

# **Precision Targets: GPS and the Militarization of Everyday Life**

Caren Kaplan

University of California at Davis

Erik Loyer

Alliance for Networking Visual Culture

Ezra Clayton Daniels

Dream-Chocolate.com

**ABSTRACT** This article explores the militarization of everyday life through the emergence of a dual-use technology, the Global Positioning System (GPS), in the 1990s and first decade of the twenty-first century. It was launched in April 2010 as a Web-based multimedia piece funded by a Digital Innovation Fellowship from the American Council of Learned Societies. During the fellowship year and for several years afterward, author Caren Kaplan worked with programmer/designer Erik Loyer to produce a piece that would address the multiple social and political valences of GPS in a graphically dramatic but academically substantial manner. Ezra Clayton Daniels provided the artwork that illustrates Erik Loyer's innovative digital "cube" design. Loyer and Kaplan developed the six storylines for the piece, and Kaplan wrote the text (see [www.precisiontargets.com](http://www.precisiontargets.com)).

**KEYWORDS** Border control; GPS navigation; Global Positioning System; Military technology; Surveillance; Technocorrections

**RÉSUMÉ** Cet article explore la militarisation de la vie quotidienne entraînée par l'émergence dans la période 1990-2010 d'une technologie à double usage, le Système de localisation mondiale (GPS). En avril 2010 a eu lieu le lancement en ligne d'une pièce multimédia subventionnée par un « Digital Innovation Fellowship » (Bourse d'innovation numérique) provenant de l'American Council of Learned Societies (Conseil américain des sociétés savantes). Pendant l'année de la bourse et plusieurs années ultérieures, l'auteure Caren Kaplan a collaboré avec le programmeur/concepteur Erik Loyer à la réalisation d'une pièce traitant des multiples variables sociales et politiques du GPS d'une manière académique tout en comportant des représentations graphiques dramatiques. Ezra Clayton Daniels a créé l'art qui illustre le cube numérique innovateur conçu par Erik Loyer. D'autre part, Loyer et Kaplan ont développé les six intrigues pour la pièce et Kaplan a rédigé le texte ([www.precisiontargets.com](http://www.precisiontargets.com)).

**MOTS CLÉS** Médias logistiques; Radar; Histoire; École de Toronto; Cybernétique

**Caren Kaplan** is Professor of American Studies at University of California at Davis, One Shields Avenue, Davis, CA 95616. Email: [cjkaplan@ucdavis.edu](mailto:cjkaplan@ucdavis.edu). **Erik Loyer** is an interactive media designer and Creative Director of the Alliance for Networking Visual Culture. Email: [erik@erikloyer.com](mailto:erik@erikloyer.com). **Ezra Clayton Daniels** is a graphic novelist and designer based in Chicago, IL. Email: [ezra@dream-chocolate.com](mailto:ezra@dream-chocolate.com).

Figure 1: Opening sequence: Precision targets

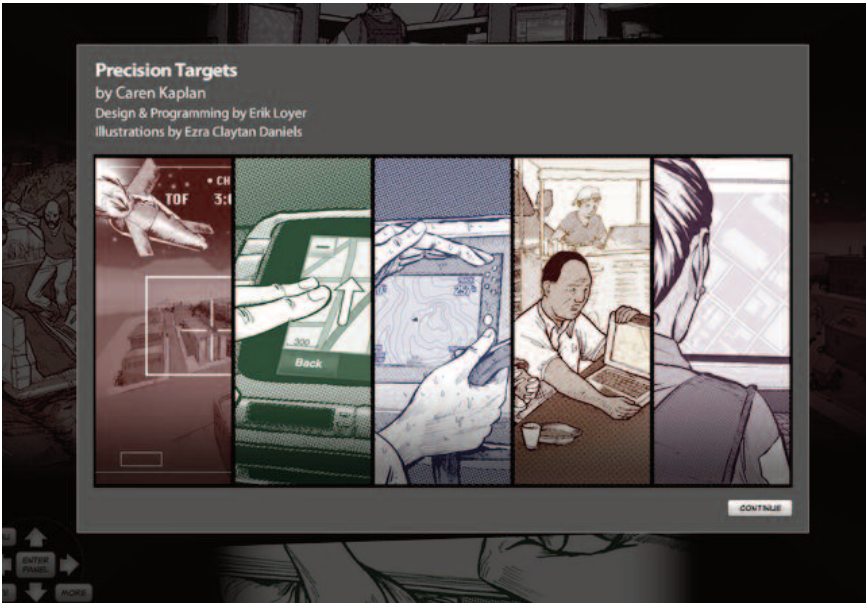


Figure 2: The rise of air power as a military strategy...



## Story 1: Precision targets

### *“Launch”*

The rise of air power as a military strategy is linked to the belief that precision bombing would be a more humane practice than the massive military and civilian casualties of World War I. Throughout World War II and after, the U.S. endorsed a doctrine of precision aerial bombardment.

### *Air power*

Conducting war from the air suggests a cleaner, more precise, even rational approach to delivering weapons to a target (see Figures 1 and 2). The view from above is believed to be all-encompassing, total, and therefore, empirically accurate and verifiable. Death and destruction delivered from the air is the foundation of the concept of “shock and awe” with the purpose to intimidate and destroy enemy civilian and military morale as well as conventional “hard” targets. Air power is defensive as well as offensive—it lies at the heart of “national security”—but in popular imagination it is the thundering takeoff of Air Force jets and the spectacular explosions generated when they drop their bombs that come to signify the power of war from the air.

Air power is, in the military itself, little short of a religion of force, impermeable to reason, to history, to examples of what it does (and what it is incapable of doing). It is in our interest not to see air war as a—possibly the—modern form of barbarism. (Engelhardt, 2008)

### *“Flight”*

Regardless of years of evidence to the contrary, the impression prevails that U.S. precision bombing is far superior to its obverse strategy of tactical or saturation bombing, which aims for wide-scale devastation and terror.

### *HOW PRECISE?*

How precise is “precision bombing”? Is the moral high ground offered by the rationale of precision bombing supported by evidence from bombing campaigns?

The first Persian Gulf War promoted the mythology of precision bombing utilizing the new technology of GPS, yet most of the bombs dropped in Iraq during that conflict were regular “gravity” or “dumb” bombs without laser or satellite guidance. Those bombs missed their targets between 50 and 70% of the time according to diverse sources. The so-called smart bombs, which were enhanced by laser or satellite guidance systems, were also, in fact, highly imprecise. Yet the mainstream media showed U.S. military footage of bombs hitting their targets in spectacular displays of accuracy that produced a powerful mythology of precision that can be drawn upon in advertisements for GPS to this day.

The safety and security promised by navigation systems that utilize GPS is often compromised by faulty data, weather, or any number of other factors. GPS, as practised in “real life,” cannot deliver precision perfection, yet this quality continues to be promised and highly desired by consumers.

### *"Impact"*

How precision came to dominate discourses of military strategy from World War I to Vietnam and beyond to the first Persian Gulf War is a complicated tale of competition between the branches of the U.S. armed forces as well as the growing power of the so-called military-industrial complex.

