



Secured and Sorted Mobilities: Examples from the Airport.

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Abstract

Surveillance is increasingly focused upon mobility. Be it in cities, shopping malls or outdoor 'public' spaces, surveillance is now able to track and monitor peoples movements. In recent years the most diverse forms of surveillance have been found at airports, yet paradoxically these spaces remain largely invisible within surveillance studies literature. This paper discusses a taxonomy of surveillance at the airport where several scales of mobility intersect – the global movements of international travel to local scale terminal activity. These are put under surveillance by techniques such as the passport and modern CCTV technologies. This paper illustrates the surveillant sorting that is perhaps most illustrative of airport surveillance, where airports can be seen to act as filters (Lyon, 2003) to the mobilities that pass through them. Using an Actor Network Theory (ANT) approach, trends to monitor the 'means of terrorism' are discussed in regard to the monitoring of objects and actors. The paper continues to critique the way by which we tend to focus chiefly upon the human subject of surveillance, often disregarding the surveillance of non-human actors.

Introduction

Airports are symbols of mobility. They have become emblematic of our post-modern world. Yet in the early days of airports, there was no such thing as the rivers of passengers that flow through the sculpted steel and glass façades of contemporary terminal buildings. The airport consisted of a few tents and an airfield, remnants of air travel's military beginnings. Airports now cater for the millions of people who flow in, out and within countries each year. The huge mile long terminal structures are carefully built to facilitate the mobility of passengers, baggage, and cargo to their destination. To ensure the security of the country the flows are entering, while at the same time to protect the very means of their travel, these flows must be watched and controlled. The airport is well and truly a space under surveillance.

And yet, the airport's role in surveillance has gone largely unnoticed by surveillance studies, reflecting the invisibility of these transient 'non-places' within the social sciences (see Crang, 2002; Gottdeiner, 2001; Rosler, 1998; Augé, 1995). Nonetheless, since the TWA flight crash in 1996 and the more recent September 11th attacks, countries such as the United States are

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pushing through increased measures to improve airport security and safety, launching airports into the public consciousness. Security itself has become an all-encompassing term, spreading into the current vocabulary. Widespread gun crime at schools has highlighted the ‘airport-style security’ measures of metal detectors and baggage checks that are now common place (BBC News Online, 1999).

This paper explores several aspects of airport surveillance. In themselves, airports offer interesting case studies of how mobility may become watched and controlled. The heavy government presence in these spaces, the possibility for the invasion of privacy and the disregard of human rights must be questioned. We may also learn useful lessons at airports. For as recently discussed by Lyon (2003) airports may be seen as “possible microcosms of wider societal surveillance trends” (20) signposting possible surveillance developments in other spaces and places.

In this paper, I shall therefore explore a number of the most recent surveillance techniques for monitoring and controlling passengers at the airport. These practices are argued to closely match designations of a ‘panoptic sort’ (Gandy, 1993) or surveillant sorting (Lyon, 2002b) from the surveillance studies literature. I discuss the implication of these techniques in terms of privacy issues and discrimination. In-turn, the second section to this paper examines the surveillance of non-human mobilities at airports. Informed by an actor network theory (ANT) approach and recent turns towards the agency of ‘objects’ and ‘things’, the paper provides a brief over-view of the surveillance of baggage, possessions and aircraft – indicative of a lack of research in this area and a trend towards the surveillance of non-humans.

Firstly, let me contextualise this discussion within current turns towards mobility and security. I examine the theorisation of mobility within surveillance studies and trends towards surveillant sorting, before moving on to illustrate the increasing need for an ANT approach towards the subjects of surveillance.

Mobility, Surveillance and Security

Recent progress towards the understanding of movement within surveillance studies probably reflects the current interest in mobility from disciplines such as sociology (Urry, 2002; 2000), geography (Cresswell, 2001; Thrift, 1995) and cultural studies (Morris, 1988). This is no-doubt indicative of the increasingly mobile world in which we live, and must also owe its momentum to the popular fluid and mobile thought of philosophers such as Gilles Deleuze, Felix Guattari, Ian Chambers and Paul Virilio. This new mobility paradigm has moved beyond static idealizations of society towards theories that are marked by terms such as nomadism, displacement, speed and movement. Mobility has become as central as the tenets of society, space and power that fill much of our thinking.

