Chapter 2

Movements towards a participatory and activist cartography

A brief description of three distinct groups of practitioners is worthwhile, as each embodies a distinct conception of mapmaking and its purposes. These three cartographic movements have positioned themselves as challengers to previous forms of cartography, and as such, the following will help to situate the Grassroots Mapping project (in addition to the Cartagen framework) as a similar attempt to broaden participation and reconceptualize the practice.

2.1 Experimental geography and radical cartography

A growing movement toward a cartographically literate art practice has emerged which seeks to use cartographic tools and attitudes in a critical and activist manner. Some groups, such as Proboscis, take explicit inspiration from Guy Debord's psychogeographic movement of the 1950s. Others such as the Center for Urban Pedagogy, use mapmaking as a means to explore social and environmental injustice in a participatory manner, often with youth. What these practitioners have in common is that they have begun to appropriate tools and techniques from the GIS industry, applying them towards new socially and politically relevant goals.

Artists like Bill Rankin use the thin-lined mechanical aesthetics of GIS to comment upon the normally cartographically invisible American Indian reservations, emphasizing the incompatiblity between conventional, formalized modes of representation and the more complex geographies which exist in the real world. His map, 'The United States?' offers two separate attempts, but Rankin points out some of the difficulties in such an adaptation:

> At stake here is the European definition of nation-state sovereignty, which implies a close (and, ideally, consensual) relation between an area on a map and the governance of its inhabitants. It is not simply that a European-style map has a hard time representing the sovereignty rights (or claims) of indigenous peoples; rather, such relations are a priori impossible to depict on a typical map. [69]

The collective Hackitectura inverts a map of the Gibralter area with Morocco and Western Sahara

on top and Spain and Portugal below, while highlighting the complex landscape of legal and illegal immigration. Graphs, diagrams of security systems, and satellites dot the map depicting 'the multitude versus the Empire', along with marks for immigrant detainment and the Spanish tomato farms whose need for cheap labor feeds much of the migration. The mapmakers' willingness to abandon the guise of objectivity in favor of such a clear geopolitical agenda is typical of many members of this wider cartographic movement.

