

Chapter 14

The Role of Geosurveillance and Security in the Politics of Fear

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Abstract This chapter examines the role of geographic information technologies (GIT) in the production of the politics of fear. While technologies such as mapping and GIS appear to offer a fix or solution to problems of terrorism, crime, or disaster, they can contribute to the use of fear for political exploitation. What sustains this politics of fear? This chapter suggests that if GIT continue to produce knowledge of populations in terms of risk, then a politics of fear can be exploited to justify mass geosurveillance. In this light, two case studies are examined; nineteenth century mapping and contemporary crime mapping.

Keywords Biopower, cartography, critical cartography, critical GIS, Foucault, geosurveillance, GIS, governmentality, normalization, politics of fear, rationalities of technology, risk, security

14.1 The Politics of Fear

This chapter examines the role of geographic information technologies (GIT) in the production of the politics of fear. While technologies such as mapping and GIS appear to offer a fix or solution to problems of terrorism, crime, or disaster, they can contribute to the use of fear for political exploitation. In examining what it is that sustains this politics of fear, I highlight the political rationalities of technology. My argument is that GIT can be used to produce knowledge of human populations in terms of risk, and that in doing so, fear of these risks can be exploited to justify deployment of mass geosurveillance and data mining. I discuss the weaknesses of using risk analysis in GIT in two case studies: nineteenth century mapping and contemporary crime mapping. It is through an examination of the 'grounds' of the production of fear that we may hope to mitigate it (Sparke 2007).

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One of the dominant narratives that followed September 11, 2001 was that fear had now breached the sanctity of the American geographical homeland. The Fire Chief of the Livermore/Pleasanton Fire Department expressed it this way on the 'Homeland Security' CD-ROM distributed by ESRI shortly after 9/11:

I think now that everyone's reminded that anytime, anywhere, a significant catastrophic event can occur. An industrial accident, internal sabotage, external terrorism, a bad weather that has not come in a hundred years, and that our citizens expect everybody to be prepared for that (ESRI 2002).

This narrative, in other words, portrays pre-9/11 America as complacent, perhaps born of the peace dividend and the cold war victory over Communism. 9/11 served as a fearful wake-up call when 'everything changed.' The geopolitical argument made by the political elites following 9/11 was framed around the need to return to a binary viewpoint constructed from 'friends' and 'enemies' (compare, for example, the geopolitical rhetoric of the terms 'axis of evil' used by President Bush in his 2002 State of the Union address, and 'outposts of tyranny' used by Secretary of State Condoleezza Rice in 2005).

Yet fear is a political idea with a considerable history (Robin 2004). As Robin argues, the narrative of fear can be traced from Michel de Montaigne (who declared 'the thing I fear most is fear') through the work of Hannah Arendt and the McCarthy era (Robin 2004: 3). The attacks of 9/11 were used to renew the political narrative of fear. As Agamben (2005) shows in his history of the suspension of law (what he calls the 'state of exception') 9/11 can be seen as only one among many such suspensions dating back to the French revolution. The passage of the USA PATRIOT Act in October 2001 was motivated by a desire to restore many of the powers of a sovereign who operates under the state of exception:

[President] Bush is attempting to produce a situation in which the emergency becomes the rule, and the very distinction between peace and war (and between foreign and civil war) becomes impossible (Agamben 2005: 22).

Moreover, fears can be fed or killed (Lawson 2007). Political fears can be used to motivate acceptance of a series of responses (including the state of exception) that would seemingly quench fears but which actually feed and enlarge them (Siegel 2005). One way fear can be politically exploited in this manner is to frame a choice between more security or being at risk. Most rational people will opt for the perceived security (and the forms of surveillance it necessitates) rather than the risks. Since the security is onerous, however, and therefore potentially subject to rejection by the population, more fear must be generated in order to justify it. Yet while fear becomes more pervasive throughout this country, statistically we have never been safer. We live longer, healthier lives (some 60 percent longer in 2000 than 1900), have better access to clean water and food, and enjoy safer workplaces (Siegel 2005). There is an increasing mismatch between perceived danger and actual risk. Siegel cites the fact that between 1990 and 1998 'the murder rates decreased by 20 percent, while murder stories on media newscasts increased by 600 percent (not even counting O.J. Simpson)' (Siegel 2005: 56–57).

