

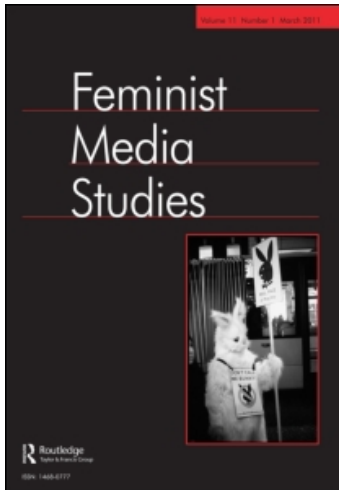
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STRIPPING FOR THE STATE

Whole body imaging technologies and the surveillance of othered bodies

Shoshana Magnet and Tara Rodgers

This article examines whole body imaging technologies in contemporary airport security contexts. Situating these technologies more broadly within histories of aviation and theories of mobility, we examine how discourses of technological efficiency and freedom of movement work to obscure the ever-expanding surveillance practices of the state. While whole body imaging technologies are marketed as objective and neutral, we investigate how they draw upon, and reinscribe, existing social inequalities. Using Angela Davis' theory of the strip search as a form of state-sponsored sexual assault, we assess contemporary uses of whole body scanners by the state and allied corporate interests not only as alleged privacy violations, but also as potential acts of violence by the state on marginalized subjects. By demonstrating the disproportionate impact of whole body imaging technologies on particular communities, including the intersections of transgendered travelers, travelers with disabilities, and racialized and religious communities, we show that whole body imaging technologies continue and expand upon the tradition of stratified mobilities that has always been a component of air travel. We also argue that the alleged non-invasiveness and efficiency of the "virtual strip search" marks a troubling trend in which the state consolidates power through increasingly concealed surveillance practices.

KEYWORDS feminist; race; transgender; surveillance; technology; mobility; backscatter; whole body imaging technologies

Introduction

Standing outside her place of work in Baghdad's Green Zone, an Iraqi woman holds up an image of a naked woman's body taken by a backscatter camera. Farah al-Jaberi is protesting that she must consent to be scanned by this type of technology as a condition of her employment (Corey Flintoff 2008). Noting that male guards can see these images, and could conceivably photograph and save them to view later, al-Jaberi highlights the ways that these technologies violate both her bodily privacy and her religious beliefs. At the same time, vendors of whole body imaging scanners such as backscatter X-rays market them as objective and able to eliminate systemic forms of discrimination since "To them, everyone is the same color" (William Saletan 2007).

We live in a virtual world, it is said, where bodies no longer matter. Yet the material body is central to modern forms of power and thus also key to state policies, borders,

media, and technologies. As a result, new ways of visualizing the body are central to contemporary regimes of governance. Since the terrorist attacks of 11 September, 2001, we have witnessed the rise of a multitude of new identification technologies that emphasize the productive potential of the human body for the governance of the state. Using new ways of visualizing the body, individuals are increasingly linked through their bodies into networks as part of what Simone Browne (2009) calls the “identity–industrial complex,” in which the body itself becomes the primary object of surveillance. Whole body imaging technologies, capable of virtually stripping the body naked and which are becoming central to airport security, are the subject of this article.

As critical geographers Louise Amoore and Alexandra Hall remind us, “contemporary security projects of visualising risk and anomaly bear a striking similarity to previous attempts to locate deviance in bodies” (2009, p. 449). Grounding the development of whole body imaging technologies more broadly in histories of aviation technologies, we examine the relationships between technology, surveillance, mobility and the body, combining insights from media and communication history, feminist and queer theories of space and phenomenology, and feminist analyses of imprisonment. The phrase “whole body imaging technology” is used by the US Transportation Security Administration (TSA) as “an umbrella term . . . to describe technologies that enable TSA to detect prohibited items including weapons, explosives and other metallic and non-metallic threat items concealed under layers of clothing without physical contact” (National Center for Transgender Equality 2009). Emblematic of contemporary technological trends in visualizing the body, we show how these technologies promote an “aesthetic of transparency” (Rachel Hall 2009), stripping the body naked for the purpose of enhanced security. While they are marketed as objective and neutral, we investigate the ways that they draw upon, and reinscribe, existing social inequalities in security contexts. Historicizing whole body scanning techniques as a new variation on an old cultural phenomenon, we show that these technologies emerge out of a narrative of the emancipatory potential of air travel. Air travel has long been promoted through rhetorics of high-technology mobility, speed, and communications that work to mask agendas of surveillance and social stratification.

Overall, we assess contemporary uses of whole body scanners by the state and allied corporate interests not only as alleged privacy violations, but also as potential acts of violence by the state on marginalized subjects. Using Angela Y. Davis’ (2003) theory of the strip search as a form of state-sponsored sexual assault, we complicate assertions that using whole body imaging technologies to subject travelers to a “virtual strip search” is unproblematic. Rather, demonstrating the disproportionate impact of whole body imaging technologies on particular communities, including the intersections of transgendered travelers, travelers with disabilities, and racialized and religious communities, we show instead that whole body imaging technologies continue the tradition of stratified mobilities that has been a component of air travel ever since its inception. Moreover, the alleged non-invasiveness and efficiency of the “virtual strip search,” compared to the physical contact involved in a pat-down, represents a troubling trend in which the state consolidates its power through increasingly covert and concealed surveillance practices.

