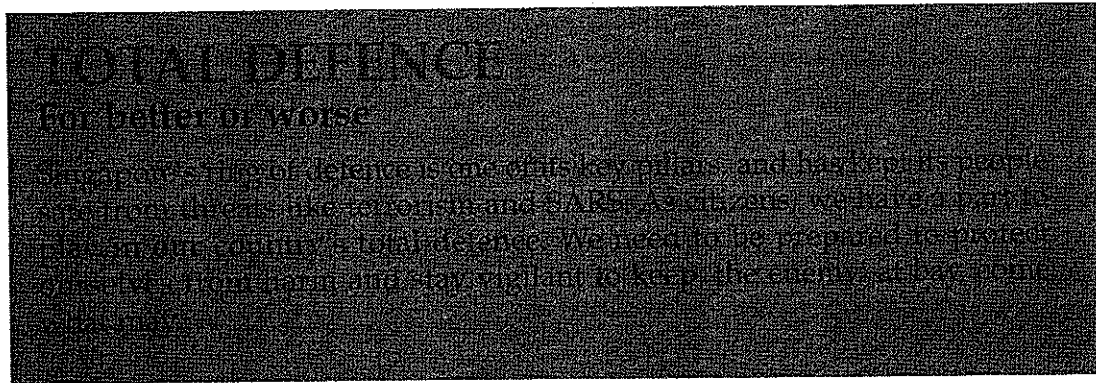


Figure 7.4 Slogan in public exhibition to celebrate national unity in Singapore, 2006. Source: Photograph by Roger Keil.

initiatives at the airport, as both domains of activity require a physical space in which to operate, especially in relation to the detention of those under “suspicion.” In fact, according to Sarasin, concerns about terrorist threats and infectious others may have become ideologically conflated in public consciousness and public discourse, to such an extent as to even serve as the legitimizing basis of the U.S. invasion of Iraq in 2003.⁴³⁵ Fighting emergencies creates very clear lines of demarcation between more or less secured spaces. The Baghdad “Green Zone” is perhaps globally the most well-known example of a militarily secured space. In global cities, the most secured areas are, as a matter of course, the financial industry’s vaults and computer networks, the corporate headquarters, and other network nodes where the flows of global capital and information are moored, where surplus value is extracted from worldwide production and supply chains. The upper level producer services that are concentrated in the high rise office buildings of downtown are locked down in electronic and human controlled security systems, in a built environment of glass and steel seemingly impervious to the intrusion of unwanted and unexpected entries.

The moored security of the “citadel” stands in clear contradiction to the insatiable demand for mobility and flexibility of spaces created by global capital, hence the quandary faced in imposing airport security measures.

Spatial fixes are having a short lifespan these days, and the mantra of mobility rules the everyday of the senior operatives of global capital who are employed in secured inner city spaces. While those operatives and their work need to be safe here, they also need to be secure over there, in the network which connects them to other nodes in the web. This dialectic of safety on one hand and the need to leave the cocooned spaces of the secured “citadel” on the other is a constant challenge to the architecture of the global corporation as it is to the contemporary airport. It necessitates the construction of supply chains of safety across the globe, in which high speed trains, airports, lounges, hotels, clubs, high end entertainment districts, and the like are knitted together into a landscape which extends the global regime of accumulation across the globe. The airport gains iconic status in this supply chain of corporate safety and it is here where the security interests of the state and the desire for safety of economic transaction on the side of the corporations coincide most visibly.