That our fears are constructed can be easily shown by the fact that we have a poor idea of the difference between real and potential risk. We worry about avian flu (AH5N1) which according to the World Health Organization (WHO) killed 80 people in 2006—most of them elderly and in countries with overburdened health care systems—and ignore human influenza, which in the US alone kills 35,000–40,000 people every year. Researchers call this the ‘dread risk’ effect, where we over-respond to a high profile but low threat risk (Gigerenzer 2004). Following 9/11 for example, many people avoided flying and drove instead. Given that driving is much less safe than flying, this resulted in an estimated 1,500 additional deaths in the year following 9/11 (Gigerenzer 2006). More generally, as the well-known work of Tversky and Kahneman has shown, human decision-making is impaired by anchoring (unshakeable focus on marginal data), the base rate fallacy (ignoring the fact that many events are improbable), and framing (over-attention to a framing narrative) during judgments under uncertainty (Tversky and Kahneman 1974). Politically this means that people respond to fear by accepting the response of security (as if those are the only two options), and perhaps even ‘hawkish’ over ‘dovish’ behavior (Kahneman and Renshon 2007). In other words, a risk-based approach is unlikely to assist in distinguishing between realistic and unrealistic fears.

In their examination of responses following 9/11, Gregory and Pred (2007) identify two that especially serve to give fear its performative opening: on the one hand ‘those who enlisted the rhetoric of the ‘war on terror’ as a means of legitimizing and intensifying their own apparatus of repression’ and on the other:

those who proposed a purely technical or instrumental response to 9/11, drawing on political technologies (that were also geographical technologies) to profile, predict, and manage the threat of terrorism as an enduring mode of late-modern government (Gregory and Pred 2007: 1).

In this chapter I examine these geographical information technologies—mapping and GIS—in more detail, and discuss their assumptions and consequences.

14.2 The Geographical Imagination and 9/11

Discussions of al-Qaeda, Abu Ghraib, warrantless wiretaps, torture memos, Baghdad and terrorism all have something in common: they are based on knowledge. Much of this knowledge is geographic, not just in the traditional sense of where things are and where things go, but in the sense of how identity is formed. This emphasis on knowledge, which for many is associated with writers such as Foucault and his formulation of ‘power-knowledge,’ is nevertheless a standard trope of science. In their recent book on geographical methodologies for example, Montello and Sutton define the scientific method as ‘the creation and evaluation of knowledge’ (Montello and Sutton 2006: 3). The particular categories of knowledge that are created through and by GIS and mapping are the subject matter of ‘critical GIS’ and ‘critical cartography’ (for recent progress reports see O’Sullivan 2006;

Perkins 2004). These modes of inquiry have come rather late to the geographical enterprise and seek to negotiate the tricky terrain between critical geography and geospatial technologies, and perhaps because they do so remain a 'distinctly minority pursuit' in the words of O'Sullivan (2006: 783). Yet the events of 9/11 were replete with the production of GIS and cartographic knowledge and the subsequent geographical imaginary, that then played an important role in crafting the 'response' so adamantly opposed by Gregory and Pred.

Following 9/11, one GIS company (ESRI) offered a series of seminars around the country on how GIS could assist in emergency prevention and response, published white papers, produced a CD-ROM on security, and established a website for GIS and security. The company also awarded \$2.3 million in 'Homeland Security Grants' to cities and agencies across the USA.¹ The Association of American Geographers (AAG) meanwhile launched a workshop funded by the National Sciences Foundation (NSF) on 'geographical dimensions to terrorism' and established a list of priority action and research items. Mapping and GIS are key components of this effort. The first priority action item listed is to '[e]stablish a distributed national geospatial infrastructure as a foundation for homeland security' (Cutter et al. 2002: 2), which would include geospatial databases and GIS analysis. This effort is based on the DHS 'Information Analysis and Infrastructure Protection' (IAIP) Directorate's budget request for 'development and maintenance of a *complete and accurate mapping* of the Nation's critical infrastructure and key assets' (US Government Office of the President 2003: 472 emphasis added). The IAIP Directorate is charged with:

Analyzing law enforcement, intelligence, and other information to evaluate terrorist threats to the homeland; Assessing the vulnerabilities of key US resources and critical infrastructures; Mapping threat information against our current vulnerabilities; and, Working with federal, state, local, and private stakeholders to issue timely warnings and take or effect appropriate preventive and protective action (US Government Office of the President 2003: 471).

The Association of American Geographers also moved quickly to show the relevance of geography in combating terrorism, but unfortunately the scope and assumptions of the outcome, a NSF-funded book (Cutter et al. 2003), lead many to regret it, rather than celebrate it. Writing in the American Geographical Society's *Geographical Review*, one Middle East expert concluded that:

They failed to remember that conflict and terrorism are the result of human agency and not conducive to modeling the way natural hazards such as El Nino may be. The volume failed to offer any understanding of the societal context that has produced many of today's Middle-East terrorist groups; the terms 'Islam' and 'Middle East' do not even appear in the volume's index (Stewart 2005: iv).