Feminist Interventions into Surveillance Studies

Our interventions into the field of surveillance studies are twofold. We aim to contribute to a feminist surveillance studies by (1) theorizing how whole body imaging

technologies both produce and are produced by new forms of pleasure in looking; and (2) grounding these practices of looking as well as the development of surveillance in a history of inequality, including systemic forms of sexism, racism, ableism, and transphobia. The field of surveillance studies usefully theorizes a number of contemporary phenomena, including the role of new technologies in the intensification of surveillance (Torin Monahan 2010; Mark Salter 2007), an analysis of surveillance as a global phenomenon (Mark Andrejevic 2007; Greg Elmer 2004; David Lyon 2003), the role of surveillance in consumption as well as policing (Kelly Gates 2011), an attention to surveillance as a process of social sorting (Lyon 2003; Heather Murray 2009), and its erosion of privacy (Ian Kerr, Valerie M. Steeves & Carole Lucock 2009; Maureen Webb 2007). More recent additions to the field additionally problematize privacy as the antidote to surveillance (Amoore & Hall 2009; Browne 2009; V. Eubanks 2006) and examine the representational practices of surveillance technologies (Amoore & Hall 2009; Gates 2011; Suren Lalvani 1996; Lisa Parks 2007). Here, we would like to contribute to further theorizing a feminist surveillance studies. Part of this project is historical; that is, we argue for the importance of thinking beyond contemporary developments in new technologies and the intensification of surveillance since the 1980s back to older forms of surveillance, including the stratification of mobilities in ways connected to gender, race and class identities, from the regulation of sexuality to the institutionalized scrutiny of those living in poverty. With respect to whole body imaging technologies such as backscatter X-rays, we specifically ground their development in the history of aviation technologies to show how air travel has been always/already intersected by inequalities since its beginnings in the early 1900s. Rather than rehashing arguments as to whether or not surveillance keeps the state safe, we are instead drawing on feminist theories of intersectionality to illuminate what constitutes surveillance, who is scrutinized, why, and at what cost.

In order to think about how whole body images produce new practices of looking, it is useful to look to other analyses of visual technologies. In his groundbreaking book on the history of photography, Suren Lalvani (1996, p. 27) argues that the development of photographic portraits produced specific “cultural rituals” for gazing at human bodies that naturalized existing hierarchies related to gender, class and race. For example, Lalvani argues that “portraiture draws on physiognomy and phrenology” in which “the surface of the body is raised to the visibility of a text” with the point being “deduce moral qualities lying beneath the skin” (1996, p. 48). In a related vein, Louise Amoore and Alexandra Hall ground new identification technologies like biometrics and backscatter X-rays in a history of eighteenth-century dissection practices aimed at visualizing the body in order to reveal bodily truths—or, as they term it, compelling bodies to unveil the “unknown future hidden within” (2009, p. 448). Whole body imaging technologies thus reference longstanding cultural and science fictional preoccupations with X-ray eyes, requiring security personnel to stare at particular bodies while obscuring the pleasure taken in rendering these bodies visible as well as mystifying the process by which particular bodies are made hypervisible and others made invisible. This is a process that we have elsewhere termed “surveillant scopophilia” (Shoshana Magnet forthcoming); that is, new technologies provide opportunities for pleasure in looking in ways connected to their surveillance.

Historicizing Air Travel

Cultural histories of air travel and associated theories of mobility and spatiality provide a context for understanding contemporary uses of whole body imaging technologies. Since

Americans began a “romance with flying” in the 1920s, air travel has symbolized mobility and technological progress; yet, government and industries have restricted certain people’s access to flight, influenced the accessibility of certain destinations over others, and mobilized communication technologies to tightly choreograph the flow of people and goods. Into the 1940s, air travel in the US was the province of the wealthier classes who had the necessary social and financial capital to purchase an occasional ride on planes. Even after the government’s deregulation of airlines in 1978, which resulted in lower fares for popular long-haul routes, other less-popular destinations became more inaccessible and expensive to reach (Peter Adey 2004, p. 504; Mark Gottdiener 2000, pp. 163–165). Whole body imaging technologies, we suggest, are part of larger patterns of stratification and inequality that are always/already connected to the development of air travel.

In response to a wave of hijackings in the 1970s, airports adopted the kinds of security measures that have come to characterize contemporary experiences of air travel. Armed forces were positioned inside high-risk terminals, bags were inspected by hand, bomb-sniffing dogs investigated cargo, and electronic screening devices began to appear. The FAA adopted anti-hijacking legislation in 1973 and required all airport passengers and luggage to be searched. Airport spaces were reorganized using a medicalized language stressing the importance of containing contagion. That is, airports were divided into “sterile” and “nonsterile” zones, with the security checkpoint as the threshold (Alistair Gordon 2004, pp. 231–233, 236). The first X-ray screening devices in the US were installed in New York airports in January 1973. These technologies introduced visual representations that at once medicalized and criminalized familiar objects of everyday life: “The contents of luggage were freeze-framed and magnified on X-ray screens. Lipstick cases, shaving cream cans, and transistor radios all appeared sinister in the low-dosage twilight of the new monitors” (Gordon 2004, p. 233). Metal detectors were also installed. The press portrayed the introduction of new security measures as a necessary inconvenience for travelers, and emphasized the novelty of the security measures and technologies rather than privacy issues (Gordon 2004, p. 234), a narrative that persists with the introduction of whole body imaging technologies.

