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Walking a Line: GPS and Satellite Technologies as Narratives

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Introduction

Over the last year I have been using a GPS (Global Positioning System) device to track my trips as drawings and a personal narrative. These lines form patterns with many variations. My recent Jacquard weavings were records of satellite images of the earth, received through the process of ‘remote sensing’, performed by a machine, instructed in this task. This presentation will briefly describe GPS and satellite technologies and discuss how these different ideas link up with my earlier work as an artist.

Walking as a conceptual practice has an interesting history. It deals with a process rather than a product, and it can be interpreted as ‘narrative’. Walking as an idea also has complex relationships with nature, the focus of my Jacquard weaving for a long time. Creating drawings and patterns out of everyday activities connects me to the useful, or functional aspects of textiles and crafts. Where my GPS drawings deal with personal and localized narratives, the woven satellite images provide a global context.

Finally my work draws equally from science and art making, often confusing the boundaries of these seemingly distinct fields. Thus I follow in Ada Lovelace’s footsteps; she also shifted the separation between these categories in the 19th century. The GPS drawings take place in real life and real ‘nature’. The resulting lines have an interesting graphic quality and they are both a narrative and a scientific and accurate recording of an event. Finally, since my early weaving days, the idea of pattern as language has intrigued me.

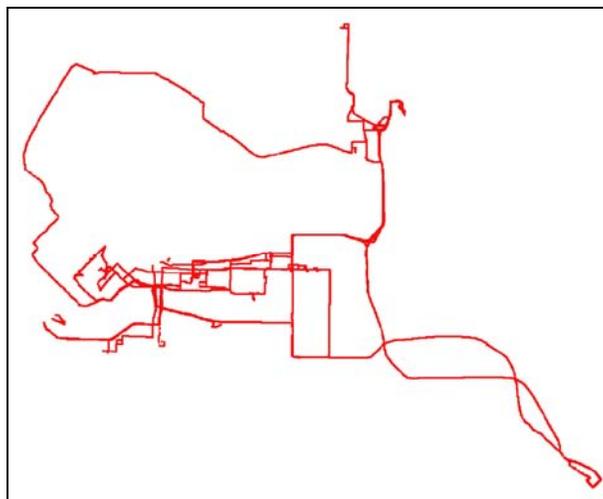


Figure 1. Ruth Scheuing, *GPS tracks Dec.1 -15, 2005*. Inkjet print, 2006.

Issues about the body have long informed my work, from altered suits and metal dresses, both obvious culturally charged outer layers that affect/hide identity, to Muybridge’s motion studies that create patterns out of movements. Given current overwhelming presence of photographs and personal information, I enjoy the relative anonymity of these drawings. With a GPS my body moves through space, as agent of the drawing; it traces a line of my movements as a narrative, and the repetitions of my activities create patterns.

My previous work with Jacquard weaving focused already on technology and a shifting historical and industrial context during the early 19th century. The new GPS technology deals with current communications technology, non-human devices, which observe the earth via satellites, and enter our living rooms via Internet connections. I chose to work with a handheld GPS device that allows my body to be quite invisible, but also very present, and in cyborgian manner, become an individual with some artificially amplified sensory capacity, not unlike many other devices that augment our abilities. I try to recognize being part machine, part human, the old question of ‘what is natural and what is not’ and how do we live in a world surrounded by artificial devices.

A Brief History of Satellite and GPS Technology

People long attempted to spy on others from above; they used balloons and in 1903 an early attempt of surveillance was made by Dr. Julius Neubronner, who patented a miniature camera that could be attached to a pigeon and that was activated by a timing mechanism.¹ Airplanes were used, but were much too visible and risked being shot down if they flew low and could not record any activities if flying too high.

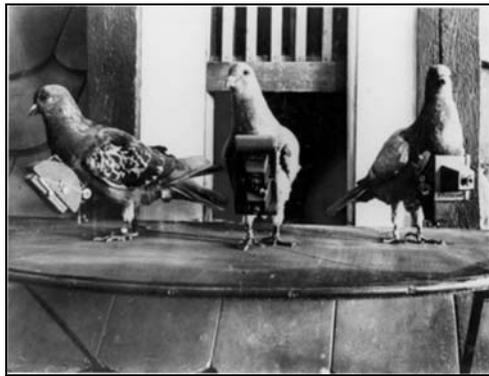


Figure 2. Pigeon Photographs © Deutsches Museum, Munich. 1903.

GPS technology started with the launch of the first satellites, Sputnik in USSR 1957 and Explorer in USA in 1958. Manned space flights may have had a bigger profile, but developing spy and communication technologies, used mostly for military applications, was a big part of the space program from its beginning and onwards.