The book also received a lukewarm response in the AAG's own flagship journal (see e.g. de Blij 2004; Johnston 2004). These reactions were born out of a frustration with the 'geographical imagination' failing to engage the full context of terrorism

¹ See <http://www.esri.com/industries/homelandsecurity>

as a political problem, but approached it as one of hazards and risks, and because it situated technology as ‘non-political’ rather than treating geospatial technology as part of the political decision-making process. By contrast, disciplinary responses from organizations such as the American Sociological Association (ASA) emphasized ‘religious and cultural perspectives’ on terrorism, passed a resolution calling for open access to data sets that were being removed (such as GIS data) in 2002, and in spring 2003 voted on a resolution concerning the US invasion of Iraq (Rosich 2005). During 2006 when the Bush administration threatened to defund part of the Census Bureau’s collection of income and poverty data, dozens of national organizations organized to resist the cut, but not the AAG (Center for Economic and Policy Research 2006). This narrow focus on technology coupled with a consistent political hands-off approach only serves to make the geographical imagination less powerful in the 21st century.

14.3 The ‘Risk’ of Risk

What happens when a narrative of risk is established? I argue that it gives rise to negative unintended consequences. These consequences include profiling (which in turn depends on racism, stereotyping, and normalization), geosurveillance, and the use of fear as a tactic of governance. These consequences apply as much to the putative ‘enemy’ or threat-source as they do to those in the homeland (for example, through the constant and increasing penetration of the lives of millions of Americans by surveillant technologies such as warrantless wiretaps). Yet risk assessment is a key component of GIS-supported efforts to improve homeland security.

There are several components of risk that are worth noting in this context. Some are statistical and involve the problem of false positives and base rates. Even seemingly very accurate tests can yield far more false positives than true hits, especially if the base rate is low. This is especially a problem if data-mining surveillance is pursued (such as the wide-scale warrantless wiretaps carried out by the USA). The mathematician John Allen Paulos describes the weakness of this surveillance with an example of a profiling test that is 99 percent accurate in the following sense: the profile will correctly detect terrorists 99 percent of the time, and correctly detect non-terrorists 99 percent of the time. Assume a base rate of 1 in a million people in America is a terrorist (about 300 people). The profile will find 297 of the terrorists (99 percent). But it will also find that 1 percent of the rest ‘fit the profile,’ or in other words *some 3 million false positives* (Paulos 1996, 2006a). Since it will not be known which of the positive hits are false and which true, all the positive hits will have to be investigated and surveilled. That is the logic that supports mass surveillance. For the same reason many doctors do not advocate inappropriate screening (for example, breast cancer screening): it will indicate many false positives and cause unnecessary worry and distress.

A related issue concerns the work on human perception of risk discussed above. How well do we correctly assess risk? In the aftermath of 9/11, Vice-President Dick

Cheney developed his 'one percent doctrine' namely that if there is 'just a one percent chance of the unimaginable coming due, act as if it is a certainty' (Suskind 2006: 62). This is exactly the low-probability, high-impact event known as the dread risk; a risk we tend to wildly exaggerate. If the one percent doctrine were shared by doctors, gamblers, or scientists it could have disastrous consequences. In international relations it would lead to a huge number of threats being misconstrued (Paulos 2006b). In scientific work it is typical to demand probabilities not of one percent, but rather of at least 95 percent. Even the latter means we will be wrong in one out of 20 cases.

A third issue arises surrounding normalization. To assess risk it is necessary to know what comprises a normal state of affairs and when that state of affairs has been deviated from. This might seem unobjectionable, but as more than one writer has discussed, the establishment of norms can have debilitating effects on those who are outside of those norms. As the history of racism, homosexuality, immigrant groups, and the 'feeble-minded' demonstrates, the 'abnormals' are subjected to exclusion, mistreatment, peer pressure, and medical experimentation. During the nineteenth century a whole array of techniques were formalized to assist in the establishment of norms, including probability theory and the normal distribution curve. Many forms of mapping were also invented to establish what was normal across the geography of the nation. These new techniques were used to create profiles of groups. Then, if you belonged to the group, it was inferred that you fit the profile. Analysis was at the level of the group. This was easier than tracking people individually (thematic maps, for example, tend to show distributions of populations not individuals).

So approaching terrorism through a framework of risk and threat has the following negative unintended consequences: it centers risk (which we misperceive and exaggerate); it produces massive numbers of false positives; it normalizes (and abnormalizes) through profiles; and it requires ubiquitous surveillance to collect data on the normal and abnormal. When you live by fear, everything is a risk.