The “freedom of movement” historically associated with air travel is always entwined with the generation and movement of capital. This became acutely apparent in the 1980s, when airports were designed with long pedestrian concourses to accommodate new systems of connecting flights, and took on the form of pedestrian shopping malls (Gottdiener 2000, p. 65). Since then, the significant revenues from parking, shopping, and dining services at airports, as well as those associated with industries including warehousing and trucking, have been a key source of economic growth and revitalization for local economies (Gottdiener 2000, p. 24). Revenue from security technologies was substantial pre-9/11, but since 9/11, revenue from the development of security technologies has skyrocketed, accounting for \$59 billion in annual government and business spending in 2006—more than a sixfold increase since 2000, and more annual revenue than the significantly older music and motion picture industries (Gary Stoller 2006; see also Associated Press 2006; *CNN* 2009). Like the revenue generated by security, movement of airfreight cargo is also a substantial, if backgrounded, profit area for the air travel industries (Gottdiener 2000, p. 24).

Airports in cultural theory are exceptional, detached places, suspended in a web of mobility and flows. Geographer Edward Relph and architect Rem Koolhaas, respectively, have described airports with the terms “placelessness” and “nowhere architecture,” noting that air travelers traverse great distances but confront franchised stores, commodities, and services that appear to be the same everywhere (Gottdiener 2000, pp. 59–60).

These are useful observations of the experience of global consumer culture, but they also indicate how the state's accountability for policing and criminalizing marginalized subjects in airport spaces is naturalized, by the persistence of such aesthetics of "placelessness" in the cultural imagination. Put simply, when airports are represented as "nowhere architecture," it becomes difficult to critique and resist the state's strategic operations within these spaces. As Lisa Parks argues, "the airport is no longer just a 'non-place' . . . but in the context of the U.S.-led war on global terror has possibly become 'the place', a charged and volatile domain punctuated by shifting regimes of biopower" (2007, p. 185).

The state's implementation of new airport screening practices imposed new orders of transparency on travelers' bodies. As airports became more architecturally transparent and evocative of flight, and concepts of placelessness and flows have circulated in cultural theories, airport security measures have become more oppressive. Manuel Castells labeled the Barcelona Airport, built in 1992, as an "architecture of nudity" that exposes contemporary travelers' fear and anxiety as they move within the space of flows:

In the middle of the cold beauty of this airport passengers have to face their terrible truth: they are alone, in the middle of the space of flows, they may lose their connection, they are suspended in the emptiness of the transition . . . and there is no escape. (Castells cited in Gottdiener 2000, p. 70)

A lot is at stake in this formulation. In contemporary airport security contexts, losing one's connection or failing to escape the network may involve unjustified bodily searches, and threat or enactment of imprisonment or deportation.

Castells' analysis of the implications of an "architecture of nudity" also helps to expose the violence of being stripped bare before the apparatus of the state. In her work on the prison industrial complex, Angela Davis reveals the violence of architectures of nudity through her examination of the strip search as an act of state-sponsored sexual assault. In *Are Prisons Obsolete?* Davis reminds us that forcible searches of prisoners' vaginas and rectums continue to be a central feature of imprisonment (2003, p. 63). Although these searches are viewed as routine, Davis demonstrates that they are in fact a form of sexual violence that leads to trauma and terror for prisoners. At one point, prison activists dramatized a strip search in front of female guards, "many of whom simply cried upon watching their own actions outside the prison context," realizing that without the guard's uniform, a strip search looks like nothing more than a case of assault (2003, p. 83). Davis ties strip searches to the epidemic of sexual violence within the prison industrial complex, from the sexual harassment of prisoners to the rape of inmates by guards (2003, p. 78). Thus, rather than suggesting that whole body imaging technologies are not invasive because the scanners do not touch the body, we extend Davis' analysis here in order to examine the trauma of rendering particular bodies visible through the "virtual" strip search. Security imperatives mandating the visualization of the naked human body through the deployment of whole body imaging technologies serve up particular bodies for the viewing pleasure of Transportation Security Administration (TSA) security officers in ways that result in stratified mobilities for particular communities while generating profits for the security industrial complex. In this way, we see the resemblance between airports and prisons, as both reveal the body through an "architecture of nudity" in ways that disproportionately endanger particular communities.

An "architecture of nudity" is also usefully understood in relation to the "aesthetic of transparency" that underlies state and law enforcement surveillance practices. Communication theorist Rachel Hall coined the phrase an "aesthetic of transparency" to refer to the

ways that the post-9/11 state increasingly relies upon a “rationality of government that understands security in terms of visibility” (2009, p. 320). An increasing number of technologies claiming to be able to render formerly opaque objects transparent are aimed at turning “the world (the body) inside-out such that there would no longer be any secrets or interiors, human or geographical, in which our enemies (or the enemy within) might find refuge” (2009, p. 321). From the transparent Ziploc bags into which we put our liquids and gels to the whole body imaging technologies that strip the body naked, we see the ways that security technologies depend upon a narrative of transparency-as-security, as the effectiveness of airport security is represented as relying upon rendering the bodies of passengers, and the objects that travel with them, crystal clear. With expanding scope and detail, new technologies like backscatter X-rays and millimeter wave body scanners increasingly ground subjects within a system of fixed identities and trackable locations.