Early satellites carried film cameras. The films had to be recaptured by removing them from capsules after they parachuted onto the earth, mainly into oceans, when the satellites re-entered the earth atmosphere. Secrecy was protected by an automatic system that let water enter the capsules to destroy all records, if the capsules were not found quickly. Now satellites send images electronically and are only replaced when they fail. By the early 70’s NAVSTAR Program combined the effort of the US Navy and Air Force and Russia developed a similar network called GLONASS.

GPS signals were made available to civilians in 1983, after the accidental shooting of a Korean airplane over Soviet airspace. Currently there are 24-27 satellites orbiting the earth in non-geosynchronous orbits. 3 or more satellites are needed to get a reading for a location and usually 6-8 satellites are visible in most locations. They triangulate a location on the earth by

¹ Nicholas M. Short, *The Remote Sensing Tutorial*, <http://rst.gsfc.nasa.gov/Front/overview.html>.

using exact atomic watches. Locations on public GPS systems are not very exact and at times you might find yourself walking on water or the GPS cannot make contact with the needed satellites. So for navigation purposes most people are told not to rely on GPS technology exclusively.

This system developed primarily for guided missiles and spying, can now forecast weather, help fight forest fires in remote areas and track farmers tractors during seeding or spraying. A car with an imbedded chip can be tracked with a GPS and its speed and journey can be recorded. GPS technology is used in city planning, in navigation of cars, airplanes, boats and hiking and today many 1st nations people across the world create maps that combine ancient stories and memory maps with GPS locations. New cell phones have chips so that callers can be located by a GPS, but a GPS device cannot be located by a third party, as it is not wired into a network.



*Figure 3. Hurricanes Bonnie and Charley, 08/11/04.
Image provided by the SeaWiFS Project, NASA/Goddard Space Flight Center, and ORBIMAGE.*

GPS drawings Using GPS technology in my artwork is a way for me to create an awareness of the technological that surrounds us, not necessarily a glorification or vilification of a tool. It is a way to ‘own’ these tools and a way to show that a tool developed for one purpose might be used quite differently later on. My idea of craft was always to see it as a field grounded in daily life and utility, not one of precious objects or skill, or as historical or romanticized handicrafts.

Satellite Images as Representations of Nature

Satellite images look like photos of the earth. They capture waves in the Electromagnetic spectrum, ranging from shortest, mostly UV to the Infrared spectrum and more recently Microwaves. This information is translated to look like a real photo, by matching wavelengths with our visible colour expectations, to show water, wood etc. and can make a distinction between ‘living’ wood, grass or a harvested wheat field.

I became interested in weaving these satellite images in the shape of domestic ‘kitchen towels’ as a way to mediate nature as something different from floral designs, and to show natural images that are more current, ‘true to nature’ and science. The domestic context is a way to ground this technology in the everyday and to link up crafts with technology. These updated versions of nature replace traditional flower patterns as nature in our domestic environment, influenced by Donna Harraway’s writings on nature and technology:

The cyborg myth subverts myriad organic wholes, in short, the certainty of what counts as nature - as a source of insight and promise of innocence - is undermined, probably fatally". Nature and culture are reworked; the one can no longer be the resource for appropriation or incorporation by the other.²



Figure 4a (left). Ruth Scheuing. *Thunder Storm over Swiss Alps, Feb.2, 1994.*
Terra MODIS, NASA website image.

Figure 4b (right). *Novaya Zemlya Archipelgo, Ural Mountains, Kazakhstan, July 29, 2003.*
Hand-woven Jacquard fabric, cotton, 2004.

These images of nature have been captured by remote sensing technology and are woven by hand on an electronic Jacquard loom. In both cases humans interface with computers. Weaving and other crafts are often romanticized as long gone traditions; they are also contemporary relevant activities, at the forefront of technological change.

I choose images not for any specific recognizable landscapes, but more as abstract patterns of the earth. One of my favorite images is from Novoya Zemlya a peninsula in Russia's north with large moving ice floats. When I googled it, I found out that it was a used as a nuclear test site. I also looked at places in the Canadian North and along the traditional 'Silk Route', locations with distinct histories in textiles and trade.

Walking

Walking has an interesting history with a political, cultural, social and spiritual dimension. Rebecca Solnit's book, *Wanderlust*, provides an interesting overview of walking in many disguises. Pilgrims walk a prescribed path, and many meditative practices involve walking³. 18th century poets were inspired by walking, first in gardens or the emerging rural landscape and later during lengthy walking tours in foreign countries. Wordsworth made walking central to his life and art 'walking was not a mode of traveling, but a mode of being.'⁴ So rather than an escape from work, it was a way to enter it.

Others from Jean Jacques Rousseau to Soeren Kierkegaard and Henry David Thoreau were important figures for whom walking played an important part and often nature played an important part in these walks and the ways we think, while walking.