The emergence of “unbound” urban regions involves the sectionalizing of territory for infrastructural and other specializations. Thus, airports, for example, have traditionally been built on the edge of cities as places or camps of banishment,⁴³⁶ while today they serve as indispensable gateways to the global city. Indeed, Urry notes that airports are one of the key ways in which cities seek to enter

or position themselves within the contemporary global order.⁴³⁷ An indication of the importance given to this is seen by the fact that increasingly, cities are competing to build the largest, newest, most expensive or stylish airport.⁴³⁸ The airport itself is, of course, just a dot in the networked and webbed landscape, the actor network of international travel. Latour famously said: “Boeing 747s do not fly, airlines fly.”⁴³⁹ Airlines are, in fact, already partners in the work that the WHO does and SARS did not change much about that:

Well, I mean in...airports...we certainly communicate with ICAO in Montreal, the International Civil Aviation Organization who perhaps have something to do with airports, we also deal with IATA, who deal with airlines, and they are certainly very interested in...and flu pandemics and... So we would certainly have relations with different sectors. But I mean as far as is there anything different regarding administrative levels that we would...then I'm not aware of anything that is particularly new in that as the result of SARS.⁴⁴⁰

As indicated by the instances reviewed above, during SARS, airports became major points of disease management and control. Helped by the “new normal” after 9/11, airports became the technological interfaces between the global (imagined as threatening) and the local (imagined as safe). During the second outbreak in Toronto, after the city had been hit with the WHO's travel advisory, the relationship was inverted as the airport became the control points for measures to protect the local from the global. Temperature screening stations, information campaigns and other medically based measures implemented at that time (as reviewed above) changed the symbolic meaning of the airport as a place of global mobility to a place of local restriction. In Toronto, the lessons learned from SARS were swiftly boiled down into a new policy that reinforced the autonomous status of the Greater Toronto Airport Authority by placing it at the core of the

governance of the pandemic as they would be charged with coordinating the airport-related stakeholders in the private sector, the public sector, and the security community.⁴⁴¹ To some degree this meant that in the case of a future pandemic, the unboundedness of the city would be compromised through the gatekeeper measures ascribed to the airport authority, which would mean a decentering of power both in an institutional and in a geographic sense. A policy drafted by the GTAA in response to SARS spoke first of “sterilizing passenger flow” and the separation of the running of the airport from the potential threat that passengers pose. This involved a specific management of facilities in order to minimize contact. Second, with regard to the overall process of infectious disease management at airports, the GTAA saw its role as one of coordination and facilitation in order to let the health specialists do their job effectively (although this may not have been successful according to the comments of one local public health official—see below). And third, the airport recognized its role “as part of a global network.”⁴⁴² This peculiar mix of place-specific and network-directed initiatives is, then, *typical* of the role of urban regions in the management of global infectious disease as they combine territorial with topological strategies of network survival.

Airports, however, are not going to be replacing the health care institutions elsewhere in the urban region, although SARS raised the importance of establishing a more formalized relationship between the two, especially in management of space that is thought necessary for the segregation of those infected. For example, in Hong Kong, a senior medical officer responsible for the surveillance of infectious diseases noted that:

There's no containment camp in the airport. Depends on the scale of the containment site you're talking about. For the airport, there is a special room, if they detect some infectious disease case, an isolation room. They will keep

them there and transfer the patients to our hospital immediately for further management and investigation.⁴⁴³

Similarly in Toronto, a particular hospital was selected to specifically deal with SARS cases because of its proximity to the airport.⁴⁴⁴ Indeed, this hospital was praised for its strategy of employing the innovative “Hospital Within a Hospital” model that enabled it to maintain its operations as a fully functional health center while at the same time operating a self-contained parallel facility to deal with SARS patients.⁴⁴⁵ Such was one strategy of dealing with issues of “boundedness” yet “permeability,” a strategy based on maintaining mobility concurrent with detention—an objective that airports also sought to emulate to ensure their nodal role in facilitating the movements required of local and global capitalism.