We need to understand how mapping and other sources of geographical knowledge act to produce this politics of fear. The answer is not to cease using GIS and mapping technologies (or only to use the 'good ones'), but rather to be careful and critical about the knowledge that is constructed with them and the subsequent political rationalities that are supported by them. This claim might seem unobjectionable, but in fact, it is often ignored. For example, in a major report in 2006 the National Research Council of the National Academies investigated the implications of new technologies in GISci, and wrote that 'as is true of any technology' GIS is 'neutral in and of itself' (Committee on Beyond Mapping 2006: 47). Such a viewpoint traduces two decades of work in critical GIS and cartography. Surely, it is not the neutrality of technology but the very filigrees of interrelationships between technology, power-knowledge, and society—their geographically-situated and inherently political nature—that makes them so interesting and vital (Livingstone 2003). We cannot understand how technologies work nor assess the rationalities they operate under if the context of their political deployment is not examined. In this light the recent paper by Klinkenberg (2007) is crucial, for he acknowledges

that GIT are always caught in the interplay of political applications, and it is by gaining insight into these applications that we may promote hope rather than fear. In pursuit of this goal, he predicts that ‘in the future...[f]orming an integral part of a multiple-methods approach to research, [GIT] will be situated within a broader, socially-aware context’ (Klinkenberg 2007: 356). I extend Klinkenberg’s analysis here by identifying risk analysis as being especially susceptible to the political production of fear.

14.4 Maps as Government: Biopower

Today’s renewed emphasis on security and surveillance is part of a longstanding series of historical linkages between government, knowledge, and technologies of power. These historical linkages were forged during the rise of modern industrial societies in the eighteenth century. Politics depends on the sorts of geographic knowledge that are deployed, yet at the same time provides a crucial context for some knowledge to prevail over others. Maps are a form of government.

The study of how people govern themselves and others is known as ‘governmentality’ (Foucault 1991) and it has proven to be a fruitful area of study in a range of disciplines including geography (Elden 2007). More specifically it is the study of the relations between power and knowledge and the rationalities (ways of thinking) that permeate them. Foucault’s analysis of government was concerned with how individuals and populations were divided and grouped according to norms. When this occurred with groups or populations, he called it ‘biopower’ (Foucault 1978). There are specific data gathering exercises to produce knowledge of populations—the census, thematic mapping, statistics to measure and record birth and death rates, crime, disease, and so on. The target of biopower is the distribution of the population over its territory. Although Foucault looked at particular practices in their time and place, he understood them as constitutive of larger ways of thinking, or rationalities. These rationalities come into being and reach dominance at certain moments. But they can change—or be changed. The more we know about them the more we can resist them.

In order to understand how governmentality arose we can examine discipline and biopower in the context of historical changes in juridicality and criminality. Prior to the legal reforms of the 18th and early 19th centuries, as Foucault argued, the law focused on the nature of the crime committed, the evidence of guilt or innocence, and the system of penalties to be applied. In other words: crime and punishment. The person of the criminal was important and would be scrutinized only insofar as he or she was the individual to which the crime would be attributed. With the reforms, this hierarchy was reversed, the crime was merely an indicator of something more significant—the ‘dangerous individual’ (Foucault 1977: 252). The law was now interested in the potential danger of the individual: ‘The idea of *dangerousness* meant that the individual must be considered by society at the level of his potentialities, and not at the level of his actions; not at the level of the actual

violations of an actual law, but *at the level of the behavioral potentialities they represented* (Foucault 2000b: 57 original emphasis). In terms of surveillance then, the switch that has been effected is one that shifts scrutiny from the accused individual to the potentially dangerous or risky population group (which has, nevertheless, not committed any criminal acts). Surveillance moves from the actual suspect to a sort of mass ‘pre-criminal’. Punitive responses thus had to be appropriately tailored to *perceived* threat measured in terms of risk (e.g. a ‘risk surface’ in GIS). While risk analysis is typical in environmental or natural systems using techniques such as kriging and kernel density estimation modeling (Schröder 2006), its application to society is much more recent.

We can use Foucault’s historical method to study how mapping and GIS are used in contemporary surveillance and security. In particular, a parallel from early 19th century cartography is informative because it casts light on the 21st century politics of fear. How so? First, security and risk were used to think of space and people as resources that required management and protection. Second, space and individuals were understood through a normalizing surveillance. Surveillance (including ‘geosurveillance’ specifically concerned with locations and distributions across spatial territories) was therefore an important technology of government tied to discourses of resource management and normalization. We can conclude from this historical comparison that it is not technologies of surveillance—mapping or GIS per se—that are problematic, but rather the *underlying political rationality of normalization* which constituted people and the environment as threatened resources under risk of hazard. This political rationality is the context in which we can understand technologies of surveillance.

14.5 Maps as Government: Moral Statistics in Early 19th Century Europe

In early 19th century Europe a completely new form of mapping was devised—thematic or statistical mapping. Thematic maps were invented precisely when population management and counting became problematic; and they are critical to censuses, census mapping, and distributions of populations across territories.