Amidst speculation that the crash of TWA flight 800 in 1996 was caused by a terrorist attack, the White House Commission for Aviation Safety and Security, led by then Vice President Al Gore, instituted a new form of passenger screening in the US called CAPPs (Computer Assisted Passenger Pre-Screening). The Commission concluded that “passengers could be separated into a very large majority who present little or no risk, and a small minority who merit additional attention” (Adey 2004, pp. 505–506). The logic of this strategy was to focus screening resources on a minority of travelers deemed likely to be a threat, by using passenger information (for example, how someone paid for a ticket) to determine suspicious activity. Flagged “selectees” would then undergo extra screening measures, including more extensive scans and searches of possessions, with the possibility of being held for questioning. Despite the Commission’s statement that race, ethnicity, national origin, religion, and gender should not factor into profiling, this kind of profiling is inherent to the CAPPs process. Individuals flagged as “selectees” are often unable to regain an unmarked status on subsequent trips (Adey 2004, p. 506; Martin Dodge & Rob Kitchin 2004, p. 199).

Following the terrorist attacks of 11 September, 2001, US airport security was reorganized under the TSA, within the newly created Department of Homeland Security. In January 2004, the TSA introduced amendments to the Privacy Act as well as a new system called Aviation Security Screening Records, meant to facilitate the CAPPs II program. This further enabled the transference of passenger information among airports and multiple government agencies (Adey 2004, p. 506). Dodge and Kitchin (2004) suggest the idea of “code/space” as a way of thinking about air travel as a discursive network that connects such nodes as travel websites, airport check-in and security checkpoints, air traffic control, flight decks, and customs and immigration checkpoints—all of which have associated, and often linked, descriptive databases. The authors explain that

one of the prime uses and effects of code/space in the airport is the creation of a panopticon which enables and enforces a regulatory environment in which passengers (and most staff) are rendered, in Foucault’s terms, docile bodies: bodies that pass through the system in an orderly, noncomplaining, compliant manner. (Dodge & Kitchin 2004, p. 199)

Whole body imaging scanners, alongside other contemporary screening technologies and techniques, have the potential to render the body as a searchable database (Catherine Waldby 2000). Thus, the state’s efforts to create a searchable “code/space” that encompasses

all aspects of air travel also extends to map the interior spaces of the bodies of its subjects, effectively rendering these bodies as new territories of the state. While older models of X-ray scanning machinery adhered to a preventive, anti-contagion model (i.e., identifying isolated and discrete items that were forbidden to pass the checkpoint), this new trend harvests information about “whole” bodies and subjects for potentially ongoing and undisclosed monitoring needs of state security practices.

Whole body imaging technologies are part of a broader trend toward algorithmic surveillance in airport security contexts. Closed-circuit television (CCTV), in which video cameras transmit images to a limited set of monitors, has long been used in airport surveillance. New technologies, such as the Exit Sentry system, extend CCTV’s capacity through algorithmic analyses of its contents; for example, by monitoring the direction of passengers’ movements through entrance and exit corridors and generating alerts for any deviant patterns (Adey 2004, p. 508). In software development, “particular movements are inscribed with meanings of what is an allowed movement and what is considered suspicious and deviant” (2004, p. 508). The policing of objects and mobilities understood to be non-normative is key to the functioning of whole body imaging technologies. These technologies involve singling out those bodily shapes that contradict security expectations and rendering them as deviant, in contrast to the traditional X-ray scanner and metal detector paradigm focused on isolating individual, problem objects.

In his book on the history of photography, communication theorist Suren Lalvani argues that photography as a technology worked to construct bodily types, including the criminal body, the primitive body, and the bourgeois body (1996, p. 66). Whole body imaging technologies also produce particular types in ways connected to bodily identities and cultural-geographic location. In particular, transgender individuals, people with disabilities, and those with particular religious affiliations are rendered newly or differently legible. As such, their application to airport security generates new implications for who is allowed to move through, and who is afforded justice within, contemporary cultural and transnational spaces. Our feminist intervention into surveillance studies is informed by Sara Ahmed’s (2006) intersectional theorization of racialized space. In her book *Queer Phenomenology* (2006), Ahmed critiques discourses of phenomenology that proceed from an embodied location of unmarked whiteness, a privileged position from which bodies racialized as white can move through space easily. She reminds us that “A phenomenology of ‘being stopped’ might take us in a different direction than one that begins with motility, with a body that ‘can do’ by flowing into space” (Ahmed 2006, p. 139). Following Ahmed, we suggest that to understand the stakes in the deployment of whole body imaging technologies, one must begin by attending to the identification and experiences of those who are “being stopped.” The bodies of Othered subjects who fail to pass the checkpoint, or who are disproportionately adversely affected or violated in the screening process, expose deep contradictions and fallacies in rhetorics of “freedom of movement” that have historically been articulated to air travel, and that continue to underlie the promotion of new surveillance technologies.