#### MYTHS OF PRECISION

The mystique of precision underlies the rationale for the founding of an air force separate from the navy (which had its own flight craft and pilots) and for the organizing of U.S. national defence and offensive warfare on the principles of air power.

The myth of precision draws upon the enduring symbol of the lone frontier marksman—a Daniel Boone-type figure—who can hit a target at a far distance with elegant accuracy. With the invention during World War II of sophisticated bombsights that used gyroscopes and finely ground optical lenses to calculate distance and speed, the figure of the bombardier became the new heroic marksman—dropping the “pickle into the pickle barrel” became the standard of precision that U.S. aerial bombardment was believed to offer.

While the official doctrine of precision bombing stressed humane aims, the fire-bombing of Tokyo and Dresden and the development of the atom bomb during World War II demonstrated that precision was not the only rationale for air power. Yet precision bombing prevails as a powerful myth.

### *"Aftermath"*

Navigational and computational error, inaccurate intelligence, weather interference, and all manner of human and technological failures often send bombs awry, killing innocent civilians and destroying non-military sites.

#### COLLATERAL DAMAGE

The wars in Iraq and Afghanistan have remained heavily dependent on air power and the precision weaponry that was touted so enthusiastically at the end of the first Persian Gulf War. Yet, as Philip Anthony Towle (1989) and Beau Grosscup (2006) have argued, the use of air power in so-called irregular warfare, that is, against insurgencies and guerrilla-style rebellions, always results in massive civilian casualties. The “flexibility” of the concept of the military target lies at the heart of the history of precision in air power—does strategic bombing constitute a form of terrorism itself?

We cannot claim that there is a moral distinction between a government that bombs and kills innocent people and a terrorist organization that does the same. The argument is made that deaths in the first case are accidental, while in the second case they are deliberate. However, it does not matter that the pilot dropping the bombs does not ‘intend’ to kill innocent people—that he does so is inevitable, for it is the nature of bombing to be indiscriminate. Even if the bombing equipment is so sophisticated that the pilot can target a house, a vehicle, there is never certainty about who is in the house or who is in the vehicle. (Zinn, 2007, p. 11)

## Story 2: Hold harmless

*“Sign here”*

One of the first indications that civilians could use a military technology like GPS in their everyday lives appeared in the mid-1990s when Rockwell’s NeverLost navigation systems were installed in Hertz rental cars in selected U.S. cities.

### *THE GLOBAL POSITIONING SYSTEM*

The Global Positioning System (GPS) originated as a military technology—a system of satellites launched by the U.S. Department of Defense in the early 1970s—that offered precise ground locations for both defensive and offensive purposes. The system operates in the following way:

GPS satellites circle the earth twice a day in a very precise orbit and transmit signal information to earth. GPS receivers take this information and use triangulation to calculate the user’s exact location. Essentially, the GPS receiver compares the time a signal was transmitted by a satellite with the time it was received. The time difference tells the GPS receiver how far away the satellite is. Now, with distance measurements from a few more satellites, the receiver can determine the user’s position and display it on the unit’s electronic map. (Garmin Corp., 2012)

The military purposes most famously enabled by GPS were the navigation of the weapons systems during the first Persian Gulf War in 1990–91. Since that war, a complicated practice of partial declassification alongside cooperative ventures between civilian, military, governmental, and commercial interests has created a massive GPS industry and ubiquitous consumer commodity.

*“Pretty cool”*

Directions offered by a reassuring, neutral voice humanized GPS navigation technology and offered drivers a new form of precision and security in both urban and rural locations.

### *GPS IN RENTAL CARS*

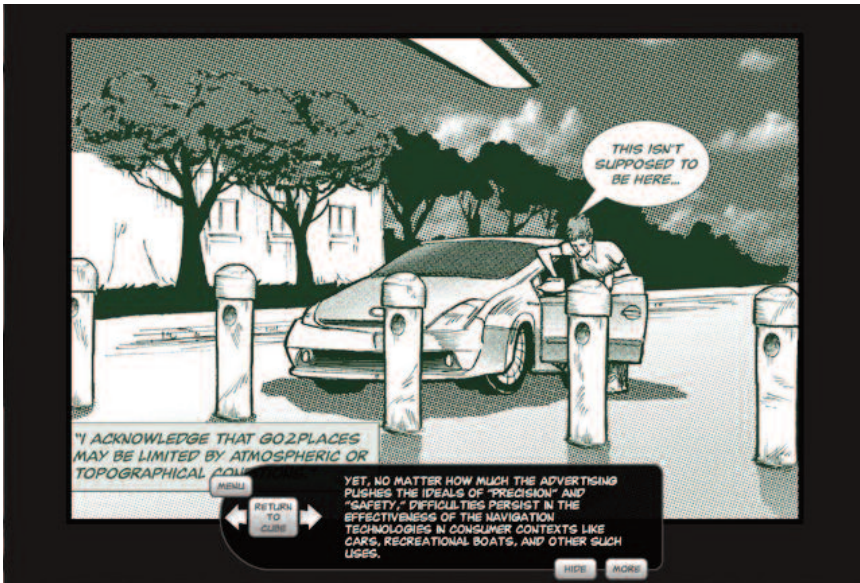
Utilized in cars, watches, phones, and PDAs of all sorts, GPS has become integrated not only into the entertainment/personal electronics and media boom of recent years, but it has also become integrated into agriculture, transportation, law enforcement, and innumerable other commercial, municipal, and federal governmental operations.

The rental car industry embraced GPS navigation technology at a very early stage, teaming up with Rockwell, Garmin, and others to offer electronic mapping devices.

Throughout the mid-to-late 1990s, headlines such as “Cars That Tell You Where to Go” accompanied articles that touted the uses of GPS in automobiles. Television spots promoted the technology for safety and security as well as accuracy. The appeal of such a navigation device for travellers in unfamiliar surroundings as well as commuters looking for alternatives in heavy traffic became increasingly apparent to consumers and advertisers. Looking to a screen for directions rather than unfolding a paper map became more and more ubiquitous throughout the 1990s and into the new century.



Figure 3: "This isn't supposed to be here ..."



### *"Atmospheric conditions"*

Yet, no matter how much the advertising pushes the ideals of "precision" and "safety," difficulties persist in the effectiveness of the navigation technologies in consumer contexts like cars, recreational boats, and other such uses (see Figure 3).

#### SELECTIVE AVAILABILITY AND ACCURACY

In 2000, President Clinton discontinued the military practice of scrambling GPS signals, thereby making civilian GPS much more precise. Previously, determining location could be accurate within 100 metres. After the elimination of Selective Availability (SA), accuracy was promised to a much finer degree.

### *"Any failures"*

But people still get lost.