In 1829, fear over the threat of crime had reached such heights that when a map was published in France that showed no relationship between crime rates and education levels there was a huge outcry. Education was commonly thought to be an effective preventative measure against crime. Areas with higher educational levels would have lower crime rates. Crime was an activity of the uneducated lower classes; they had a ‘penchant au crime’ (Robinson 1982: 161). However, the 1829 maps, which employed the latest techniques of ‘comparative statistics,’ showed the precise opposite—areas with high education levels had high crime levels. As one commentator described it:

Such a conclusion was sensational. Paris saw itself as being in the grip of a terrible crime wave. Ask a New Yorker of today [i.e. 1990] about muggings, then double the fear: that was how Parisians felt. The [illustrated] police gazettes, rich in reports of crimes, were

taken in weekly ... naturally one supposed that the degeneracy and ignorance of the working classes was the source of their criminal propensity (Hacking 1990: 78).

If education was not the cause of crime, then what was? The startling possibility arose that crime could occur anywhere. These crime maps were published by the Italian and French statisticians Adriano Balbi and André Michel Guerry, who had deep interest in 'moral statistics' or social problems (e.g., crime, education, birth rates, suicide). The maps were remarkable for another reason too; they were one of the first examples of the choropleth technique which had been invented by Charles Dupin just three years earlier (Robinson 1982). Dupin's choropleth maps were exceptionally popular methods for revealing the moral statistics of his day, and they were extensively emulated. After Balbi and Guerry (who was awarded a special prize in 1864 by the Academy of Sciences for his work) came D'Angeville with health and wealth choropleths in 1836, Charles Joseph Minard, who popularized proportional symbol maps in the mid-19th century, and many others. So once social problems could be grasped in their distribution across territories, policies could be implemented to address them.

Policies are needed to govern and regulate (the word shares the same origin as 'politics' and 'police'). Gordon (2000) argued that the 17th century developed 'a program of exhaustive, detailed knowledge and regularization' (p. xxvii) that assessed threat or 'dangerousness' of individuals, and produced technologies that would help maintain social order through surveillance (Foucault 2000a).

Maps have long been associated with this effort because they provide a picture of where things are so that there can be a 'right disposition' of resources and people over the territory (Foucault 1991: 93). This idea of a rightful distribution is important because it requires comparison to some norm. Territorial mapping has occurred for thousands of years to assist in inventories and taxation, and it is perhaps surprising that it was only in the early 19th century that thematic maps were invented. Why were they not deployed previously? In fact, it turns out that thematic or statistical maps were part of a more general effort to govern by means of statistical analysis. It was only with the development of descriptive and probabilistic statistics, and the formulation of society in terms of likelihoods and norms, that thematic maps could emerge. Thematic statistical maps appeared at precisely the same moment that society came to understand itself in statistical terms for purposes of regulation (policing in the larger sense) and management. A few examples will illustrate how this occurred.

In the 1820s the Belgian statistician Adolphe Quetelet derived the new analytics of probability theory and the normal distribution curve. These advances were keyed to societal problems that were thought to be amenable to governmental intervention. Quetelet was concerned about the social upheavals in Europe during the 1830s and centered his analysis of social variation around *l'homme moyen*, or the average man (his needs and typical actions and the nature of error or deviation away from this norm). Total human variation could thus be justifiably reduced to divergence around a norm. If these norms could be properly and reliably determined, then this would be extremely useful in dealing with the 'great masses of registered facts' about populations as Sir John Herschel put it in 1857 (quoted in Atkins and Jarrett 1979).

The positivist conception of science that emerged at the end of the seventeenth century gave epistemological primacy to observable data that was value free, a primacy that is underpinned by statistics. As Atkins and Jarrett show, statistical inference and significance tests on samples also permitted populations to be compared and known (how much they vary around a mean, for example, in their susceptibility to infant mortality). In sum, the newly emerging positive sciences were founded around the governmental concerns of knowledge, statistics, and population.

During the nineteenth century great strides were made in the sciences of statistics, probability, and statistical mapping. These did not occur in isolation from one another, nor more interestingly, from the question of politics—indeed, they were stimulated and put into the service of ‘political’ problems. Thematic mapping was part and parcel of this political problematic. Godlewska, for example, documents Alexander von Humboldt’s recognition in 1811 that ‘natural geography, by virtue of its ability to convey natural history’s data to number and statistic, could substantially contribute to forming an exact idea of the territorial wealth of a state’ (Godlewska 1999: 247). The ability to identify one’s resources and thus to exploit them was necessary for the secure governing of the state.

Perhaps the most visible and influential practice of using statistics to help govern the state occurs during the great decennial censuses of many European countries (from 1790 in the United States). Although in Europe these censuses were depicted in maps in the early 19th century, in the USA it was not until the ninth census in 1870 that results were shown cartographically. These maps appeared in 1874 in America’s first statistical atlas (Hannah 2000; Walker 1874).