No SARS patients were treated at any airport as far as we know, with the exception, perhaps, of a Frankfurt case which saw on-site medical attention given to a Singapore doctor, infected with SARS, and his travel companions, before they were isolated in the city’s university hospital. Frankfurt, like other international airports, is classified as a “sanitary airport” fulfilling specific stipulations of the World Health Organization’s International Health Regulations including the existence of medical organization, personnel and space, the capacity to transport and isolate travelers who are potentially infected, disinfection infrastructure, a bacteriological laboratory, and inoculation capacities. In this case, under the direction of the City of Frankfurt’s public health department, the airport figures prominently in a network of “competences” designed to battle highly infectious, life-threatening diseases. This network also includes the University hospital and the fire department.⁴⁴⁶ In the same vein, the specific geography of Pearson International Airport in Toronto—which has a large infield terminal used during construction of its new Ter-

terminal 1—allows for the possibility of “ideal isolation” to which passengers from abroad can be brought and kept from other areas of the airport if need be.⁴⁴⁷ The airport in general, and the infield terminal in particular, have the advantage, of course, of being a far distance from most residential and other urban uses. No natural contact can occur. Airport security, which provides an important, perhaps the central cordon sanitaire between the outside world and the city (or the other way around) revolves historically around “contraband and terrorism.” While “Health Canada has always been a part of the airport,” the increased worry about infectious disease has now been added to the ways in which the airport secures the urban region: “Before the idea was to get people to a safe, secure area. Now it’s to get into a sterile area. And sterile is in terms of hygiene, not in terms of security.”⁴⁴⁸ In sum, medical emergencies have now been added to the “normal” process of security arrangements as an “operational procedure. We have an aircraft coming in, health wise, and here’s what we’ve got to do. And again...the requirement is quite different from security or emergency.”⁴⁴⁹

In a globalized environment of generalized risk, metropolitan airports are important biopolitical locales: Because the New Orleans airport became literally a hospital in the wake of Hurricane Katrina in 2005, the manager of that airport debriefed colleagues at other airports. The increased vulnerability of local places in a case of globally induced emergency leads to counterintuitive place-specific restraints at exactly those places that usually symbolize global connectivity. This “splintering” of network functions is typical of today’s networked urban world.⁴⁵⁰ After SARS and Hurricane Katrina, for example, the Toronto airport built a cogeneration plant to increase its independence from the power grid. Already equipped with “emergency services in terms of bottles and blankets and all that stuff,” the airport now is reimagined “as a bit of a resource for a community.... We

have large buildings, and we have a lot of facilities that could become available to a community. Especially if there was a pandemic that required...sort of isolation." The airport would become a "staging area for emergency services for the army."⁴⁵¹

These kinds of tasks that involve the airport as a proto-military or security site also link into the functions the airport performs to keep air traffic running and to link this goal to the public health objective to "keep the pandemic outside." Various screening and reporting mechanisms present at airports are tied to specific emergency plans which turn the airport's infrastructure of mobility (ground transportation, buildings, checkpoints, etc.) into a landscape of medical control, quarantine, and surveillance.⁴⁵²

Just as the response to SARS was complicated by differing and competing jurisdictional responsibilities between the WHO and nation-states, similar difficulties can be discerned when considering the relationship between the autonomously functioning Greater Toronto Airport Authority (GTAA), the federal government, and the local public health unit. Traditionally a federal responsibility, international air transport fell under the jurisdiction of Transport Canada, but as another example of the implementation of neoliberal policies in Canada, the private agency of the GTAA assumed the management, operation, and maintenance of Toronto Pearson International Airport from the government on December 2, 1996.⁴⁵³ Complications arose and were brought to the fore during SARS because Toronto Pearson International Airport is actually physically situated outside the City of Toronto in a neighboring municipality. As such, technically the local board of health of this adjoining suburban municipality is responsible for the public health of all individuals within its boundary, including those at the airport. Further complicating things is that the municipality in Canada is legally a corporation that falls under provincial jurisdiction. These circumstances have

led to a strained relationship between the local board of health and the Greater Toronto Airport Authority. As glaringly evident from the statements of one senior public health official in this municipality who expressed the view that the GTAA was not receptive to input from the local public health unit:

Because the airport has been run by the GTAA, they're just doing whatever they want and they don't care because they are falling through the gaps by the feds, the province doesn't pay attention because they don't have enough time and resources to dedicate to their own programs, and here we have a population [in the local municipality] that is potentially at risk because all of these things have not been followed up on.⁴⁵⁴

They just want to do their own thing. And it is not just food and tobacco and DSRs [Designated Smoking Rooms], it's also issues of emergency response. We weren't included in their emergency exercises. I said "how can you leave us out? we are...you guys reside within [the local municipality] even though you're federal lands. What you guys do will affect people." Like this Air France incident, all the chemical spewage that came out of the plane—on the cargo and the actual plastics on the plane—it went into one of the rivers and that river goes into Lake Ontario, but in the process of getting to Lake Ontario it goes through residential areas, schools, other areas where kids may be playing or close to the water. How can you ignore us? And there was oil spills, a whole bunch of stuff. Every health emergency that happens federally affects us locally as well. Because we have the airport. And they've essentially said, "No, we don't care and go lead your own life."⁴⁵⁵

The jurisdictional squabbles and lack of cooperation between different scales and in particular across the public-private divide clearly reveals how the "splintering" effects⁴⁵⁶ of privatization, vis-à-vis the reduced ability of the state to govern infrastructures such as those associated with airports and public health, make certain places particularly

vulnerable to transboundary environmental and health threats such as disease outbreaks, particularly in light of *how* the world is interconnected today—the subject with which we conclude.

CONCLUDING REMARKS: TECHNICAL, SOCIAL AND ECOLOGICAL CONNECTIVITY, AND THE SECURITIZATION OF FLOW

With the convergence of accelerated poly-rhythmic flows of different types, the city takes on a networked, yet unbounded and emergent quality, where the urban is always in a state of flux as driven by the constant movement of diverse flows through it.⁴⁵⁷ These dynamic qualities of the modern city have made it difficult for local authorities to deal with mobile threats,⁴⁵⁸ whether they be in the form of terrorists or viruses. These problems are further exacerbated because these very same changes in the dynamism of the city have triggered changes in the politics of the global city, particularly in the ascendance of those involving a crisis politics of the “new normal” based on a regime of heightened vigilance and suspicion.⁴⁵⁹ Most experts, of course, rate the current danger of bioterrorism as a real but unlikely threat.⁴⁶⁰ But its paradigmatic importance has led to putting airport agencies on alert and has made airports into frontlines of national and international biosecurity practices.⁴⁶¹ Such developments, both in terms of mobility and politics, have changed the map of vulnerability of the city, and one of the effects of this is that the airport has become a critical site to address the fallout and problems that arise under such conditions, such as the global spread of disease. The rather unpredictable effects and the resulting vulnerability that arises may be understood in terms of connectivity, or more specifically, the convergence of different types of connectivities—technological, social, and ecological.

The physical infrastructure of the airport is clearly a technological project, but its function is to perform a diverse number of tasks that include those related to the physical act of flying (e.g., the maintenance of runways, air traffic control, etc.), or the information and communications systems required for surveillance. In all cases, technological functions support some social objective, whether it be the needs of travelers or the needs of security. In this sense, technological connectivity and social connectivity must be seen in relation to one another. For our purposes here the spread of SARS in a globally connected world is a consequence of this increased technical cum social connectivity, because, as we have discussed above, the global flow of the virus could not have occurred without technological means such as the airplane, nor could its containment occur without an established communications and information infrastructure of the local and global public health systems.

But, something else is at work here in studying the relationship between infectious disease spread and air travel. As Harvey has observed so insightfully, there has been a rescaling of the connection of the body to processes of globalization.⁴⁶² This insight casts light on those processes and topologies that may be commonly underrepresented in depictions of globalization. When global travelers leave the “deterritorialized” spaces of airports, hotels, and first-class lounges and where people interact in the interstices of the globally connected money markets of the global city, places and spaces come into sharp relief, where the production processes of globalization really occur through and in the everydayness of the global city network’s multiscaled neighbourhoods.⁴⁶³ This systemic and networked integration of technosocial practices also relies on the existence of a specific division of labor that undergirds the global mobility of capital and bodies. Whether they are active at the airport or outside its perimeter in the city itself, “the

bodies of hospital and hotel workers are a central site of the renegotiation of urban and global security in the face of emerging infectious disease.⁴⁶⁴ The circuits of these specific practices of workers intersect, sometimes uneasily, with the hierarchical regulations to combat and preempt disease from the WHO's International Health Regulations to each employer's own pandemic preparedness plans.