#### ROAD BLOCKS

As bloggers on a forum on car rental companies have noted, GPS devices often offer more accuracy than they can deliver. A sample of such comments about the Hertz's NeverLost system on the FlyerTalk online forum include

I had an issue with NeverLost in Tampa—it didn't have the Homestead Village where I was staying listed. In fact, there are about 12 Homestead Villages in Florida and the closest one on NeverLost was in Georgia.

... The thing I find annoying is that the map keep[s] turning around so that the direction you're heading in is up. My mind doesn't seem to work that way; I prefer up to be north. (FlyerTalk Forum, 2001)

Or, as this 2008 Associated Press report headline clearly shows, it can be quite dangerous to be lost regardless of whether the device is “precise” or not:

Man using GPS drives into path of train: Computer consultant escapes rental car before fiery crash. (Associated Press, 2008)

### Story 3: Interfaces

#### “Ugliness”

Early adopters of declassified GPS navigation technologies included hikers and yachters who found that the intelligent mapping capabilities enhanced the safety and enjoyment of these sports and leisure pursuits.

#### RECREATION

Among the earliest groups of civilian GPS users were boaters and hikers. The advantage of determining a more accurate location for both commercial shipping as well as recreational boaters led to rapid penetration of GPS devices in those markets. Before the close of the last decade of the twentieth century, GPS devices had become ubiquitous in shipping, boat racing, and recreational boating.

Hikers latched on to GPS technology early on for accurate designations of location—an invaluable guide for wilderness trekking. Regardless of weather or other conditions, with GPS hikers, climbers, and campers can determine their position with much greater accuracy than ever before. In the last few years, the emphasis has shifted from basic positioning and navigation to more precise measurements of endurance and athletic performance.

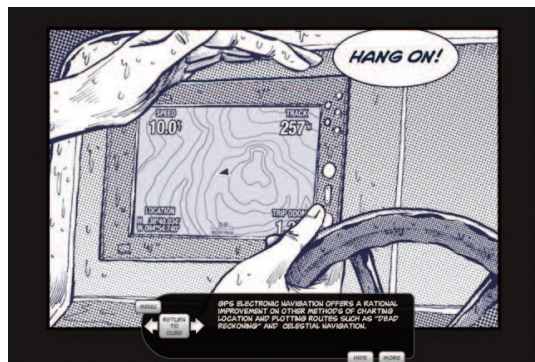
With the dismantling of Selective Availability and the drop in price of hand-held GPS devices, sports and leisure activities using GPS blossomed. Geocaching is one of the most popular leisure pursuits made possible by consumer GPS:

Geocaching is an entertaining adventure game for GPS users. ... The basic idea is to have individuals and organizations set up caches all over the world and share the locations of these caches on the internet. GPS users can then use the location coordinates to find the caches. Once found, a cache may provide the visitor with a wide variety of rewards. All the visitor is asked to do is if they get something they should try to leave something for the cache. (Geocaching.com, 2012)

#### “Hang on!”

GPS electronic navigation offers a rational improvement on other methods of charting location and plotting routes such as “dead reckoning” and celestial navigation (see Figure 4).

Figure 4: “Hang on!”



### NAVIGATION

For centuries, sailors navigated by locating themselves in relation to coastal landmarks or, if out at sea, in relation to the movement of the sun or the stars in the sky. These methods were helpful for determining latitude (north/south). It wasn't possible to determine longitude (east/west) without a "dead reckoning," a method of establishing the length of time it takes to travel between two fixed points.

Dead reckoning was often determined by casual or haphazard means and required years of experience to master. The invention of the compass, the lead line, and the sea-going chronometer as well as the advent of the Mercator projection—which based charts on a spherical Earth surface rather than a flat one—and the adoption of standard Greenwich time all contributed to an increase in the accuracy of navigation.

GPS has, by and large, replaced the LORAN (Long Range Navigation) system that was developed during World War II. LORAN uses radio-transmitted signals to measure distance (as does GPS). Since GPS signals come from satellites rather than land, it has unlimited coverage and has become more and more affordable even for casual recreational boaters. Although it is not required, most boaters opt for some kind of GPS system.

### *"I've got nothing"*

Yet over-reliance on GPS navigation as an apotheosis of precision can lead to dangerous situations when and if the technology fails or becomes unavailable, since users may not have backup systems or experienced know-how in extreme situations.

### OVER-RELIANCE?

In 1998, the U.S. Department of Defense and the Departments of State, Commerce, and Transportation submitted a biennial report to Congress on the Global Positioning System that, in addition to remarking on the extraordinary broad range of benefits offered by the technology, warned that over-reliance could adversely affect "critical transportation functions" (U.S. Department of Defense, 1998). Mainstream media reports echoed this caution in particular in relation to boating. Throughout the new decade, bloggers debated the pros and cons of GPS navigation devices in recreational boating, as expressed in this *New York Times* article:

"Electronic navigation has become so reliable that we joke that you could program your computer and GPS to sail your boat out of the harbor in South Carolina and take a plane to meet it in Florida," said Milt Baker, president of Bluewater Books and Charts, a company based in Fort Lauderdale, Fla., that sells electronic charts. "But one stray electron or one dead battery and you're out of business. You have to know how to navigate and read charts on your own." (Greenman, 1999)

### *"Learning curve"*

The myth of precision has served as a powerful lure in consumer products that incorporate GPS since the end of the First Gulf War. The quest for precision is not a bad thing in and of itself, but consumers may be largely unaware of the militarized "way of seeing" that GPS entails.



*EVERYDAY MILITARIZATION*

GPS originated as a “dual-use” technology to serve both military and civilian needs. But the military needs structured the design and implementation of GPS to such a degree that everyday use brings the non-military user into militarized practices. For example, GPS is nationalized and still linked to the U.S. government, with the proviso that military uses hold precedence over civilian uses in times of war. A mapping or navigational program that appears to provide a universalized “bird’s-eye view” or precise location is, first of all, strictly produced by U.S. satellites and related technologies and, secondly, trains the user to think of identity and location as targets, as destinations for information, messages, and/or armaments.

In this way, consumers come to be “mobilized” into nationalist and/or “security” concerns while engaging in the “free play” of smartphones, mobile computing, and social networking. Tagging geographic location to photos, rapid updating of user status, and tracking networks all mobilize consumer subjects as targets in complicated ways that also involve agency and empowerment.

Thinking of consumer subjects as “mobilized” helps us in two regards. First, it allows us to move beyond the model of consumers as feminized, passive targets of unscrupulous advertisers in order to see the ways in which people participate in their construction by “volunteering” to engage the products generated by technoscience. Secondly, it allows us to understand how citizens and consumers come together as militarized subjects through target marketing that seeks to identify their tastes, desires, and interests.

**Story 4: Parental guidance***“Permissions”*

Whether or not we serve in the military or have the means to afford the latest electronic gadgets, people in the U.S. are mobilized into militarized ways of being through their activities as consumers. GPS devices are part of this process.