Hannah’s excellent analysis of the 1870 census atlas using Foucault’s work on governmentality sheds considerable light on the spatial politics of knowledge at this time. The atlas had a tremendous impact on cartographic representations of space in the following decades. In particular, it introduced thematic mapping to the United States in a concerted manner (although several maps from the 1860 census had appeared, see Schwartz and Ehrenberg 2001, plate 177). Maps from the census were first presented at the American Geographical Society (AGS) in 1871, where, according to J.B. Jackson, they received so much attention that the Secretary of the Interior ‘was persuaded to authorize a special atlas... Walker was the first American to try to show the spatial dimension of social and economic facts, to relate social problems to their physical setting and thereby throw new light on them’ (Jackson 1972: 15). As stated in its Foreword, the atlas was designed to promote political education, and many of its 5,000 copies were sent to schools and colleges (Jackson 1972: 14). The 1874 atlas gave a framework for how to think about space and human occupation and led to the more sophisticated 1883 Scribner’s Statistical Atlas of the United States by Fletcher W. Hewes and Henry Gannett (based on the tenth census) as well as Paullin’s mighty 1932 *Atlas of the Historical Geography of the United States*.²

²The influence of the 1870 census atlas is evident in Paullin’s population maps. See especially his Plates 67B–70B on the ‘Colored Population’ and Plates 71–76A on the ‘Foreign–Born Population’ (Hannah 2000: 152–153) and it is directly acknowledged on p. 48 (Paullin 1932).

The atlas was a profound statement about the relationship between politics and space, and the necessary relationship between the two. It is an exemplary document that illustrates the development of strategies of spatial surveillance for purposes of government. The contemporary role of GIS in geosurveillance and security is situated in the same age-old practice of governmental surveillance established by the first atlases.

14.6 Geosurveillance: A Contemporary Discussion

If we grant that the modern state is predicated on the establishment of norms of dangerousness, these norms need a set of experts to administer them. These experts in turn require tools. In this section, I would like to examine this idea in the context of contemporary examples and draw a parallel between governmental blanket surveillance programs and GIS crime mapping.

The crime map is an important means of constructing knowledge about the city and its inhabitants and for implementing policies to manage a crime situation. Much of this analysis is predictive or preventative in nature and draws on population-level surveillance and data collection. The origin of crime maps are closely tied to the rise of social statistics such as the FBI Uniform Crime Report or UCR (collected since the 1930s), but also local police reports, victim reports, and corporate loss reports. These maps help to construct a discourse of risk that must be surveilled as a potential danger.

One way in which this production of risk assessment works for crime mapping is through ‘geoprofiling.’ Geoprofiling is a disciplinary technique for determining the typical spatial patterns of an individual with the goal of predicting that person’s behavior or targeting them for surveillance. With geoprofiling maps can easily be made of crime hotspots and coldspots. The theory of geoprofiling was developed by Kim Rossmo in 1995 and has since been implemented in a software system called *Rigel* that can make a predictive surface of a criminal’s location (Rossmo 2000). Rossmo claims that with five to six incidents traceable to one person, his software can reduce the search area by up to 90 percent.

Crime maps enable geoprofiling to isolate behavior that does not conform to the norm. But profiling can be controversial. After a series of high profile incidents on the New Jersey turnpike in which African American drivers were disproportionately stopped by the highway patrol, it was charged that the police were stopping blacks because of who they were, not because of their actual behavior (Colb 2001). That is, criminality judgments were made on the basis of *potential dangerousness*, rather than actual offenses being committed (i.e. the searches were made without probable cause). In a similar case, the FBI has begun constructing geodemographic profiles of localities that includes a count of the number of mosques in an area (Isikoff 2003). As these examples show, crime is understood as a departure from the normative.

As an example of crime-related geosurveillance technologies, consider offender monitoring. A common technology is an ankle bracelet or tag which emits an RF

radio signal that can be detected by a device in the home linked to the phone system. A more advanced approach is to use GPS. It, too, is often based on an anklet worn by the offender which can receive GPS signals and transmit its location (through the cell phone system) to the company's monitoring center. In Iowa, for example, the police have required some offenders to wear a device from a company called iSecureTrac which provides GPS offender monitoring services. This monitoring is geographically flexible: '[e]ach map is tailored for a specific parolee. A map can show, for instance, areas where a paroled pedophile must remain clear of—such as a school—when going to and from an offsite counseling session' (Chabrow 2002). Other devices include home breathalyzers and ignition interlocks for felony DUI offenders, and continuous signaling devices. However, electronic supervision is expensive, and the company reported increasing losses in 2007 (Larson 2007).

Graham (1998) discussed implications of regulating space by what he calls 'surveillant simulation' (Bloomfield 2001) which acts in this disciplinary manner. Graham highlighted four cases of surveillance: as social control especially of criminality; in and around consumption; differential deployment over space (transport informatics); and the utility industry.