In the first part of this essay, we situated the development of whole body imaging technologies in the history of air travel more broadly in order to complicate the claims made for objectivity and neutrality in deployments of these technologies. Before proceeding with our analysis of the consequences of whole body imaging technologies—including both backscatter X-rays as well as millimeter wave technologies—it is helpful first to define what they are, how they work, and where they are used.

Backscatter X-Rays and Millimeter Wave Technology

Backscatter X-rays are body scanners that, unlike the regular dual-energy X-ray systems predominantly in use at airports, are able to produce clear images of organic materials. Materials with a high atomic number absorb X-rays (high Z materials), whereas materials with a low atomic number scatter them (Demetrius Klitou 2008). As organic items have a low atomic (Z) number, they scatter backscatter X-rays, thus yielding clear images of human bodies (Julia Layton 2007). In particular, backscatter scanners produce clear images of concealed objects, because metallic objects such as weapons have very different atomic numbers than human flesh, and the contrast becomes apparent in the backscatter photos (Klitou 2008). The intended aim is for backscatter X-rays to reveal concealed metals, ceramics, chemical materials, explosives, and plastics, which typically contain low density materials (Layton 2007). The TSA is also piloting a second type of whole body imaging technology, referred to as millimeter wave technology (TSA 2008). Using radio frequency energy rather than X-rays, with this technology two sets of radio frequency beams are directed at and reflect off the passenger's body and any hidden objects. The reflected energy produces a 3D image of the person's body.

Backscatter technologies were originally developed for the prison industrial complex, and have been used in jails and courtrooms for a number of years (Klitou 2008). Following the signing into law of the *Intelligence Reform and Terrorism Prevention Act* of 2004, the Department of Homeland Security (DHS) provided substantial funding for the expansion of backscatter technologies to airports across the US (*Intelligence Reform* 2004; Klitou 2008). A key moment in the expansion of these technologies was the thwarted attempt of what was dubbed the attempted "underwear bombing" of 2009. Umar Farouk Abdulmutallab was arrested for allegedly smuggling explosives in his underpants onto Northwest Airlines flight 253. Immediately following this incident, a number of well-placed government and corporate representatives (many of whom had been one and then became the other) stepped in to assert that Abdulmutallab would never have boarded the plane if whole body imaging technologies had already been in use at airports. Heavyweight members of what the *Washington Examiner* termed the "full-body scanner lobby" (Timothy P. Carney & Charlie Spiering 2009) included Michael Chertoff, who is a former Department of Homeland Security secretary and now heads up the Chertoff group, which represents Rapiscan, the primary distributor of backscatter X-rays (James Ridgeway 2010). Rapiscan got a \$25 million contract from the TSA in 2010 for full-body scanners (Ridgeway 2010). In fact, Chertoff was responsible for the first purchase of whole body imaging scanners in 2005, when he oversaw the DHS's purchase of five Rapiscan machines (Ridgeway 2010). The Electronic Privacy Information Centre (EPIC) in Washington, DC, reports that the DHS requested \$72 million for live detection systems, including backscatter machines (Electronic Privacy Information Center 2009). Generally, each scanner costs the government between \$100,000 and \$200,000 (Electronic Privacy Information Center 2009). Testing a new technology on a vulnerable population who cannot refuse, like prisoners, is a well-traveled path in the introduction of new security technologies, including biometric identification technologies (Simon A. Cole 2001; Kelly Gates 2004; Shoshana Magnet 2009) and RFIDS (Magnet forthcoming). Whole body imaging technologies are now in use at airports including San Francisco, Salt Lake City, Denver, Las Vegas, Los Angeles, Phoenix, Dallas, Tulsa, Detroit, Indianapolis, Baltimore, Washington, DC, Richmond, Raleigh-Durham, Atlanta, Dallas, Albuquerque, Jacksonville, Atlanta, Tampa, Miami, and London Heathrow (Electronic Privacy Information Center 2009).

Most recently, Canada bought a number of the scanners for CA\$200,000 each, and is testing its first scanner in Kelowna, BC with the permission of Canada's federal privacy commissioner (*CBC News* 2008).

Marketing Whole Body Imaging Technologies

Unlike pat-downs, the TSA asserts that whole body imaging technologies actually afford travelers increased bodily privacy. As operators sit in closed booths a small distance away from the passengers being scanned, the TSA claims that there is no privacy risk that the operator could take a photo of the image produced by the backscatter X-ray. The TSA also asserts that these images have no storage capacity, and thus an image could not be saved to be circulated later. Moreover, the TSA argues that because whole body imaging technologies have the capacity to blur genitalia, they guarantee bodily privacy, and thus can be differentiated from a traditional "hands-on" strip search. However, it is worth noting that the Canadian government did not purchase the software that allows them to blur passengers' genitalia, and that there are reports that even when in use, the software works imperfectly (Electronic Privacy Information Center 2009). Certainly, two cases called these claims into question. TSA security officer Ronald Negrin was arrested in 2010 for beating a co-worker with a police baton after a year of relentless insults about his small penis size, which fellow employees saw regularly when he passed through the backscatter X-ray at Miami International Airport (Kyle Munzenrieder 2010). One might ask, if whole body imaging technologies do not reveal genitalia, how could this case of prolonged workplace harassment occur? Similarly, the claim that whole body imaging technologies did not have the ability to print or store images was called into question after famous Bollywood actor Shahrukh Kahn alleged that two security personnel asked him to sign naked images of himself. Although Heathrow airport has denied Khan's claims (Alastair Jamieson 2010), security documents made clear that this situation could have arisen when the US Marshals Service admitted that it had secretly saved "tens of thousands of images recorded with a millimeter wave system at the security checkpoint of a single Florida courthouse" (Bianca Bosker 2010).