*POST-WAR MILITARY-INDUSTRIAL COMPLEX*

When U.S. President Dwight Eisenhower and his speechwriter Malcolm Moos coined the term “military-industrial complex” in 1961, they described a post-war moment in which U.S. industries could combine their influence with those interested parties in the military and the government to create monetary and social benefits of almost unimaginable proportions leading to a war economy without any end. Over the last 40 years, Congress, industry, and the military created a culture of cooperation and, even, cronyism to generate huge profits and large-scale national and transnational war corporatism.

At this moment in the early twenty-first century, war is not at all elsewhere but is, in fact, deeply imbricated in everyday life as a “military-industrial-media-entertainment” network (Der Derian, 2001).

*“Trust”*

Commercial development of GPS-enhanced tracking devices boomed throughout the late 1990s and in the new century as parents, spouses, and employers discovered that

they could keep tabs on potentially errant subjects by installing devices in vehicles and phones.

#### TRACKING

GPS is a largely passive technology. That is, the radio triangulation that “locates” a spot on the map does not have an inherent ability to “track” or conduct surveillance. But the exponential interest on the part of governments, industries, and individuals in surveillance has been easily linked to GPS technology and consumer mythology to produce a multi-million-dollar business in tracking devices that use GPS.

Since the 1990s, promotional chatter about GPS-enhanced tracking devices has become realized in numerous applications. Many focus on private investigations of errant husbands or wives. Other companies focus on child safety, drawing on fears of kidnapping or attacks by sex offenders. Keeping track of teenagers is a large niche market for these kinds of devices. Many companies that maintain fleets of trucks or cars use tracking devices to monitor employee behaviour and reliability. The paranoid feeling that someone knows your whereabouts at any given moment is now more and more justified, since laws that require disclosure of such devices vary widely and are unevenly enforced.

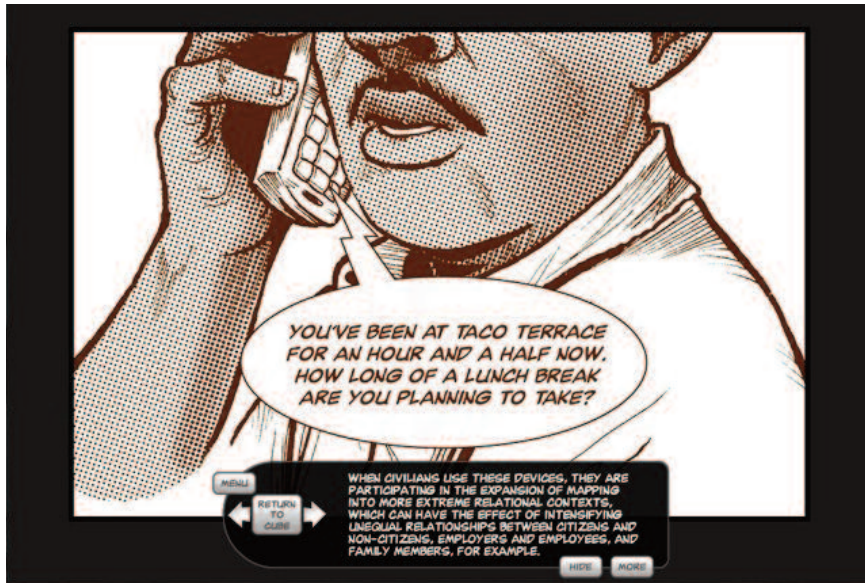
For example, BrickHouse Security, a large Internet provider of security systems and devices, advises that parents “prevent a loss or abduction before it can happen”: “A Child locator can help prevent child abduction or wandering that can lead to a lost and scared child.” You can buy the GemTrac GPS Personal Locator System on sale for \$389.95 and learn the “precise location” of your child with “a few Internet keystrokes or by simply placing a phone call.” Or, you can “Track your Child using GPS Jacket Tracking Technology”: “Make sure you know where your child is at all times. GPS technology can be hidden in their jacket or bookbag to help prevent child abduction or wandering lost children” (BrickHouse Security, 2012).

Teen Tracking gets its own page on the BrickHouse site, which stated c. 2009:

Your children and teenagers are subject to dangers every single day. As a parent or guardian, it is your job to protect them from those dangers. From on-line predators, to hanging out with the wrong crowd in places they shouldn't be in the first place, our teen protection and child safety measures will ensure complete protection and prevention for them every day. (BrickHouse Security, 2012)

Devices for sale include the T-Trac XS Internet GPS Car Tracking System, the Cell Phone Spy Data Extractor, and the CarCam Voyager along with other aids such as drug tests, sex tests, key stroke loggers, et cetera.

But some critics charge that offering precision tracking for children and teens creates a false sense of security while instilling fear and mistrust, hampering a child's ability to develop a sense of independence and good judgment. The systems are also expensive and may not deliver the kind of performance raised by popular perceptions of precision location technology (Blank, 2010). The context for tracking without probable cause is the tightening of civil liberties in the era of Homeland Security.

**Figure 5: “You’ve been at Taco Terrace for an hour and a half now...”**

### “Curfew”

When civilians use these devices, they are participating in the expansion of mapping into more extreme relational contexts, which can have the effect of intensifying unequal relationships between citizens and non-citizens, employers and employees, and family members, for example (see Figure 5).

#### SURVEILLANCE SOCIETY

In Western culture, maps often enable military intelligence. The ability to see the terrain holistically, from a “bird’s-eye view,” is a great asset to those charged with planning military manoeuvres. Air and space power provide powerful platforms for the delivery of accurate, detailed maps. Satellite imagery produces the appearance of verisimilitude according to scale—as one zooms in and out on the image, one can believe that what one sees is “really there.” And who sees what and when and at which scale is very much a political issue.

In 2003, the Bush administration inaugurated the National Geospatial-Intelligence Agency (NGA) to supply aerial imagery and mapping tools to the military and the intelligence agencies. As Tim Shorrock has reported, the NGA has played an increasing role in U.S. domestic matters, often through its close working relationship with the National Security Agency (known for its extrajudicial spying on individuals and groups within the U.S.). Thus, Shorrock (2007) writes:

With the additional capabilities of the NGA and the use of other cutting-edge technologies, the government could also conceivably be following the movements of ... individuals minute by minute, watching a person depart from a mosque in, say, Lodi, Calif., or drive a car from Chicago to Detroit. (n.p.)

Some critics charge that the increase in tracking abilities enhanced by GIS (geographic information system) and GPS will lead to a totalitarian situation in which the ability to locate someone will transmute to controlling that individual. As Jerome E. Dobson and Peter F. Fisher argue, such control could constitute “geoslavery”: “a practice in which one entity, the master, coercively or surreptitiously monitors and exerts control over the physical location of another individual, the slave” (Dobson & Fisher, 2003, pp. 47–48).