In many cases, mobility has often been understood to be an escape from a social order and as an act of resistance (Cresswell, 1993). De Certeau’s (1984) tactics and Deleuze and Guattari’s (1988) nomad-power transgress the fixity of the state. Gypsies and travellers cross physical

boundaries and so become recognized as ‘out of place’ by authorities and local residents (Sibley, 1995). In many cases, physical mobility is often seen to signify the metaphorical movement from, and transgression of social norms. Mobility is therefore often viewed in terms of risk to the safe and static containers of space, territory and social order. Bauman’s (1993) stranger and vagabond provide the perfect figures of risk to security as spatial and social boundaries are crossed.

This is not to argue that mobility is always taken as deviant. Obviously, tourists and business travellers do not necessarily contradict social norms. Taking a relational (Cresswell, 1996) view of mobility allows us to see movement merely injected with meaning in different socio-spatial circumstances – it means different things, to different people, in different places and at different times. Therefore, where a tourist may be welcomed into a country a migrant may not be.

However, the spaces at which mobility may be channelled provide the most obvious points for these social differentiations. Henceforth, it is at the borders, at airports – where movement and distinct spatial boundaries coexist – where undesirable mobilities may be distinguished from the desirable. This is increasingly achieved by surveillance.

Surveillance is one method used to control mobility. As the growth of information and communication technologies allow data packets to be transferred between databases and other surveillant technologies, surveillance itself has become more mobile (Lyon, 2002b). For Lyon and others (2002a, Phillips and Curry, 2002) however, surveillance may also struggle with mobility by stasis. What Lyon describes as the ‘phenetic fix’ characterizes surveillance techniques that attempt to capture the essence of movement – taking a snapshot of movement, bodies and identities. Information abstracted from moving bodies may be appropriated and fitted into neat categories and definitions.

In this paper, I want to examine a particular form of the ‘phenetic fix’ labelled ‘surveillant sorting’ that is probably most illustrative of airport and border surveillance. Surveillant sorting is often used to describe the formation of those categories and profiles discussed above. Gandy’s (1993) term the panoptic sort being another terminology. Issues surrounding sorting emphasise the possibility for discrimination – treating some better than others. Surveillant sorting is also able to distinguish the mobile. For example, studies have illustrated that the transfer of data packets may become shaped and prioritised, some given quicker speed and access than others (see: Graham and Wood, 2003). Mobile sorting may also work materially. Cars travelling through the Canadian-US border (Sparke, forthcoming) are put into categories of ‘good’ and ‘bad’ by the NEXUS system, the good are able to pass through quickly, where ‘bad guys’ are forced to wait in long queues for questioning. At airports, surveillance, rather than examination, is becoming the key method with which to distinguish passengers (Salter, 2003). In this paper, I examine a number of issues surrounding these procedures.

And yet, I also want to explore a form of sorting that has gone on within the wider study of surveillance itself and which airports may be used to highlight. By this, I mean that there seems to be a tendency to limit our understanding of mobility to humans – to sort the human from the non-human. This paper could examine the mobility of passengers passing through airports and

the associated methods of surveillance and control. However, to do this would be to ignore the orbiting movement of non-humans that are also subjected to the airport's controlling gaze. It is in this respect that we may turn to Actor Network Theory (ANT), the work of Bruno Latour, John Law and the recent veering of the social sciences towards the role of objects (Pels et al., 2002), things and their mobility (de Laet, 2000). These approaches are somewhat absent from surveillance studies as noted by Wood in a past issue of this journal (Wood, 2003). Wood observes Kirstie Ball's paper (2002) to be one of the only contributions to such a debate. Ball's approach pinpoints the elements of surveillance systems that "are all socio-technically perpetuated through interactions of artefacts, technologies and people" (586). Therefore, whilst humans and non-humans may form networks of the elements of surveillance, little emphasis has been placed upon these aspects of the subjects of surveillance. Examining how surveillance deals with mobility need not be limited to the mobile human, but extended to include things, and indeed their amalgamation with people (Haraway, 1991; Urry, 2002). Such a shift in focus is particularly pertinent when we turn to the increasing concentration upon the means of terrorism by governments and borders – shifting surveillance away from the perpetrators.

Carter (2001) states that governments need better capabilities for the detection and prevention of terrorist activities. He argues that:

This involves surveillance of persons and motives – a delicate matter – but also surveillance of potential means of destruction such as crop dusters, germ cultures and pilot instruction. Surveillance of means raises far fewer civil liberties issues than does surveillance of persons, and it might be much more effective.
(15)

The surveillance of the means of destruction is a much more attractive option for security. Governments take the view that a bag will not mind if it is x-rayed, CT scanned, and rummaged through. Examining the subjects of surveillance can enable our better understanding of the purpose, workings, and impacts of these systems. This approach is discussed in the final section. Firstly, it is useful to situate these practices within the development of air-travel, the growth of airports, and the rising need for airport security.