Perhaps the most serious question here however is how the narrative of fear and hope has been cast as a choice between surveillance of threatening (i.e. risky) behavior and security. In other words, why it is that the public is generally happy to accept mass surveillant measures. A range of examples illustrate this point more concretely.

On an everyday level there are the no doubt minor irritations with airport security which most people accept. Yet from time to time there are hints that the scope of these measures is wider and deeper than most people realize, as in the case of the US Automated Targeting System (ATS) which ranks every traveler:

The scores are assigned to people entering and leaving the United States after computers assess their travel records, including where they are from, how they paid for tickets, their motor vehicle records, past one-way travel, seating preference and what kind of meal they ordered (Associated Press 2006).

The report continues that 'travelers are not allowed to see or directly challenge the risk assessments, which the government plans to hold for 40 years.' This surveillance is obviously extensive, but Americans are more than willing to permit this list (and the 'no-fly' list) because of the presumed security benefits it brings.

A CBS investigation in fall 2006 however indicated a number of relevant issues with the no-fly list. First is its burgeoning nature. According to CBS, on September 11, 2001 the list had 16 names on it; by December 2002 it had over 1,000; and by March 2006 it had over 44,000, plus another 75,000 people on a list for additional security screening (CBS 2006). Second is its inaccuracies and potential for false positives. CBS for example discovered that 14 of the 19 deceased terrorists from 9/11 were still on the list in 2006. The media has also reported on a number of other false positives (such as denying entry to the singer Cat Stevens who now goes by the name Yusuf Islam), but since the list is secret its accuracy cannot be reliably

assessed. Finally, whatever its error rate, the list is symptomatic of modern surveillance and risk analysis, in that it is based on collecting data about *everyone* and assessing them against a risk profile. Thus an entire country's population—innocent and guilty—is surveilled in order to determine which individuals are risky.

Polls taken after 9/11 showed an almost universal fear of further attacks. A CBS/New York Times poll in October 2001 found that 85 percent of Americans feared a further terrorist attack 'in the next few months'. In September 2007, that number stood at 48 percent, its lowest since 9/11 but still historically high. Additionally, some 90 percent of Americans believe there are members of Al Qaeda in the United States today, according to a poll by Fox News/Opinion Dynamics in September 2007. Polls consistently indicate that the public is willing to submit to surveillant technologies when these are linked to fighting terrorism. For example, a *Newsweek* poll in July 2007 asked if the FBI should wiretap mosques to 'keep an eye out for radical preaching by Muslim clerics'. Over half the respondents (52 percent) agreed. Another poll by the Pew Research Center for the People and the Press in December–January 2006–7 revealed that 40 percent of respondents thought it necessary to give up civil liberties 'in order to curb terrorism.' The reason for these findings is not hard to discern: most Americans think of themselves as law-abiding and therefore these technologies are not likely to affect them personally.³

This narrative was highlighted in the debate surrounding another surveillant technology in the United States, that of warrantless wiretapping. In December 2005 the *New York Times* reported that shortly after 9/11, the United States had secretly instituted a practice of monitoring phone calls in the US without a court warrant as required by law (Risen and Lichtblau 2005). When asked, polls showed that Americans were more ambivalent about this program. A *USA Today*/Gallup poll in May 2006 for example found that while 54 percent of respondents thought the program violated the law, and 57 percent thought it violated their personal privacy, 43 percent still approved of this program. (The administration confirmed it was performing the warrantless wiretaps and argued it was a necessary tool. Nevertheless after the 2006 midterm elections it agreed to halt this practice, and the then Attorney General Alberto Gonzales has since resigned. In the summer of 2007, Congress temporarily restored some warrantless surveillance measures, but the future of the program is uncertain.)

Whatever the legality, support, or public policy ramifications of these measures, the point to be emphasized here is that they depend on techniques of mass surveillance and data mining. Operating at the level of the population rather than the accused individual, they take large amounts of surveillance data and sift it for risky behaviors. Therefore citizens are rendered in a 'mappable landscape of expectation' (Hannah 2006) which re-imagines the landscape as a kind of blanket saturated with risk. This 'risk blanket' lies at the heart of many techniques of GIS crime mapping.

The same reasoning applies to the Bush administration's controversial plans for TIPS (Terrorism Information and Prevention System), which was proposed in early

³ Poll numbers are available at pollingreport.com.

2002 but has since been dropped from Homeland Security. In this plan, citizens and workers who often go into residential neighborhoods (e.g. postal workers, cable TV installers, truck drivers) would be recruited to call a government hotline if they saw suspicious activity. The idea was to benefit from as many as a million sources of surveillance in ten pilot cities (these cities were never specified).