The potential for “real-time control” under geoslavery does not seem far-fetched in terms of technological capability and the political climate in the U.S. and elsewhere. Like the NGA and NSA, the Information Awareness Office that is located in the Defense Advanced Research Projects Agency (DARPA) in the Department of Defense claims unlimited powers in the name of national defence. As Hendrik Hertzberg reports, the IAO:

aims to turn everything in cyberspace about everybody—tax records, driver’s license applications, travel records, bank records, raw F.B.I. files, telephone records, credit-card records, shopping-mall security-camera videotapes, medical records, every e-mail anybody ever sent—into a single, humongous, multi-googolplexibyte database that electronic robots will mine for patterns of information suggestive of terrorist activity. (Hertzberg, 2002)

In this brave new world, the surreptitious placement of a GPS tracking device in a teenager’s car seems like the least of our worries. But the “geoslavery” master may be harder to identify than one might think. The metaphor of master and slave may suggest itself in the hegemonic erosion of civil liberties that we see in almost every quarter in the U.S. today. But who are the slaves and who are the masters and are they always consistently identifiable?

### *“Grounding”*

Information that you provide voluntarily to enhance your “lifestyle” also brings you into networks of surveillance. Who you are, demogeographically, is a target—of marketers, governments, employers, identity thieves, hackers, and others.

#### *INFORMATION, PLEASE*

It is hard to believe that each one of us is enmeshed in a “nationwide surveillance web” of enormous and complex proportions. Biometrics combined with electronic eavesdropping along with location-based services all provide avenues to precise identification. Much of this activity is now mandated by the federal government and enacted in locales in ever-increasing smaller scales. So we move from the halls of power in the Department of Defense and in the intelligence agencies to state and local governments, to industry interests, small-business concerns with employees and customers as well as suppliers, the security needs of schools and other groups, as well as the relationships between spouses, parents, and children. Here we have not so much a web as a pyramid of power that moves from the largest to the smallest scale of public to private, invading every aspect with a relentless search for information.

But people have agency even in this *Dr. Strangelove* scenario of techno-terror. The father who tracks his daughter with a GPS device has the upper hand for the time

being, but when he realizes his employer is keeping track of how much time he spends at lunch and where through the use of a similar device, he might start to think differently about his voluntary use of tracking technologies. It is also possible that the father might feel more loss of control and more depression as surveillance functions become more apparent to him. Yet information can flow in different directions. And information can create a tidal wave of data that can be challenging to sort, store, and analyze effectively. Data mining is only as good as the people who actually program the collection of data and analyze the results of such quests for information.

Examples of counter-resistance through the use of GPS are legion and quite worthwhile to examine. But perhaps it is better not to reproduce a master-slave scenario where the positions are simply reversed endlessly in loops of repression and resistance. It might be better to think through the problem of surveillance webs by focusing on the spaces between the links and connections as well as those inevitably hard-wired targets. The model of power that might be most useful in this example that is so emblematic of our era is, indeed, a network, with flows that move in diverse directions—not aimlessly or in a utopian manner but with possibilities for understanding complex positions and subjects who may be complicit as well as resistant in any given transaction or exchange.

### Story 5: Hearsay

#### *“Wandering aimlessly”*

Just after the New Year in 2007, a news story about GPS and immigration made the round of blogs and websites. The story claimed that Mexican “authorities” planned to give “hand-held satellite devices” to “illegal immigrants” to “ensure they arrive safely” in the U.S.

#### *MILITARIZATION OF THE U.S.–MEXICO BORDER*

The border between the United States and Mexico stretches for almost 2,000 miles from the Pacific Ocean to the Gulf of Mexico. It has been said to be the most frequently crossed international border in the world. Mountains and desert define the topography of this vast territory. So-called legal crossings, which number in the hundreds of millions per year, occur in designated border zones and checkpoints—many in more urban areas. So-called illegal crossings tend to occur in the mountains and deserts, where immigrants attempt to evade the U.S. Border Patrol and the civilian militias that also keep watch in certain areas. According to many sources, including the U.S. Government Accountability Office’s own report (2006), the number of people who have died trying to cross the border has doubled since 1995. As the border becomes more and more militarized and as walls are built to reinforce the boundary, potential migrants are forced to take more risks and to attempt crossing longer distances in worse weather. The humanitarian group No More Deaths (2012) counted over 2,000 deaths in the Sonoran Desert in the period between 1998 and 2004. Most of these deaths were caused by exposure to extreme heat and lack of water.

The militarization of the border between the United States and Mexico has been intensified as part of the security measures that have been put into place since the attacks of September 11, 2001. U.S. Homeland Security now holds jurisdiction over the



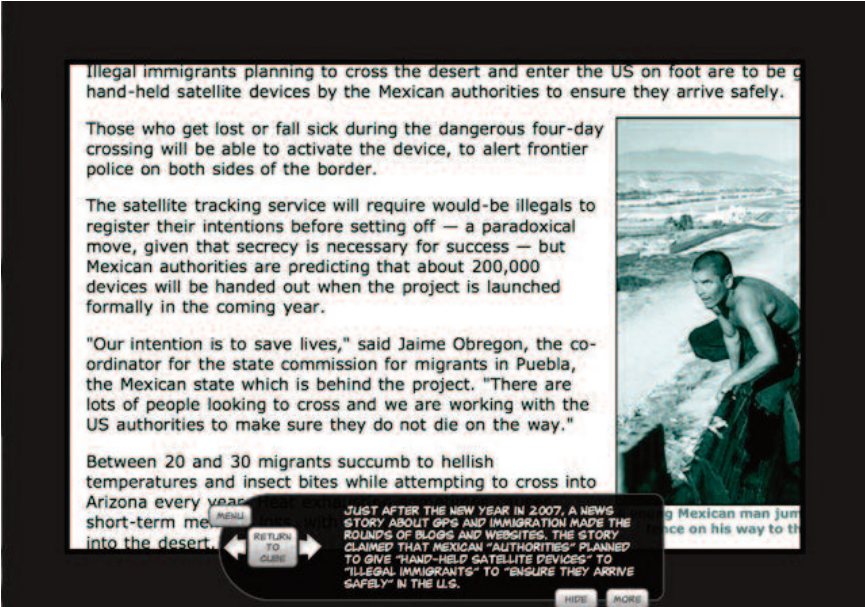
region even though no link to international terrorism has been made to this large border area. With the influx of Homeland Security funds, the U.S. Border Patrol now reports a massive “modernization” campaign that includes “a potent mix of geographic imaging, geospatial information systems (GIS), global positioning systems (GPS), infrared aerial photography and sophisticated sensors for recording activity along the border” (Intergraph, 2013, p. 2).

GPS is used extensively by most of the interested parties involved in border patrol and observation activities. The U.S. Border Patrol has integrated GPS units into almost every facet of its operation, ranging from digital mapping to devices in transport vehicles to hand-held devices for agents in the field. The Minutemen, one of the most well-known militia organizations that “monitor” the border area, depend on GPS for navigation and location. And it should come as no surprise that the progressive and humanitarian groups who are keeping an eye on both the Minutemen and the immigrants who might need assistance are also using GPS. The only people who do not have access to GPS in the deserts of the border zone are the ones who are at greatest risk of dying of exposure to extreme temperatures for prolonged periods of time, the ones who are trying to get across the border.