The TSA markets whole body imaging technologies using a rhetoric of "mechanical objectivity" (Lorraine Daston & Peter Galison 1992), imagined to be achieved through the replacement of "subjective" human judgment with "objective" computer vision. Since whole body imaging technologies are represented as able to "filter out [skin] pigment," their manufacturers assert that they are able to eliminate systemic forms of discrimination such as racial profiling by replacing human security officers with scanners:

The impersonality of machines can also filter out racism. Five years ago, the ACLU objected to body scans because they were administered selectively "based on profiles that are racially discriminatory." ... All [the security officers] can see are X-ray images, which capture density, not pigment. To them, everyone is the same color. (Saletan 2007)

As whole body imaging technologies privilege visibility over touch, backscatter scans are represented as less invasive than physical pat-downs; that is, although a backscatter image might be dehumanizing and objectifying, it is imagined to be less violent than a strip search: "The rationale, like the machine, conveyed not an ounce of human warmth, which is why the inmates preferred it. Better to be seen than touched. Better to be depersonalized than degraded" (Saletan 2007).

In this way, whole body imaging technologies are also marketed using a rhetoric of choice. As the TSA asserts: "The passenger has the option of receiving a full pat down or going through the Whole Body Imaging system" (National Center for Transgender Equality 2009). Here, we see how the need for a strip search is naturalized as the question becomes, instead of "Why must I submit to a strip search?" a matter of "What kind of strip search would I prefer?" As such, the deployment of whole body scanners through a rhetoric of choice manifests a logic of neoliberal governmentality. Inderpal Grewal notes that, by the early twenty-first century, consumer culture has become central to neoliberalism, "promoting endlessly the idea of choice as central to a liberal subject and enabling the hegemony of both capitalist democracy, American style, and the self-actualizing and identity-producing possibilities of consumption" (2005, pp. 219–220). A rhetoric of consumerist choice and concomitant freedoms is everywhere in a US citizen/consumer's experience of air travel, from Southwest Airlines' promise that low fares mean "You are now free to move about the country," to flight attendants' stoking customer loyalty with the familiar phrase: "We know you have a choice of carriers when you fly, and thank you for choosing our airline" (Southwest 2010). In airport security contexts, such neoliberal discourses position individual travelers as having agency to choose which option, scanner or pat-down, best suits their travel schedule (e.g., "Is there enough time for a pat-down or would the scanner be more efficient?") or their personal preferences (e.g., "I'd rather not have a stranger's hands on my body so I'll choose the scanner")—when in fact the subject can only "choose" between slightly different expressions of the state's interests in bodily surveillance. The "accelerated culture of surveillance and enforcement" (Chandra Talpade Mohanty, Minnie Bruce Pratt & Robin L. Riley 2008, p. 4) that is used to justify an increasing invasion of bodily privacy becomes ever more insidious and difficult to critique when imposed practices of state surveillance are re-presented in terms of individual or consumer choice. To "choose" one or the other option at the security checkpoint is an elaborately choreographed routine through which one affirms enrolment as a citizen/subject under the state's watchful monitoring; exercising one's "right to choose" between screening methods is, rather perversely, rewarded with the so-called "freedom to travel." Ultimately, one may "opt out" of passing through a body scanner (Sara J. Welch 2010), but not out of the increasingly invasive and pervasive surveillance practices themselves, unless one relinquishes the right to air travel. Even then, to opt out of the articulation of one's identity and embodied location to the networked "code/space" of Geographic Information Systems (GIS) and global positioning system (GPS) data is a virtually impossible proposition in contemporary US culture (Dodge & Kitchin 2004; Caren Kaplan 2006).

Above, we grounded the development of whole body imaging technologies in the histories of air travel, and demonstrated the ways that mobility and security were implicated from the beginning in systemic inequalities. In their groundbreaking article examining the development of backscatter X-rays in medical and aesthetic practices aiming to reveal the "truth" of the body, Louise Amoore and Alexandra Hall argue that analysis of such whole body imaging technology needs to be attentive to "the violent tendencies of these technologies, which emerge from the processes of abstraction and disintegration, and the effacement of personhood" (2009, p. 449). We turn now to problematizing the claims made for whole body imaging technologies, and show the ways that they remain connected to the stratified and unequal system of air travel as well as the violent ramifications of these technologies for particular communities.