In this context, the disease outbreak as the unexpected consequence of flow convergence highlights the importance of place, such as the airport site, as a location where the risks of social and technological interactions of global capitalism manifest themselves in the so-called risk society.⁴⁶⁵ At the same time, as Beck explicates based on Aihwa Ong's work on SARS, there are "global assemblages" that both enable and disable infectious disease outbreaks.⁴⁶⁶ In the global city system—perhaps one such assemblage—airports play a specifically important role in the "mobility stream" of disease. But to gain a complete picture of how dovetailing connectivities give rise to such risks entails a consideration of another type of connectivity, namely, that informed by biophysically defined ecological processes.

The diffusion of SARS could only occur if human and animal hosts were available and as we have seen, the nature of the diffusion pattern was greatly influenced by the characteristics of the virus as a biophysical entity (e.g., the reproduction time of the virus, its infectivity rate, and incubation period).⁴⁶⁷ Medical commentators are making this point forcefully: "Nature itself is the best bioreactor for apocalyptic biological agents and, through evolution, has at the same time developed the best defense strategies against them."⁴⁶⁸ Yet, we do know that such processes of disease spread and containment are not just natural but "assemblages" in the sense used by Beck and Ong above and also found in the work of Latour, Callon, and Law.⁴⁶⁹ If social communities and individuals get bet-

ter connected through enhanced technological connectivity, while processes of global capitalism lead to new forms of social interactions, such developments in the case of new and emerging disease outbreaks are also shaped by processes of microbial traffic. The term *microbial traffic* refers to the various dimensions involved in the spread of infectious disease, including: (1) the mechanism involved the spatial diffusion of pathogens; (2) pathogenic evolution, including changes in the structure and immunogenicity of earlier pathogens; (3) changes in the human-environment relationship and (4) cross-species transfer.⁴⁷⁰ Such characteristics clearly played a role in the spread of SARS.

Ecologically previously unconnected or less connected areas, biotopes, and species are now potentially connected through new forms of sociotechnologically rescaled activities such as air travel. Cross-species transfer (zoonosis), for example, played an important role in the biological origins of the SARS outbreaks. Rural China, where a virus based in animals (i.e., the suspected species being the palm civet cat although there was also evidence of the presence of the virus in the horseshoe bat population)⁴⁷¹ crossed the species boundary into humans, most likely through the handling of animal carcasses, is now only an airplane ride away from distant places on the globe, such as the Toronto region. In turn, a health care worker, who may have become infected in Toronto, is only a plane trip away from a wedding party in the Philippines, where she may infect an entirely unrelated group of people. Further, the infection of a member of a tightly knit Toronto religious community, whose very existence appeared as the epitome of parochialness, had become part of a health crisis of global proportions. These examples illustrate some of the ways in both people and viruses are breaking down traditional boundaries of time, space, and the human everyday. Microbes no longer remain confined to remote ecosystems or rare reservoir species, for them,

the earth has truly become a Global Village. These circumstances highlight the importance of taking into account how changes in technological, social, and ecological connectivity contribute to the formation of risks that manifest themselves at particular sites, such as airports, where different global flows converge. Global cities are linked in new

networked sociotechnical connectivities. Airports play a strong and inevitable nodal role in setting up these connectivities. Through airports and their ancillary practices, network flows are being securitized. We have discussed in this chapter how the 2003 SARS crisis has accentuated this process through the case of an emerging infectious disease.