*“Illiterate runaway”*

While the story itself has been difficult to corroborate, the tale of free GPS devices to aid undocumented immigration was reposted and republished in a range of mostly arch-conservative websites, list-servs, and blogs (see Figure 6).

**Figure 6: A news story about GPS and immigration**



## SAT NAV FOR "ILLEGAL" IMMIGRANTS

Just before the New Year in 2007 a short news story was published in the online edition of the *Sunday Telegraph*, a British broadsheet. Under the byline Justin Stares, the article claimed that "Mexican authorities" were planning to distribute up to 200,000 "hand-held satellite devices" to "illegal immigrants planning to cross the desert and enter the US on foot" (Stares, 2006). Leaving aside the issue of whether someone who is only still in the planning stages to cross the border is, in fact, *already* an "illegal immigrant," the article walks a fine line between sympathetic if sensationalized representations of the risks faced by those who would make an attempt ("hellish temperatures," "insect bites," and "heat exhaustion" cause "short-term memory loss" that can cause "trekkers" to wander "aimlessly into the desert") and an alarmist call to arms. To underscore the latter point, the photograph that accompanies the article shows a "young Mexican man," half-naked, jumping over a fence to enter the U.S., his face a feral expression of malicious intent. Intentionally or not, the article suggests that 200,000 "illegals" (imagine them all as the young man in the photograph) with the precision technology of GPS at their command will no longer "wander aimlessly" but will navigate their way with pinpoint accuracy. This threatened invasion of young men who have become criminalized by the very act of crossing the border captured the imagination of bloggers and others who forwarded the story and kept it in circulation.

A few months after the story appeared in the *Sunday Telegraph*, I came across it during an online search. Something did not sound right. Who were these "Mexican authorities" who were going to give away so many GPS devices and why did the U.S. Border Patrol go on record to say they had no knowledge of such a giveaway but that if it did take place, they were strongly against it? I decided to try to find out more. My research assistant, Cathy Hannabach, and I found a good number of reprints of Stares' original story: the first on January 1, 2007, in *The Standard*, a Hong Kong English-language business newspaper; another on the same date on a liberal U.S.-based website called Democraticunderground.com (Democratic Underground, 2007); next on the libertarian news aggregator and electronic billboard site LibertyPost.org (2012); and another at the conservative forum Freerepublic.com (2012). Over the next few days, the piece moved around the Internet, popping up mostly on right-wing blogs and websites such as 760 KFMB talk radio's website but also on InformationLiberation.com (2012), a site considered to be "progressive."

On January 4, 2007, the Associated Press released a story by Istra Pacheco (2007), "Mexico [to] Study Possibility of Giving Migrants GPS Locators." The same story was printed word for word except for the title on Foxnews.com (Fox News, 2007). The same day, *AHN* (*All Headline News*) took a slightly different tack, publishing "U.S. Protests Mexican Decision to Give GPS Devices to Illegal Immigrants." This article, which was written by Matthew Borghese (2007), was reprinted the same day on the Americans for Legal Immigration website (ALIPAC, 2012). On January 6, the *San Antonio Express-News* published a slightly different version of the story by Hernan Rozemberg (2007) with a different title and the website *Latina Lista* published another version of the story by Marisa Treviño (2007) that was sympathetic to border crossers. Most of the viral activity linked to the story, however, was generated by arch-conserv-

ative, anti-immigration groups such as The American Renaissance, a U.S. nationalist group based in Oakton, Virginia, that promotes “race realism” and concerns itself with the “decline of civility”; Prisonplanet, a website run by Alex Jones, a “paleoconservative” radio host in Austin, Texas, who is concerned about the advent of a “totalitarian world government”; and previously mentioned LibertyPost, a website with message boards that tilt toward conservative opinion.

Thanks to the rapid circulation of the original news item online, bloggers took up the story as if it was about to become “fact” any minute. In these postings the vulnerability of the border was asserted over and over again along with the fear that hordes of immigrants would navigate the desert into the jobs and homes and privileges of U.S. citizens. Resentment over U.S. taxpayer money supporting border militarization as well as the satellites that form the basis of the Global Positioning System was another major theme. Some cynics feared that the U.S. would somehow end up paying for all 200,000 devices in some kind of twisted NAFTA-esque scheme of U.S. bailouts and Mexican money-grabbing. The story generated a flurry of commentary for a week or two and then simply faded away.

*“Think twice next time”*

Attempts to track down the Mexican government and university officials who are cited in the news stories has been difficult. The information, while authoritatively presented in several news stories, shifts and moves around or is only partially correct.

### **GPS and the geopolitics of the border**

Is the story about 200,000 GPS devices a hoax? Several bloggers claimed that they searched Mexican sources and could find no legislation or official notification of the information cited in the original “news” story. I have not been able to verify any of the information in the piece that appeared in the *Sunday Telegraph* just before the New Year of 2007. The reporter, Justin Stares, checks out as a viable journalist who publishes in several British newspapers and usually covers international political and economic topics. Jaime Obregon de la Cruz, cited as the coordinator for the state commission for migrants in Puebla that is purportedly “behind” the GPS giveaway project, is, in fact, the head of one part of the commission, not the entire commission. I have not been able to find any proof that the state government in Puebla has been seeking to redress the upswing in migrant deaths in the desert by giving away satellite navigation devices. Other officials mentioned in other versions of the story exist and may be involved in migrant issues, but there is still no Mexican source or news release that confirms that the government is giving devices to those intending to cross the desert to enter the U.S.

If the story itself seems to be a partial one, at best, and disinformation, at worst, the interests of some of the “news” outlets are suggestive of the kinds of geopolitics at work when technology and border issues intersect. For example, AHN, All Headline News, a for-profit website that offers RSS feeds to subscribers, has been relied upon by the U.S. Department of Homeland Security and the U.S. Parks Service. AHN was started in 2000 by its owner, William Jeffrey Brown, as Bridalclicks.com, a pay-per-click search engine for wedding-related services online. In 2006, Brown filed paperwork to change the name of his corporation to AHN Media Corporation. AHN has been men-

tioned on several websites for non-payment of salaries to employees and for bouncing cheques to people it hires to write its stories. Brown has no track record as a journalist. Matthew Borghese, the AHN staff writer, does not appear to write for any other publications or to have any other searchable identity (although there is a Matthew Borghese who is listed on IMDb as producer of the 2007 video “Living Dead Lockup 2: March of the Dead”). In 2008, the Associated Press sued AHN, charging that the news aggregator consistently rewrote AP stories and posted them on their website with a new byline and no credit. As David Kravets (2009) reported in *Wired* magazine, AHN lost the suit and was required to pay a monetary award to the AP. Despite these dubious credentials, the AHN feed was picked up and posted on numerous websites, mentioned in blog posts, and contributed to lively debate in online discussion forums.