A short history

The first airport resembling anything that we know today was built in 1922 at Königsberg in East Prussia (Zukowsky, 1996). Königsberg's terminal was a considerable advance from the windswept military landing fields and beaches. The new terminals became bridges for the transition between land and flight. Airports captured the imagination representing a symbol of progress and technological achievement in modernity. Indeed, the driving ambition of Hitler's Nazi regime was manifest in the rebuilding of Berlin's Tempelhof airport – the new airport reborn from the ashes of the failing past government and decaying economic system (Braun, 1995).

From these early beginnings, airport space was a segregated and exclusionary one, being inhabited only by military personnel or the wealthy. Even before the First World War, aviation became an impossible dream fulfilled. Higher society frequented airfields to watch the displays of macho pilots and their flying machines (Wohl, 1994). Flights became social and cultural gatherings for the upper classes, excluding the lower.

Soon, the development of the vacation and package holidays saw the growth in trips to Europe; to Spain and Portugal and the beginnings of mass transatlantic travel (Löfgren, 1999b). International air transport became less costly and connected to many destinations. Wide-body jets meant that 200 to 500 people could be carried by one flight eliminating the extortionate costs involved. The further deregulation of the American and British airlines saw airlines multiply, stimulating the competitiveness of seat prices, and also a greater choice of destination for many travellers. These changes also meant radical developments in the complexity of running airports as airlines rapidly grew and folded. Although, the growth of mass travel was still unable to fully democratize this space. VIP lounges developed for business and frequent flyers to enjoy the quiet luxury of a comfortable seat, the amenities of television, and most recently a shower or sauna.

The progression of the airport culminated into the enormous multi-terminal, multi-runways sites that see millions pass through each year. They soon became airport-cities employing the work force of urban populations. Manuel Castells (1996) describes airports as a 'space of flows', nodes on the global networks of mobility. But the terminals are also built for a carefully controlled internal mobility. David Pascoe argues that the terminal was "predicated on confluence, the precisely timed pumping of passengers into and out of [space]", airlines then "constructed specially designed terminals to control and direct the masses of passengers..." (2001: 226). For as passengers increased so did the potential dangers and security risks. This was due partly to the function of airports as borders, but also to the nature of international terrorism that has developed over the past three decades.

Perhaps Paul Virilio (1997) is correct where he writes that the border is now at the centre of our cities. Airports act as border zones to the vertical vectors of mobility that cross national and state boundaries. For this, Airports must function in a similar way to the borders that police the boundaries of our countries, regulating the movement of people that enter and leave. For Virilio, "the doors to the city are its tollbooths and its custom posts are dams, filtering the fluidity of the masses, the penetrating power of the migrating hordes" (1986: 7). Airports must therefore function as a screening or filter for the threats to a nation, but airports also become screens for quite different threats.

Since the 1970's terrorism has grown, looking towards the aviation industry as a target. On the 22nd of July 1968, an El Al flight destined for Tel Aviv was hijacked. The hijacking was a bold political statement where passengers were to be traded for Palestinian terrorists imprisoned in Israel. By attacking the Israeli airline they were effectively attacking the Israeli state (Hoffman, 1998). In addition to this, the intense media coverage given to the hijacking saw the event publicized all over the world. Aviation became the perfect target for terror, which since 1968 has endured a rapid rise of these attacks. Planes were spaces that could be controlled easily; the

fear of crashing subduing any passenger resistance. Airports also offered limited surveillance of the throngs of people that were travelling. The likelihood of a successful hijack has even been calculated, at 76% it is an obvious incentive for terrorists (Merari, 1998).

Due to the increasing risks from terrorism and illegal immigration, airports had to find a way to take control of the airport space. Developments of airport security and surveillance were initially felt through actual changes to the space – to the architecture of the airport. John Zukowsky notes that, “Intensified security measures changed the planning of airports, deliberately cutting up the open flow of space” (1996: 15). The development of the sterile lounge concept (Wallis, 1998) saw baggage and security checks made before entrance to the gate. This removed the chance of threatening objects reaching the plane by person. Security checks could then be completed in a purpose built room far away from the gate to reduce queues disruptive to passengers. These techniques are still regarded as the preferred method, evident in the centralized security ‘choke points’ in most terminals (NRC, 1999).