We have thus reached an analogous situation to that faced by the citizens of Paris in 1829 when they were presented with the Balbi and Guerry crime maps: we fear crime and threats to our security from everywhere, and it is no surprise that normative governmental rationality gives rise to widespread geosurveillance in order to manage these threats.

14.7 Conclusion

The purpose of this chapter is to show that a technological response to threat is an insufficient one by itself. Risk and hazards research have a long tradition in geography and are amenable to GIS analyses (a search of the ISI database yields nearly 1,000 articles on 'GIS AND risk' and nearly 400 on 'GIS AND hazard'). Prominent disciplinary responses by the AAG, funded by the NSF (Cutter et al. 2002, 2003, 2004) (co-authored by the AAG's Executive Director), foreground just such a technological approach. Readers may also examine this volume and judge whether this observation still holds true.

But I would like to conclude by re-iterating several points. First, although we have been perhaps led to see technology and politics as alternative approaches, they are not. Technology is part of the political decision-making process, not some neutral activity. In particular, the GIS and mapping industry has long-established relationships with intelligence and military agencies (Cloud 2002). In the USA for example, ESRI is a 'strategic partner' alongside the National Geospatial-Intelligence Agency (NGA) and the CIA of the US Geospatial Intelligence Foundation (USGIF) which sponsors the annual GEOINT Symposium. The CEO of ESRI and some contributors to this volume are Board members of the USGIF. In 2006 the Keynote speaker at GEOINT was John Negroponte, then Director of National Intelligence who underlined the 'value of geospatial intelligence to our national security' (Negroponte 2006: 1).

I have especially highlighted how a rationality of security is constructed in which geosurveillance is deployed as a response to dangerousness, and in which the environment and people are constructed as at-risk resources subject to normalization and management. The question is whether or not we choose to acknowledge and engage with the political implications of our technologies.

Second, and for this reason, an attempt to pick out the 'good' from the 'bad' uses of GIS, as we are encouraged to do by the NRC report (Committee on Beyond Mapping 2006), is to miss the point that GIS produces a distinctive political rationality of government. That rationality is one of biopolitics which is addressed to the problem of 'populations' and their rightful disposition across territories (Legg 2005).

Mass surveillance techniques such as warrantless wiretaps and spatial data-mining based on the creation of norms and profiles are today integral to modern society. Again, the question here is whether we contribute to or resist the production and proliferation of geosurveillance and geo-profiling.

False positives are another danger. Even if data collection methods are almost perfect (99.9 percent accurate), when collecting data with billions of entries, there will be many false 'hits.' These all have to be checked, draining manpower and resources.

I have argued that these factors contribute to a politics of fear. In short, there is a risk of foregrounding a technological analysis of risk as a response to what are complex geopolitical events and processes. The risk lies in the negative unintended consequences of profiling, geosurveillance, and the political use of fear. Fear is a complex human emotion, which once activated is hard to deactivate. In the United States these fears have been exploited to justify a startling range of surveillance programs. Yet geographical expertise, including that of the GIS and mapping community, can provide antidotes to this fear in a number of ways. Researchers could examine whether their work can be used to engage in risk and data-mining research that create profiles. Geographers could also do much more to examine the social and theoretical aspects of mapping technologies. In a review of the literature, Schuurman and Kwan found that less than 4 percent of articles appearing in leading GIScience journals make any such reference (Schuurman and Kwan 2004). In this light, the emerging sub-disciplines of critical GIS and critical cartography and assessments of the production of geographical knowledge (Castree 2006) will play important roles.

In addition to critique it is evident that resistance to the politics of fear will include practice. Here a tentative note of optimism is warranted as we see a re-emergence of the role of public geographies, public debate, and public practices such as community GIS (Murphy 2006) that will help educate people and erase the fearful mystery of the 'other'; the rise of non-traditional 'people-powered' political movements in the netroots and blogs (Armstrong and Zúniga 2006), and even access to open-source data and map mashups (Crampton, forthcoming; Miller 2006). Meanwhile non-traditional military geographies are critiquing the CIA's extraordinary rendition (Paglen and Thompson 2006) and the multiple relations between terror and political violence (Gregory and Pred 2007). And federal judges have twice now struck down provisions of the PATRIOT Act as violating constitutional rights (pertaining to national security letters, and probable cause).

If these developments lead to a sense and reality of more control (and thus less surveillance), and less focus on hyped-up and unlikely 'dread risks,' then it may be possible to start making inroads into today's politics of fear. As Klinkenberg recently argued, geographic information technologies are not just a technique but are 'entire new ways of seeing' that weave together the technology, the political, and the social (Klinkenberg 2007: 357). Our responsibility as users of these technologies is therefore also one that should include paying attention to the political and social deployment of these technologies.

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