² Donna J. Haraway, *Simian, Cyborgs, and Women: The Reinvention of Nature* (New York: Routledge, 1991), 151.

³ Rebecca Solnit, *Wanderlust: A History of Walking* (New York: Hudson, 2000), 45.

⁴ Solnit 104.

During the early 20th century the image of the flâneur evolved in Paris, the solitary, idle gentleman, strolling through the cities and its crowds without a clear purpose or direction, remaining aloof and detached, observing people, rather than interacting with them. Surrealism influenced this suspension of clear purposes in these activities. In his descriptions of the flâneur, Walter Benjamin wrote the now famous quote “to go botanizing on the asphalts”⁵. “Cities fascinated him as a kind of organization that could only be perceived by wandering or by browsing, a spatial order in contrast to the tidily linear temporal order of narratives and chronologies”⁶ so that his whole life could be diagrammed as a map or a labyrinth, as though space rather than time were the primary organizing structure.

There was a certain level of sexism and snobbery inherent, because women certainly could not go everywhere and many would not have had this kind of leisure time. Also in some cases men followed women secretly, almost obsessively and in reality most may not have strayed very far from places that were relatively safe. These ideals were to be challenged by later theorists about walking in the city.

Psychogeography, Situationists and the Dérivé

Psychogeographical research, according to Guy Debord in 1955, is “the study of the exact laws and specific effects of geographical environments, whether consciously organized or not, on the emotions and behavior of individuals....A rough experimentation toward a new mode of behavior has already been made with what we have termed the dérive: the practice of a passionate journey out of the ordinary through a rapid changing of ambiances, as well as a means of study of psychogeography and of situationist psychology.”⁷ An urban environment defines in many unrecognized ways the behaviors of its inhabitants and by creating arbitrary systems to navigate the city, one would move in them not by instinct, avoiding or choosing certain trajectories, but by confronting situations one might not ordinarily choose. A situationist journey might involve a mathematical formula to be followed: go two blocs and turn left; then go one bloc and turn right, go one bloc and turn left; repeat. For me, living in Vancouver, this does resonate. Although it is one of the most beautiful cities, it also has many areas, which I avoid. This understanding is something, tourists learn in navigating any new city.

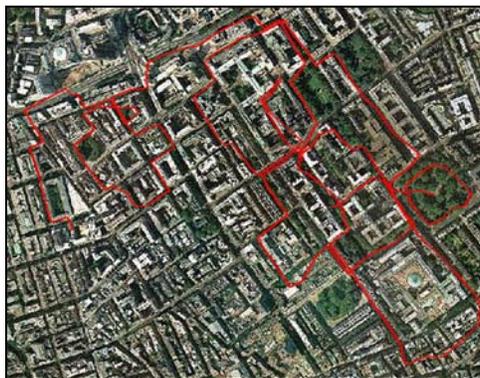


Figure 5. Algorithmic Psychogeography, Russell Square, London, UK, 12/05/02.
<<http://www.gpsdrawing.com/gallery/maps/psygeo.htm>>.

⁵ Solnit 199.

⁶ Solnit 197.

⁷ Guy Debord, *Toward a Situationist International*, tr. Ken Knabb, 1957,
<<http://www.cddc.vt.edu/sionline/si/report.html>>.

According to Michel de Certeau, a city is a language, a repository of possibilities, and walking is the act of speaking that language, of selecting from those possibilities. Just as language limits what can be said, architecture limits where one can walk, but the walker invents other ways to go “since the crossing, drifting away, or improvisation of walking privilege, transform or abandon spatial elements”⁸

Art about Walking: From Richard Long to Jeremy Wood and Jen Southerland

Richard Long’s poetic walks or journeys into remote areas, untouched by any mundane activities, have always fascinated me. The very minimal quality of creating a sculpture just by walking a line or a circle and/or by moving stones resonates with focused and lived experience. The process rather than the object is the art, documented through photos or words (ultimately images and books took on the role of the art object). It is art involving the earth, nature and time. Long’s walks are all listed as sculptures. At the same time it shows nature as landscape or dirt, without any people or history. The processes of walking around the world and by extension tourism, has always affected people in many ways, now and in the past, and these landscapes may not be as ‘empty’. Also at the end of the day, the artist probably went to buy food and rent a room from someone who actually ‘worked.’