Surveillance has become therefore, one of the primary means of ensuring that airports are made safe and secure. ‘Threat vectors’ (NRC, 1999) that is, the paths by which threats may enter the airport and find their way to a plane are identified and monitored. In the next two sections, a number of these approaches and their implications are discussed.

Sorting Passengers

Monitoring passengers equally, proved to be far from the truth of running an international airport (Jenkins, 1998). Airport authorities needed a way of putting passengers under surveillance without having to examine every passenger rigorously. For this, methods of passenger screening and profiling have been developed to effectively sort the most probable threat to security from other passengers.

The Profiling Sort²

The most recently publicized and perhaps most worrying form of surveillant sorting at airports has come through a surveillance technique known as profiling. Profiling is the ability for information or data about an individual to be built up. People may be sorted into profiles of particular consumer groups. The psychological profiles crime investigators use is an obvious example. Profiles are then used to predict a person’s likely behaviour or the likely characteristics a criminal may embody. Profiling also usually relies upon vast quantities of information gathered about someone that are then stored and shared. In light of the growth of international terrorism, a new form of profiling has been developed called Computer Assisted Passenger Pre-Screening (CAPPS) in the United States. It is possible to discuss here some of the issues surrounding profiling and its potential impacts.

Profiling was introduced in the US on the recommendations of the Al Gore led White House Commission for Aviation Safety and Security following the TWA flight crash of 1996. The

² For more on profiling, see: Curry (this issue).

Commission found that, “passengers could be separated into a very large majority who present little or no risk, and a small minority who merit additional attention” (1997). The rationale behind profiling is then to concentrate upon the minority – those likely to be a threat, rather than the majority, which requires much greater resources. The recommendations were based upon the practices of the airline El Al who used profiling techniques to fit the descriptions and likely behaviour of terrorists to passengers. CAPPS is reported to work by matching likely terrorist behaviour with present airline flight information. A flagged ‘selectee’ will then be subjected to personal checking of possessions and perhaps an interview and questioning. The passenger’s baggage will also be subject to increased surveillance, through additional scans and personal checks.

Of obvious concern here is the possibility of discrimination towards particular passengers, biases being held towards ethnicity, and national origin – a person becoming sorted based on personal prejudice. Although, the Gore Commission report stated that it must be ensured that, “selection is not impermissibly based on national origin, racial, ethnic, and religious or gender characteristics” (1997). Problems are also clear over the secrecy of these profiles and the categories passengers become inadvertently pushed into. The lack of control passengers have over these profiles has led to concerns that innocent travellers may be unable to rid themselves of the ‘selectee’ status of their sorting.

The repercussions of September 11th have seen the reorganisation of US airport security under the Transport Security Administration, itself under the newly formed Department for Homeland Security. Bolstered by this restructuring of governance, President Bush’s developing and renamed Terrorist Information Awareness Program and rumours of the testing of CAPPS II have caused concern throughout privacy awareness groups. Posted to the US federal register on January 15th of this year, the TSA introduced a new system of records and amendment of the Privacy Act known as “Aviation Security Screening Records” (DOT, 2003) designed to facilitate the CAPPS II system. The proposal was open to comment and provoked a massive response from individuals and privacy awareness groups. The prime concern behind this system is again the discrimination and segregation of passengers, and also the sharing of passenger information between multiple government agencies. However, not only the sharing of Personal Name Records (PNR) are at stake (see Bennett, 1999), but the vague details of the report does not count out the possibility that more detailed banking records, tax histories and other sources of information may become easily passed between airports and other state departments. Fortunately, in Europe, different rules apply. In March 2003, the European Parliament moved to reverse an agreement made between the European Commission and the United States that would have forced PNR records to be transferred from European airlines to US airports.

Another version of CAPPS II was posted to the Federal Register on August 1st with several revisions made upon the January version. At present, however, the majority of concerns lie in the current testing of CAPPS II, particularly with regard to the JetBlue controversy. The popular airline JetBlue illegally transferred a large number of passengers’ records to an agency working for the US government (Singel, 2003). The information was to be used for the testing of passenger profiling on internal flights. Some of this information became public and was published

to the Internet. A similar scheme has also been argued to be taking place through Galileo – the computer reservation system (CRS) that runs a large part of air travel reservation in the US.