Whether the Mexican government intended to try to prevent death and suffering in the desert passages by offering navigation devices or not, the powerful mythologies surrounding GPS serve to raise the stakes in the politics of border control. Since immigration from Mexico continues to incite emotional debate, recourse to the imagery of advanced technology, especially remote sensing and navigational aids, will up the ante, as it were. As the U.S. Border Patrol develops more militarized capacities that depend on satellite and digital technologies, more humanitarian groups will draw on these kinds of technologies in turn to address the increasing loss of lives in the desert border zones while conservative and libertarian groups will decry the influx of illegal border crossers.

### **“Anonymous is so smart”**

In November of 2007 I read a story online about “artist” Ricardo Dominguez’s plan to re-purpose cellphones to assist those trying to cross the U.S.–Mexico border and reduce deaths and suffering during the hazardous journey (Dominguez, 2007). Was this another version of the “report” about GPS devices for border crossers that had raised a flurry of notice in January of the same year?

### **GPS remediation**

Repurposing technology has a long history. As Jay Bolter and Richard Grusin (1999) have argued, remediation is the process by which all media re-fashion prior media forms. It makes sense that we can only imagine how to use tools in relation to prior gestures and practices. What is particularly interesting in the case of the story of GPS devices and immigration is the ways in which news media are remediated such that we receive such stories as true and factual regardless of their provenance or credibility. In another sense, GPS is remediated as “operational media”; that is, as Jordan Crandall (2005) argues, the resurgence of temporal and locational specificity that plays out in surveillance and navigation technologies relies on integrated control and panoptic oversight. The GPS giveaway story draws on the reliability and truth value of the “news” and the available general knowledge of navigation and location technologies to produce an operational media that makes the border “real” and its security a matter of national defence.

What, then, are we to make of this use of GPS, posted by rdonat on GPSInsight on March 23, 2008? This user reports on his family’s trip to Mexico for Spring Break,

tracking their journey and tagging various points along the way. “It takes a lot less time to get INTO Mexico that it does to get back,” he relates. “Now for the fun part, heading back to the border—unless you want to get stuck in line for 4 hours, you need to leave early in the AM.... It took 2 minutes to clear the border going INTO Mexico but 40 minutes coming back” (rdonat, 2008).

Or this? On November 18, 2007, MobileActive.org, “a resource for activists using mobile technology worldwide,” posted a story by Corinne Ramey on the aforementioned “artist” Ricardo Dominguez and his team, who created the “Transborder Immigrant Tool” that “uses GPS-enabled mobile phones to help immigrants crossing the border between Mexico and the United States” (Ramey, 2007). Dominguez, a professor of visual arts at University of California, San Diego, co-founder of the Electronic Disturbance Theater, co-director of the THING (an ISP for artists and activists), and a member of the New York Zapatistas, is also associated with the Calitz lab at UCSD. The “Transborder Immigrant Tool” team (which includes Brett Stalbaum, Micha Cardenas, and Jason Najarro as well as Dominguez) explained the concept on their website:

The technologies of Spatial Data Systems and GPS (Global Positioning System) have enabled an entirely new relationship with the landscape that takes form in applications for simulation, surveillance, resource allocation, management of cooperative networks and pre-movement pattern modeling (such as the Virtual Hiker Algorithm) an algorithm that maps out a potential or suggested trail for real hiker/or hikers to follow. The Transborder Immigrant Tool would add a new layer of agency to this emerging virtual geography that would allow segments of global society that are usually outside of this emerging grid of hyper-geo-mapping-power to gain quick and simple access with to GPS system. The Transborder Immigrant Tool would not only offer access to this emerging total map economy—but, would add an intelligent agent algorithm that would parse out the best routes and trails on that day and hour for immigrants to cross this vertiginous landscape as safely as possible. (Dominguez, 2007)

As a result of the publicity surrounding the “Transborder Immigrant Tool,” in 2010 Dominguez was placed under official investigation by UC San Diego for misuse of research funds. He was cleared of these charges and continues to promote “electronic civil disobedience” and to work with human rights groups that organize water caches in the region where people attempt to cross the border (Warren 2011).

## Story 6: Serve and protect

### “Exclusion”

GPS has become one of the key tools used to monitor and track sex offenders. For example, the Office of Sex Offender Sentencing, Monitoring, Apprehending, Registering, and Tracking (SMART) is authorized by H.R. 4472, the Adam Walsh Child Protection and Safety Act, signed into law by President Bush in July 2006.

### TECHNOCORRECTIONS

As Michael Foucault (1979) argues in *Discipline and Punish*, a combination of juridical, political, and cultural forces in the eighteenth and nineteenth centuries combined



with new technologies such as the prison brought about “modern” modes of punishment and discipline. In more recent times, new technologies along with specific social and economic conditions are contributing to a shift in the practices of corrections. This shift might be termed “technocorrections,” as a May 2000 report by Tony Fabelo issued by the U.S. Department of Justice delineated:

In this new century, the technological forces that have made the use of cell phones ubiquitous will converge with the forces of law and order to create “technocorrections.” The correctional establishment—the managers of the jail, prison, probation, and parole systems—and their sponsors in elected office are seeking more cost-effective ways to increase public safety as the number of people under correctional supervision continues to grow. A correctional establishment that takes advantage of all the potential offered by the new technologies to reduce the costs of supervising criminal offenders and minimize the risk they pose to society will define the field of technocorrections. (p. 1)

The report points to three emergent technologies that make up the practices of technocorrections: electronic and location systems; pharmacological treatments; and genetic and neurobiological risk assessments. Since the public has become so enamoured and confident in these technologies that expectations have risen unrealistically, the report argues: “Reducing the risk of recidivism has always been part of the mission of corrections, but only in the technocorrectional world is it possible to reduce the risk of violent recidivism to almost zero. The promise of technology to supervise offenders more effectively will accelerate the impulse to expand technocorrections” (Fabelo, 2000, p. 4).

Regardless of the ethical and legal questions raised by high-tech surveillance as well as the considerable cost of such systems, then, technocorrections appear to be expanding. Indeed, most states have passed legislation mandating some kind of electronic tracking and locating systems for routine as well as high-risk corrections situations.

### **“Deduction”**

Electronic tracking and location systems, most of which rely upon GPS, are used throughout the United States and many other countries to track domestic violence offenders, sexual offenders, and other violent or “high-risk” offenders. The use of this technology is especially controversial for pre-trial monitoring, since surveillance and control before a guilty sentence raises many legal and ethical questions. Proponents of the technology argue for its use on the grounds of public safety, citing the high incidence of violations of restraining orders in domestic violence cases in particular.

Another strong argument for GPS monitoring concerns parole enforcement. As one industry leader from the mid-to-late 2000s, StealthTrac, argued on its website, probation officers in urban areas can be assigned 200 cases at a time while some areas report even higher numbers, leading to “minimal, almost non-existent levels of supervision” and a relatively high rate of “abscond status” (offenders who have dropped out of sight and are no longer in contact with their parole officers) (StealthTrac, 2007).