The GPS drawing by Jeremy Wood and others on his famous website⁹ seem far removed from Richard Long’s poetic journeys. Some simply involve the following of certain streets to create the outline of an animal, a letter, \$ sign etc. Some of the drawings involve walking; others are made by bicycle, car, airplane etc. Generally the more conceptual and less obvious projects are more interesting, such as the loops of an airplane trying to land in London or the line created by a dog running on a field. The Japanese artist Yibitsu Lake, used a combination of a heart monitor with a GPS to track her bicycle trip around Japan.¹⁰

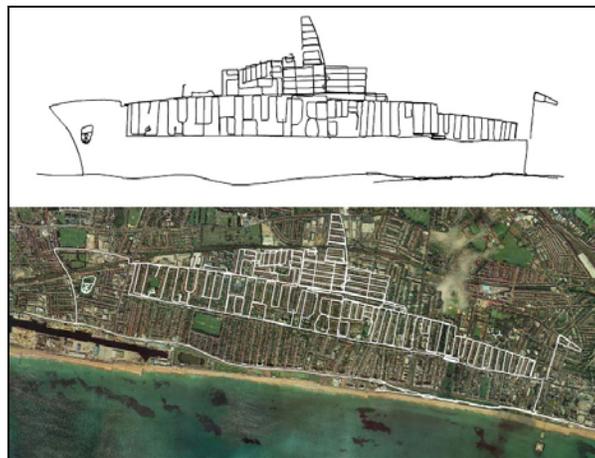


Figure 6. Jeremy Wood, *Brighton Boat*. GPS drawing; 04/08/01- 27/02/02.
<http://www.gpsdrawing.com/>.

One critic refers to these drawings as ‘technological ghosts on the landscape’ and sees the technology as a way to focus on the individual, not the land. I feel that this is not really inherent

⁸ Michel de Certeau, *The Practice of Everyday Life*, tr. Steven Redall (Berkeley: University of California Press, 1984), 212.

⁹ Jeremy Wood, *GPS Drawing*, 2006, <http://www.gpsdrawing.com/>.

¹⁰ Yibitsu Lake, *GPS Drawing* <http://www.gpsdrawing.com/gallery/contributions/hrGPS/yabitsu.htm>.

in the technology, but based on different viewpoints expressed by the artists involved. Wood's GPS drawings do not make such an exalted claims in art making – many non-artists were at times involved in making them. But what is really interesting is that with a GPS, the author is the subject or agent as well as the object on the screen. The land is recorded as a map or becomes invisible, existing only as a memory. Given the overwhelming presence of digital photographs created to capture anything of interest, images have lost some of their poignancy and the selection of perfect moments is more about representation by an author than an objective record.

Jen Southerland uses a GPS as one of many other technological devices:

*Surface Patterns: Audio Tours uses a Global positioning System [GPS] device to explore how memory is linked to urban and domestic place. The GPS device can only describe latitude, longitude and altitude; however, when used to trace the route that someone takes through a place, it can reveal the pattern of the path taken, allowing us to share knowledge of hidden locations and unexpected vantage points along that path. Traditional maps tell us where landmarks are, what streets are called, and where to find the centre of town, whereas the subjective histories and stories explored in this work are played out over time and rely on very different 'memory maps.'*¹¹

The walking project: a university and community collaboration University of Michigan has explored many different approaches to walking that involve artists, writers and the general public and they provide a rich resource on their website.¹²

Creating Drawings and Patterns of Daily Activities

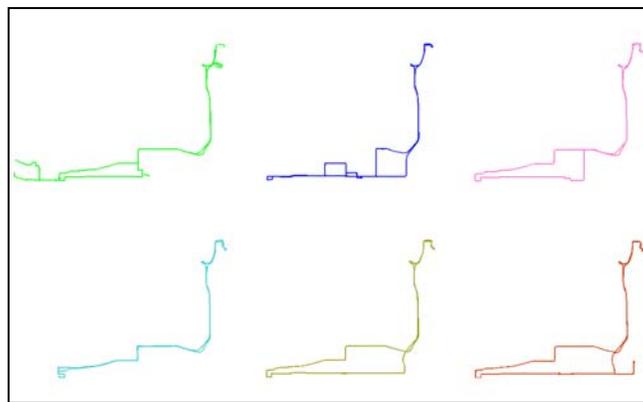


Figure 7. Ruth Scheuing. *6 Trips: Driving to Work*. GPS drawings, inkjet prints, 2005.

Over the last year I have created about 250 tracks of my daily movements, bicycle trips in the park, mountain hikes, ocean kayaking, shopping trips and last but not least, drives by car to and from school. I started with more special trips, but over time, given my working routine, I have become fascinated by the ordinary aspect of daily living, commuting, shopping etc. I take my hand-held GPS everywhere. Some aspects are fixed; I have to cross one of two bridges on my way to the school/work, and I realized that I usually park at the same place and now laugh

¹¹ Jen Southerland, *Surface Patterns: Walking Tours*, July/August 2004, <<http://www.theportable.tv/audiotours/index.html>>.

¹² *The Walking Project: a university and community collaboration*, 2006, <http://www.arts.umich.edu/programs/special/walkingproject/walking.html>.