The Read Sort

Other forms of surveillant sorting are occurring through biometric technologies. Biometry is the measurement of the body. Biometrics effectively treats the ‘body as text’; identifying specific body parts such as the iris, face and palm signatures to identify the individual (see Ploeg, 1999, 2002). The use of biometrics extends far beyond air travel, forensic evidence such as fingerprints are commonly used to identify suspects. Nevertheless, biometrics has also become popular at certain US and European airports. Biometrics work by containing detailed records of a passenger’s body information (Delio, 2003), the most popular being retina patterns, but this may also include finger prints, DNA matching and face recognition (Agre, 2001) to name but a few. This information and passengers’ identities are then stored on cards or a central database to be compared. Biometric systems are usually referred to as authentication systems, where a positive match to the stored information authenticates the identity (Clarke, 2003). However, other biometric systems, referred to as identification systems, compare the captured body data to large amounts of records kept on other databases. Here, passengers are not proving their identity; rather, airport authorities are identifying them.

Biometric systems are of obvious concern to proponents of privacy rights, the critique and defence of biometrics coming from several different philosophical perspectives of technology and human agency (see van der Ploeg, 2003). One particular view is to critique biometrics for their treatment of passengers as objects. Much like a piece of baggage to be identified by a bar code, passengers’ bodies offer similar bar codes to be read by authorities. Objections have also been raised over the penetration of bodies as biometric systems scan passenger identifiers.

Others may analyse biometrics from the perspective of how the information is stored, particularly over the ease by which data may be shared with other 3rd parties. The possibility for data to be hacked and misused by external sources is another issue. Irma van der Ploeg (2003) discusses problems over the security of the American immigration service INSPASS authentication scheme at Los Angeles airport. Recorded hand geometry data was designed to be stored only on the card carried by the passenger. However, van der Ploeg illustrates that the card, if lost, would be quickly replaced by INSPASS thereby revealing the storage, somewhere, of this supposedly private information.

But biometrics also has several surveillant sorting implications. For example, we can look to the effects upon the movement of passengers. Schiphol airport, Amsterdam has a fully working biometric system developed by the airport and the Dutch immigration service. The ‘Privium’ scheme is an ‘authentication’ scheme that, for 90 euros, allows enrolled passengers to bypass busy queues and check in delays. Passengers are then sorted into those enrolled by the scheme and those not. The logic behind these systems is similar to profiling in that it then gives more time for additional security measures to be placed upon those not enrolled in the biometric scheme. The systems therefore virtually sort passengers’ information but also work to materially sort passenger’s mobility within the terminal. The business ‘kinetic elites’ (Graham and Marvin, 2001; Andreu, 1998) may pass through to the VIP lounge at speed. And yet, the average

traveller, forced to park long distances from the terminal, is excluded from member's club lounges and has to endure waiting in lengthy 'check-in' and security queues.

Digitizing the Surveillant Sort

Finally, the sorting of passengers has also begun with the introduction of what can be known as digital surveillance, or most commonly algorithmic surveillance (see Norris, 2002; Graham and Wood, 2003). Of course, CCTV has become one of the predominant modes of surveillance within airports as well as within cities, shops and indeed on my own university campus. The ability for CCTV to pick up deviant and threatening behaviour has been well documented, as well as its use in identifying suspects. Within airports, its continued and extended application has become a clear priority of airport security concerns. In the UK, the John Wheeler (2002) report on airport security suggested that valuable improvements have been made in this area.

A technology now widely used at airports in the United States is a system called Exit Sentry developed by Cernium. Exit Sentry is able to monitor the direction of movement of passengers walking through the exit corridor of secured areas of an airport terminal such as arrivals. A passenger walking the wrong way, trying to enter the secured area through the exit corridor is warned with a flashing light. If the suspect then persists, a siren alerts security staff, and a recording of the suspects' movements is made.

Systems such as Exit Sentry are exemplary of recent algorithmic surveillance technologies that in real time analyze CCTV footage of spaces. These systems understand the differences in movement of individual passengers, and may filter out static background information. Threats are not identified by a particular property of an object; rather, particular movements are inscribed with meanings of what is an allowed movement and what is considered suspicious and deviant. The uses for such technologies have been suggested to recognize the movements of car thieves and even people contemplating suicide at quiet train platforms (Norris, 2002). Indeed, research in progress at Southampton University has developed an approach called gait recognition that may be able to identify the identity of individuals by their distinctive walking styles.

CCTV algorithmic surveillance effectively sorts and differentiates between mobility, in Exit Sentry's case, that is accepted (non-threatening) and that is unacceptable (threatening). The meanings are not essential to the mobility picked up by the cameras; rather the algorithms are imbued with these meanings.