Policing Transgendered Bodies

Backscatter and millimeter wave technologies have significant consequences for transgender bodies and mobilities. Whole body imaging technologies can reveal breasts, genitals, prostheses, and binding materials. These technologies also have the ability to zoom in on a particular area, including genitalia (National Center for Transgender Equality 2009). As a result, bodies that do not fit normative gender identities may be singled out by the TSA for special scrutiny, providing the possibility that transgender individuals may be outed to TSA personnel, or that they may have their bodily privacy further invaded. Here, bodies rendered as matter out of place are policed. This has especially devastating consequences for transgender individuals who are closeted and live in small towns, in which case being outed at the local airport could have broader consequences, such as implications for their job security or for their relationships with friends and relatives. Moreover, a transphobic screener could easily cause a transgender person to miss their flight by detaining them for special screening or could subject them to new forms of humiliation and harassment. Given the potential consequences of whole body imaging technologies, Mara Kiesling, the executive director of the National Center for Transgender Equality, identified whole body imaging technologies as one of the most pressing issues facing transgender communities.

Designed to identify matter out of place, whole body imaging technologies are deployed by the security industrial complex to render particular forms of gendered bodies as the norm and police those that deviate from essentialist understandings of biological sex. In this way, these technologies serve as disciplining technologies designed to produce “properly” gendered bodies. Designed without any consultation from transgendered/transsexual communities and implemented despite vociferous and organized opposition (Electronic Privacy Information Center 2009; National Center for Transgender Equality 2009), this virtual strip search demonstrates the importance of thinking about the centrality of transgender identities to understanding state policing and security, much as Angela Davis (2003, p. 65) and others (Ruth Wilson Gilmore 2007; Julia Sudbury 2004) argue for the importance of understanding the centrality of gender to punishment whether or not women make up the majority of prisoners. While trans folks may not make up the majority of passengers, it is essential to analyze how whole body imaging technologies are a form of gender violence that prevents trans folks from travelling, as this additionally demonstrates that whole body imaging technologies fail to work in that they do not work in the objective and neutral ways claimed for them. Above, we highlighted Rachel Hall’s (2009) phrase, an “aesthetic of transparency,” to think about the visual culture of the War on Terror given the plethora of new security technologies claimed to be able to strip away bodily exteriors in order to reveal the bare bones of the “enemy within.” Although Hall specifically was examining security technologies like the Ziploc bags that are used to hold travelers’ liquids as they pass through checkpoints, it is crucial to account for the ways that whole body imaging technologies are imagined to be able to render travelers’ bodies visible to the state’s security apparatus. Particularly relevant is the way that these technologies are deployed to call particular performances of gender into question, mercilessly turning transgender bodies inside out in a search to discover the “truth” of an individual’s gender identity, helping to produce transgender bodies as suspect.

Policing Religion

Whole body imaging technologies may reveal a person's religion affiliation by making visible the religious signifiers they may be wearing, such as crucifixes or stars of David. In addition, whole body imaging technologies also violate prohibitions that many religions have against revealing your nude body in public. As in the example with which we began this article, a protest staged by a Muslim woman in Iraq highlights the ways that whole body imaging technologies remain connected to systemic forms of inequality. Certainly, these technologies have a disproportionate impact on those Muslim women who follow religions prohibitions against appearing without the *hijab* or *niqab* in public, as they are compelled to be subject to a "virtual" strip search in front of male security officers.

Although variable in its meanings over time (Minoo Moallem 2005), post-9/11, the veil is frequently represented in Canadian and US media as a primary signifier of Otherness (Malek Alloula 1986; Moallem 2005). Significantly, and in keeping with the trend toward identifying the gender identity of suspect bodies that we highlighted above, an obsession with verifying the gender identity of Muslim women who wear the *niqab* has been central to the War on Terror. Claims that male terrorists could hide underneath the traditional dress of Muslim women are commonplace, as *niqabs* and *burqas* are represented as security threats (Daniel Pipes 2006). For example, one news article asserting the importance of whole body imaging technologies claims that they are necessary because "Terrorists will employ novel methods to artfully conceal suicide devices. Male bombers may dress as females in order to discourage scrutiny" (Pandagon n.d.). These claims became a full-fledged moral panic following the escape of UK murder suspect Mustaf Jama. Jama's alleged getaway, in which he purportedly fled the UK by dressing in a *niqab* and using his sister's passport, led to assertions regarding the need for more robust visualization technologies (Brian Brady 2006), even though reports that Jama had left the country by wearing a *niqab* were never confirmed. Claims about the importance of visualizing veiled bodies reference stereotypes about the inscrutability of racialized subjects (Edward W. Said 1978). More specifically, they reference problematic assumptions about the difficulty in fixing the gender identities of orientalized bodies (Richard Fung 1993), while simultaneously referencing a feminized Orient, one whose secret interiors must be "unveiled" and exposed to the light of Western knowledge (Gabeba Baderoon 2003). Technologies able to make othered bodies both see-able and knowable have a long history—from fingerprinting and phrenology (Cole 2001; Stephen Jay Gould 1996) to the development of photography specifically to visualize othered orientalized bodies (Lalvani 1996). The attempted implementation of whole body imaging technologies in Iraq demonstrates the ways that these technologies are deployed to further the colonial gaze, compelling security officers to penetrate behind the veil and invade the bodily privacy of Muslim women.