To counter the crisis in the probation system and to address tracking concerns in law enforcement in general, companies such as StealthTrac offer both active and pas-

sive GPS tracking systems. Active tracking systems, also known as GPS location verification, can monitor a subject worldwide and keep track of compliance according to time and location requirements. Wireless communications send data to a central data centre, theoretically enabling a corrections officer to receive updates throughout the day and to alert victims or at-risk individuals. Passive GPS tracking monitors the subject's movement and compliance data throughout the day and can note violations of parameters. The passive system, which costs significantly less than the active version, uploads information approximately once a day. As another company in the business, QuestGuard, argues: "[j]urisdictions should incorporate GPS-based Electronic tracking and Location systems because it is both cheaper than incarceration and creates a high level of real-time 'client accountability' " (QuestGuard.com, 2012).

### **"Precision"**

While GPS can precisely locate the monitoring device, GPS tracking cannot tell you what the offender is doing in any given location or even whether the offender is actually there (only the monitoring device may be present).

#### *The limits of tracking*

As a 2007 Noblis Center for Criminal Justice Technology report states, misperceptions about what GPS can and cannot do "abound[s]": "GPS is not an 'air traffic control system' that allows officers to intercept bad behavior before it happens" (Brown, McCabe, & Wellford, 2007, p. 50). What GPS can do, the report argues, is "provide officers with a wealth of information about patterns of behavior that can be used to address a defendant/offender's accountability and improve supervision" (p. 50).

But some observers are more critical of the tracking technology. As blogger Scott Henson argues on his site that is devoted to topics related to the Texas justice system, while technocorrections is "all the rage" in law enforcement and criminal justice arenas, GPS tracking of probationers hasn't "always delivered as advertised" (Henson, 2007). Henson agrees with the statement published by the Texas Association Against Sexual Assault (TAASA, 2007) on their website that not all victim advocates are in favour of electronic tracking systems:

Global Position Satellite (GPS) tracking of sexual offenders may make us feel good, but will not make us safer. A careful examination of salient facts indicates that universal GPS monitoring of all registered sex offenders would be ill advised. First, most sex offenders victimize in places where we expect them to be (i.e., their own homes and the homes of people they know well). The sad fact is, providing extra measures to keep sex offenders from restricted areas (schools, parks) does not protect the overwhelming majority of child victims of sexual abuse who are molested in their own homes or the home of the abuser. Second, GPS uses relatively new technology with known flaws and limitations. For example, like cell phones signals, GPS signals are frequently lost in forested and mountainous areas; they don't work in urban canyons, underground rail lines, buildings and sometimes even automobiles. Third, GPS is expensive (\$6 to \$10 per day per offender). ... Finally, GPS monitoring is not designed to be a stand-alone sex offender management tool.

When used in conjunction with other management tools (e.g., specialized sex offender supervision caseloads, home contacts, employment verifications, alcohol and drug testing, treatment, case reviews, risk assessment instruments, collateral contacts, polygraph testing), GPS does hold promise. However, there is little scientific research regarding its effectiveness for management of even predatory sexual offenders. Under no circumstances should GPS of registered sex offenders be considered a “silver bullet.” (n.p.)

As these critics point out, electronic tracking systems cannot eliminate human supervision, analysis, or follow-up. Information still needs to be acted upon, filed, documented, and recorded. As Henson puts it: “Without that human component, there’s nothing about a bunch of dots moving around on a computer screen that makes us inherently safer” (Henson, 2007).

Compounding the human element, some commentators point to the limits of the technology itself. For example, a 2007 British study found that monitoring systems that rely on cellular phones failed at significant rates when service was interrupted or when subjects came into contact with cast iron or burned their devices with cigarettes (Steele, 2007).

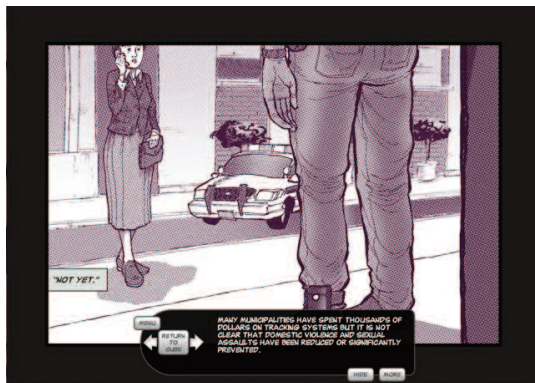
### “Prevention”

Many municipalities have spent thousands of dollars on tracking systems (see Figure 7), but it is not clear that domestic violence and sexual assaults have been reduced or significantly prevented.

#### *The security state*

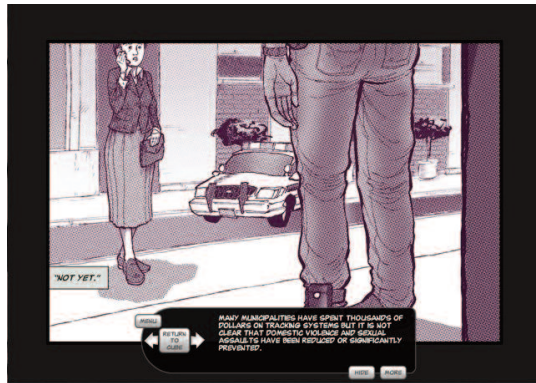
We need to situate the emergence of “technocorrections” in the context of the rising interest in security, especially in the aftermath of the attacks of September 11, 2001. As we have seen with the increased militarization of the U.S.–Mexico border, the heightened concern with the security of the homeland ushers in new approaches to technology, control, surveillance, privacy, and autonomy. Homeland Security, as Amy Kaplan (2003) has argued, puts the emphasis on *home*, metaphorically suturing the nation to the domestic space that most people hold most dear. This “rearticulation of public/private,” as Inderpal Grewal (2006) puts it, occurs as the state “maintains and disavows its powers and limits” (p. 28). Technocorrections reflects this particular dynamic of the post-9/11 neoliberal state: promising the ultimate in precise control over unruly and frightening violent subjects through a serious infringement of civil liberties while insisting that such activities are only for our own security.

**Figure 7: “Thousands of dollars on tracking systems...**



Criminal offenders appear to be precise targets of technocorrections (see Figure 8), since it is believed that they can be identified by unwanted and violent behaviour. But the uneven application of justice in the United States suggests strongly that some of the greatest violence is perpetrated by individuals or groups who are not legible as criminals in the community or not subject to the same kind of scrutiny, suspicion, and surveillance as others. The desire for safety could generate other solutions to violence in the home and in the communities of the nation without recourse to the myths of precision and control to which technocorrections inevitably give rise.

**Figure 8: “Navigational and computational error,...”**



### Coda: Collateral damage

My study of GPS in this era of seemingly endless war has led me to ask how “dual-use” technologies blur the distinction between military and civilian spheres. What are our expectations and assumptions about information technologies? How can we say no to war when we say yes to militarization every single day? The circulation of GPS between military and civilian use is instructive if we want to better understand the ways in which government and business cooperate not only to make war but also to create consumers. Most importantly, by using GPS, people who have no particular interest in military projects or nationalism may find themselves through their use of technology in everyday life participating in the culture of war: through ways of seeing, forms of entertainment, and modes of communication.

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