Sorting objects

I now move beyond my discussion of airport surveillant sorting, towards a sorting of a different kind. Here I want to discuss the non-humans that have become placed under surveillance at the airport. As I have discussed airports are obviously places of human mobility. And yet, objects and things also intersect these spaces. Baggage flows through the baggage systems miraculously arriving at our destination. We carry on duty-free, cigarettes, and alcohol. But we are only aware of a tiny spectrum of the surveillance systems that place objects under this scrutiny.

Initially, the sorting of objects and things at airports has occurred through the physical arrangement of airport spaces. For instance at the re-building of Templehof, the architect Ernst Sagebiel made the innovation of separating passengers, goods and baggage onto different levels of the airport (Braun, 1995). In addition, freight could arrive by an underground train opposite to the subway from which passengers arrived. This form of sorting is still used today, as automated baggage handling systems operate behind the holes in which our luggage disappears.

Luggage

The monitoring of our luggage at airports is probably one of the most visible methods of surveillance. Contaminating or illegal goods must be stopped. Airports are also nervous over the possibility of explosives and other weapons that may be used for terrorist activities.

The identification of these objects is therefore one of the prime duties of airport security and immigration control as they concentrate upon 'threat vectors' (NRC, 1999). These objects may be identified and put under surveillance in a number of ways. If we first take hand luggage, the classic examples are probably the phase induction (PI) metal detection systems (Jenkins, 2002). Memorable scenes in films depict passengers unable to pass through these archways due to a belt or keys. At this point in a person's journey, hand luggage is usually x-rayed. X-ray machines are able to look inside a person's belongings, where operators search for suspicious looking objects, these include explosives, arms, and organic material. Although these x-ray systems, according to FAA research, could also be used upon passengers (NRC, 1996). X-ray operators could easily identify passengers carrying concealed weapons, without having to resort to personal body searches.

Objects such as metals and sharp objects become a threat when held by a passenger. They have the potential to become a risk to the plane or the airport. The agency of a threat becomes possible because of the stable network of actors such as a knife, a passenger and indeed a plane. However, objects may take the shape of a threat independently of a person. For example, timer device explosives may be set in advance or barometric sensor devices respond to changes in pressure. Much like Latour's (1999) example of a sleeping policeman (speed bump), where the agency of a policeman to deter speeding becomes deferred onto the speed bump, here, the terrorists will or agency is given to the bomb. It is this deferred relationship that has led airports to implement baggage reconciliation: Positive Passenger Bag Matching (PPBM) recommended by the White House Commission (1997) in the United States. These systems are designed for the possibility that terrorists are not willing to blow themselves up when detonating a bomb. The terrorist would then check their bags onto a flight without actually boarding the plane. The PPBM system automatically flags up the bag that has been put onto the flight without an owner, the bag may then be pulled from the flight. Such a system relies upon the ability of the airport to know where a passenger's luggage is, through most recently, radio frequency (RFID) tagging and even individual trays that a bag is placed onto. Baggage handling systems most commonly use bar code technology however, so that baggage can be read to determine the identity of its owner and the flight it should be on.

Surveillance technology has necessarily become more intense in an attempt to secure aviation from these objects. It is also much easier for airports to scan checked baggage than to actually

interrogate a human subject. And yet, similarly to passenger screening, airports have not had the staff or equipment to check every person's bag. As such, the scanning of baggage has been linked to the CAPPS profiling systems so that a 'selectees' luggage is put under increased surveillance and identification for threats.

For example, the Explosive Detection Systems (EDS) were initially used to scan 'selectee' passengers' bags for traces of explosives. Here, a 'selectee's' baggage is that scanned by the EDS machines. Since the events of 9/11 efforts have been made to increase the installation of EDS machines to ensure every passenger's bag is scanned, this has culminated in the International Civil Aviation Authority (ICAO) recommending that 100% hold scanning be made by 2006. Other systems use the computer tomography (CT) scanners used in hospitals. A slice or tomography of a bag can then be used to calculate the mass and density of materials that are then matched against explosive and hazardous materials.

Passports

Perhaps the object we are most conscious of at airports is the passport. Although, considering the passport's importance to international travel there has been very little written about it in the social sciences (for an exception, see: Torpey, 2000; Caplan and Torpey, 2000; O'Byrne, 2001; Salter, 2003). And yet, the passport is one of the primary tools of states for the surveillance of their population's movements. For Torpey (2000), passports provide the means to govern a population's movement, 'penetrating' the individual to 'embrace' populations. Passports are used to identify a person, making a person legible to the state who may then enforce their authority over movement.