Disability and Sizeism

It is important to note that whole body imaging technologies additionally single out disabled bodies for increased scrutiny. Catheters, evidence of mastectomies, as well as colostomy appliances are made visible by these whole body imaging technologies, providing information about travelers' private medical histories to TSA security personnel without their informed consent (Stuart F. Brown 2008; Klitou 2008). Discourses around

backscatter X-rays and millimeter wave scanners also construct differently-sized bodies as deviant. In an article titled "Beware the fat man in the middle seat," fat bodies are represented as threatening because whole body imaging might not be able to identify weapons "hidden between folds of fat and flesh" (Jen Phillips 2007). Feminist disability theorists remind us that the category of disability is one that is socially constructed (Rosemarie Garland Thomson 1997; Susan Wendell 1996). For example, those who need a wheelchair to get around are categorized as disabled, whereas those who need a car to get around can be constructed as able-bodied. Similarly, we can see the ways that whole body imaging technologies may manipulate existing categories of disability. For example, although traveling with a colostomy bag currently poses no problem to mobility, following the introduction of whole body imaging technologies, this may change. Travelers with colostomy bags or other types of disabilities may be subject to increased inspection and further searches in ways that make it more difficult or unpleasant for them to travel. In addition, the potential of these new technologies to single out differently sized bodies for closer inspections, leaving some travelers especially vulnerable to humiliation or aggressive searches, demonstrates that whole body imaging technologies do not work in the objective or neutral ways claimed for them.

The "virtual strip search" mandated by the TSA's new rules requiring passengers to subject themselves either to a pat-down or to be stripped naked before security is a form of state-sponsored violence. Whole body imaging technologies create terror and dread for travelers, especially if these technologies "out" individuals in their communities, violate their religious beliefs, or single them out for public humiliation, stress and harassment. Suggesting that a virtual strip search is preferable to a real life search works to prevent us from asking why travelers are being searched in these invasive ways.

Moreover, in that we already see evidence that particular communities are being singled out for secondary screening, virtual strip searches and pat-downs may also be considered as new extensions of stop-and-frisk methods that disproportionately affect communities of color in the US. Responding to widespread complaints from consumers and privacy advocates about the enhanced security methods introduced at numerous US airports in time for the 2010 Thanksgiving holiday, Secretary of Homeland Security Janet Napolitano noted that "It's something new. Most Americans are not used to a real law enforcement pat-down" (Sulaiman Abdur-Rahman 2010). Napolitano's attempt to assuage the concerns of "most Americans" was indeed aimed at those Americans in positions of class-based, racial and ethnic privilege—an important market for air travel, newly conscious of the privacy invasions of pat-downs. By contrast, for African American and Latino men in many communities, the threat or implementation of invasive pat-downs by law enforcement as a result of racial profiling has been an ever-present reality for years (ACLU 2007; Troy Graham 2010; Nadra Kareem 2010).

Overall, some individuals will see their mobility compromised by whole body imaging technologies, mobility upon which they may rely for their jobs or in order to see their families. Language which suggests that whole body imaging technologies are no more than a technological fix to a security problem fails to see the ways that these scanners may subject particular communities to humiliation and ridicule, may violate their right to religious freedom, and which additionally violate the health and bodily privacy of particular travelers. Finally, the delegation of the state's "touch" to unseen millimeter waves, the scrutiny of whole body images by security agents who are fully hidden and increasingly distanced from travelers' view, and the alignment of these new technologies and

techniques with familiar discourses of efficiency and freedom of movement, all work to conceal the state's ever-expanding powers of surveillance. New forms of legal protection may be necessary to account for such "virtual" violations of privacy and subjecthood (Klitou 2008, p. 316).

Conclusion

In historicizing aviation, we showed that flying has been described since its origins using narratives emphasizing mobility and technological possibility. However, although it was marketed as a transportation technology able to "shrink the globe" and ease long distance travel, flying is always/already bound up with existing inequalities, resulting in eased mobility for some while constraining the movement of others. As some destinations became more accessible while others became more remote, and as particular bodies remain held fixed in place in ways connected to the intersections of gender, race, religious and class privilege, air travel must be considered in relation to systems of stratification. Whole body imaging technologies—marketed using similar rhetoric to that initially used to promote flying, including metaphors emphasizing technological efficiency and mobility—must be understood in connection to the development of aviation technologies more generally, and their relationships to inequality.

We additionally examined how the ability of whole body imaging technologies to strip the body bare fit more generally into the aesthetic of transparency dominating the visual culture of the War on Terror (Hall 2009) as the US security–industrial complex increasingly understands security in terms of visibility. The TSA and the companies producing whole body imaging technologies market them using the rhetoric of mechanical objectivity, suggesting that they have the ability to replace human agents with objective computer scanners. However, in examining their implications for Othered bodies, including the intersections of transgender, disabled, fat, religious, female and racialized bodies, we showed that these technologies single out particular communities for increased searches and harassment. Angela Davis' analysis of the strip search as a form of state-sponsored sexual assault usefully draws attention to the ways that these technologies institutionalize acts of state violence against particular communities.

Organizations like the Electronic Privacy and Information Center and the National Center for Transgender Equality have already organized significant campaigns aimed at drawing attention to the potential consequences of whole body imaging technologies. As these technologies are poised to expand significantly both within the US and beyond its borders, including in Canada and the UK, it is a critical time to call them into question.

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