Passports are also symbols of nation-states and our allegiance to them (O'Byrne, 2001). Paul Fussell's (1982) *Abroad* typically articulates the standardization that passports impose upon the traveller: where do people belong, where do they live, what is their hair colour, eye colour. All these aspects of our selves that we continually negotiate and question become squashed into the tight categories of the passport. For Löfgren (1999a): "as a traveller you now had to live up to your passport identity to be able to prove your identity" (19). This is nowhere more obvious than at the airport.

Identification is then one of the primary means of airport surveillance; the display of the passport marks a 'reading' of the individual that occurs at multiple times during their journey. From supplying the ticket at check in, to security, to boarding the plane with your boarding pass and then landing and undergoing immigration control in the destination country, the passport must be displayed many times in the airport. It has become integral to the ritual of international travel. Airport staff and workers must also supply, not their passport, but a similar identification card to access areas of the airport. Indeed, airport vehicles must also be identifiable, clearly bearing company insignias and paint designs. In terms of mobility this is vital, passports and identity cards govern where a person, airport worker or object may go.

Passports are a marker of our identity. Identities are read and given mobile and spatial limits by states and airports as they regulate mobility.

Air traffic control

We can also look outside the terminal to airspace for examples of non-human surveillance. Airspaces are territorial units but they also act as highways for the traffic of aircraft, these spaces must also become monitored and controlled for the purposes of security and safety.

At the dawn of civil aviation, the organization of plane movement was described as “decidedly sketchy in nature” (quoted in Wegg, 1995: 115). The pilot had to rely upon skill and sight, and had no knowledge of local weather conditions. In order for the aviation industry to provide efficient and safe travel, it was essential that more could be known about environmental conditions. The first known aviation weather station in the UK was introduced at Croydon airport in 1921 (Wegg, 1995).

This surveillance of weather and the general environment is perhaps an increasingly common trend for surveillance. Brazil’s System for the Vigilance of the Amazon (SIVAM) developed by Raytheon provides a huge environmental monitoring system to show signs of illegal drug trafficking; mining and logging that have previously gone undetected in the rain forest.

Still, the monitoring of weather is obviously not the only concern of air traffic control. As was quickly found in the 1920’s crashes were most likely to occur around airports, where planes in the air and on land found it difficult to avoid each other. The need to orchestrate these movements proved paramount to safety. For this, Air Traffic Control (ATC) developed at airports, reinforcing the idea of an airspace that could be vigilantly monitored and controlled for the purposes of both safety and security. Again, at Croydon airport, the new terminal built in 1928 featured an ATC. The tower, or “chart house” scanned for incoming aircraft and maintained radiotelephony (RT) communications with planes. The towers therefore monitored all the positions of incoming and taking off aircraft. Un-identified or enemy planes could also be monitored from an ATC.

More sophisticated radar technologies have since developed, the air traffic control radar beacon system (ATCRBS) being one. After takeoff, aircraft turn on their transponders that send signals recognized by equipment at air traffic control that may then monitor not merely the position of an aircraft but also the unique identity of the flight can be gained from the transponder signal. Air traffic control, can then manage and organize the airspace for the most efficient and safe flow of aircraft. A similar system has also developed on the ground at airports so that ‘aircraft incursions’ – planes wandering onto runways without permission – may be avoided. This has usually been completed using a pair of binoculars; however, problems arise during periods of low visibility in bad weather and particularly fog. Airport surface detection equipment (ASDE) is a radar system able to locate and monitor planes movement, combined with tower automated ground surveillance system (TAGS) aircraft and indeed, any other airport vehicle may also be identified on the ground surface (Wells, 1996). Although, it must be noted that newer airspace surveillance is moving considerably away from the control tower as power is given back to the planes. Instead, decentralised forms of surveillance are becoming evident in the form of intelligent on-board systems that allow each aircraft, and airport land vehicles to monitor each other’s position.

Sorting this out

This paper has in part attempted to question the broad brushstrokes of ‘mobility’ and ‘flow’ that are often used to describe airports. Airports act to monitor these flows and filter out threats, sorting and categorizing mobile bodies. Whilst this may happen spatially in-terms of access to specific places of the airport, it also occurs in terms of movement. As I have shown, people may become discriminately separated into categories that also affect their passage and speed through the airport. These systems have been shown to be increasingly troubling in their invasion of privacy and the possibilities for expansive data sharing.

In-turn this paper has examined a conceptual sorting within surveillance studies, using the airport to recognise how non-humans may become monitored and controlled – to explore the surveillance of not only human but also non-human mobility. This approach has been argued to be of particular significance given that governments are increasingly turning to non-human surveillance (Carter, 2001). Now the focus is on the means of terrorism. Objects such as explosives have become actants in the eyes of airport security, where barometric or timer explosives pose threats independent to the whereabouts of their makers. Indeed, the surveillance of weather and the location of the actual aircraft is also key to the safety concerns of flight. The mobility of non-humans therefore, pose new challenges for airport surveillance in a climate where ‘terror’, ‘bomb’ and ‘explosives’ are words on every passenger’s minds. At its most basic level, I think an ANT approach can help scholars to acknowledge this monitoring of non-humans.

Then we can go further than the mere description of these techniques. ANT’s implication for surveillance studies is not the simple mobilisation of supposedly inanimate, non-sentient or non-human things that may be monitored. We can do more than merely “follow the actors” (Latour, 1993; see also: Hitchings, 2003). In particular, ANT may be used to give greater insight into the relationships or networks of objects that surveillance systems examine.

But this exercise may seem somewhat pointless if the relationships between humans and non-humans are not understood. Indeed, investigating the monitoring of a machine in a factory may seem interesting, but is this important for surveillance studies? Does this even fit our definition of what surveillance is? In my opinion, for now, our starting point must be human. This paper has separated its treatment of humans and non-humans in an attempt to illustrate a tendency for scholars to delimit their focus to the study of the surveillance of humans and its implications. It has not been my purpose to forget the complexity of relationships between people and things, the cyborg ‘machinic ensembles’ of the plane or car that transport us to our destination (Thrift, 1995; Lyon, 2001).

Whilst the separations I have made have been deliberately artificial for ease of illustration, any examination of the surveillance of things, only really becomes important if we are to appreciate the impacts they may have upon the human and indeed the human associations with these things. Certainly, it seems as though the surveillance of non-humans, in the examples I have explored, are used precisely because of the difficulties posed by monitoring the human. Many of us do not wish to have a bar-code printed on us, or to be radio tagged. Therefore, non-humans are

monitored instead of humans. In-turn non-human monitoring may also be used as indicators of human activity – as evidence. It is far easier to trace illegal weapons and explosives than to read the minds of passengers to test for the intent of their actions. In other cases, particularly remote monitoring, the material effects of human activity are easily seen by satellite photography. Illegal logging may therefore become recognised on vast areas of the Amazon by its initial impacts, as opposed to the individual actions and movements of a person.

Of course, the network metaphor may not always fit. At airports, the relationship of passenger and baggage only really resembles a traditional network when passengers' are in contact with their luggage – when their relationship is static. More fluidic metaphors can be invoked to better describe the often shifting relationships of passenger to bag – a 'mutable mobile'. Furthermore, Law and Mol's (2001) article suggests that the metaphor of fire is useful to describe the often-flickering presence of actors within a network. This metaphor can be seen in the instance of a passenger not boarding a flight and leaving their baggage behind. As discussed, baggage reconciliation ensures that this separation is not complete given the linkage created between passenger and bag. If a passenger fails to get on their flight, their 'absent presence' flickers into significance to ensure the removal of their luggage from the plane.

At the same time, do we also limit our examination to humans, objects and things? Activists may argue that the surveillance of animals should be questioned. At airports in particular, animals are routinely transported illegally. But animals are in-fact still key to the surveillance and security operations at the airport. Animals are not only a subject of surveillance but are part of the surveillance system itself. Sniffer dogs or K9 teams can be trained as vapour detectors to monitor illegal goods such as narcotics, and explosive devices (Clutterbuck, 1994). These practices are not simply completed by people or animals but succeed because of their mutual relationship (Saunders, 1999; see also Haraway, 1991; Wolch, 2002). Questioning these relationships is long overdue in our fixation upon the high-tech. We must ask how do these interactions take place? What implications do they have?

However, this is not to suggest that ANT is a magic recipe for success. There are obviously many shortcomings illustrated by critiques that query the pretension to inclusion – the universal enfranchisement of ANT (Lee and Brown, 1994), its traditional ignorance of spatiality (Hetherington and Law, 2000) and indeed the shortcomings of the network metaphor as illustrated above. That said we should not shy away from the many positives. Examining the networks of the subjects of surveillance sheds light upon the relationality of humans and things. An exploration of these networks exposes how an amalgamation of people and things may become illegitimate, worthy of surveillance. For example, a terrorist 'agency' or threat can be understood as the achievement of a person carrying scissors on a plane. Examining surveillance through this lens may reveal much about the very workings of surveillance systems, the norms and assumptions that frame them, and the implications for those they monitor. The control of the airport is in my view, a suitable starting point for such a discussion.

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