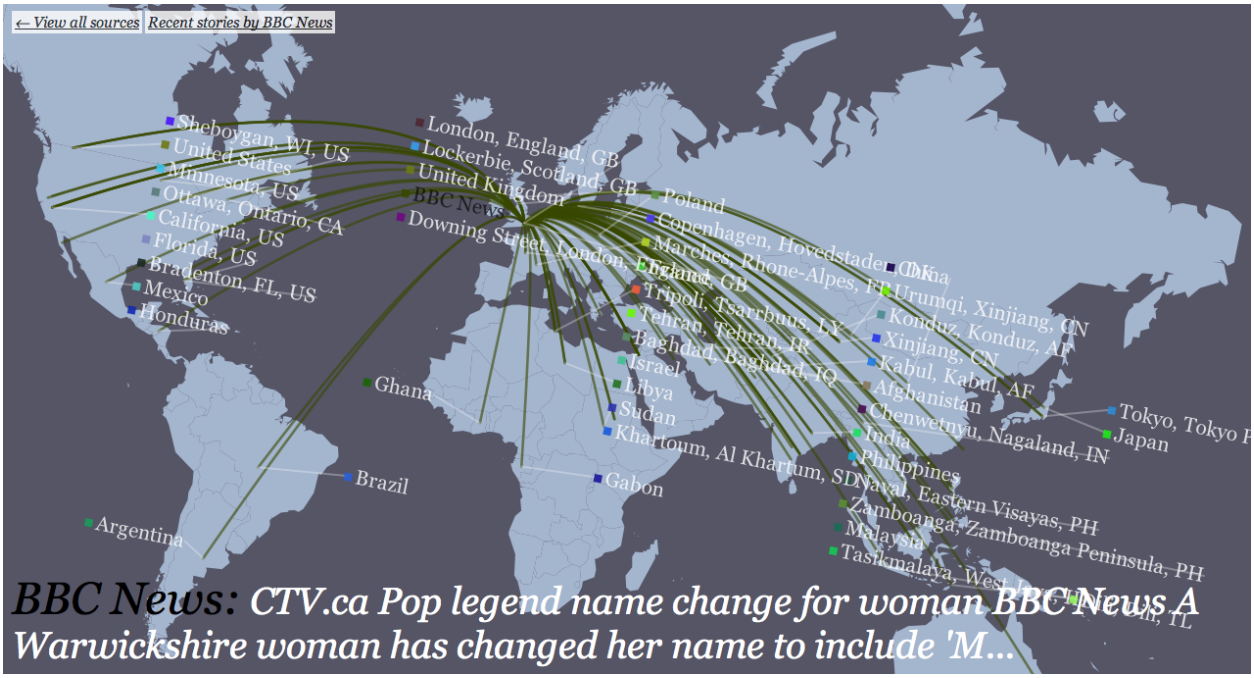

Figure 2.1: A selection of articles published by the BBC, linked to the BBC headquarters in my project NEWSFLOW, 2009

Proboscis in particular has produced a number of cartographic works with urban communities with the goal of creating an 'anthropology of ourselves' and 'become co-creators and not just consumers of information' — the latter of which parallels the neogeographers' interest in making participants of their audience (See Section 2.3). Their projects take the form of mapmaking workshops and activities, using basic materials like paper and watercolor, as well as high-tech tools such as GPS-enabled mobile phones. They focus on recording the historical narratives of participants while relating the stories to geographic positions and routes in a kind of city-wide game.

Proboscis uses the term 'bodystorming' to describe their emphasis on experiencing the world on both a physical and conceptual level, facilitating 'the transformation of abstract ideas and concepts into physical experiences, a tactile approach allowing us to investigate different qualities that ideas may have when applied to physical settings — part of a dynamic and continuous process of trial and error.' [65]

By contrast, my own project ARMSFLOW (`http://armsflow.org`, 2007) describes in a purely online map the sale of conventional arms between governments worldwide from 1950-2006, using data culled from Stockholm International Peace Research Institute (SIPRI). Red lines of varying thickness (representing an abstract metric called TIV, or trend-indicator value) link buyers to

sellers, and users may explore the data by country or by year. A followup project, NEWSFLOW (http://newsflow.cartagen.org, 2009), displays in a similar format connections between news organizations and the locations of stories they publish, as scraped from Google News. In these works, my interest in cartographic activism and data transparency focused mainly on the interpretation and exploration of data, rather than its production or origins. Though visually compelling and information-rich, these two maps are emblematic of the shortcomings of the 'data visualization' movement. Natalie Jeremijenko addresses the crux of the matter when she questions the sources of such works:

> ...the designers of these types of projects use extant data sets from the EPA, from the Toxic Relief Inventory, federal databases, and do so without criticism, without asking how the data is generated, who collected it and under what conditions. That is, what does the data actually represent? [36]

This criticism was revelatory to me, and led to my increased interest in engaging participants not only in interpreting information, but in *creating* information. By augmenting the literacy and ability of individuals to capture, author, and frame new data, we engage a broader public in the role of researcher and of investigator. Rather than playing solely the interpretive role of the designer or editor, I have attempted to insert participants further upstream — closer to the source — with the intent of gaining greater leverage in the construction of geography.

2.2 GIS practitioners

Professional map makers have used GIS since the 1960s, which in recent decades has increasingly centered on the ArcGIS suite by ESRI. More recently, GIS methodologies have met with some criticism amongst newer generations of digital map-makers for its widespread use of expensive proprietary tools such as ArcGIS, both for their cost and because, due to their complex interfaces, these tools present a high barrier to non-expert participation. However, it is easy to forget that GIS was originally conceived of as a movement towards a more participatory and interactive cartography, by reducing the costs and increasing the abilities of users to manipulate and publish geographic data.

Another movement known as *critical GIS* but encompassing several groups such as Qualitative GIS, Feminist GIS, Participatory GIS and Public Participation GIS evolved starting in the 1990s with roots in human geography as well as amongst GIS practitioners themselves. Proponents of critical GIS have challenged traditional GIS practice from a humanist perspective for its failure to incorporate non-quantitative sources, and for its 'potential for exclusion and disempowerment' [26]. Other proponents of a Qualitative GIS such as Marianna Pavlovskaya have challenged the quantitative basis for GIS, arguing that it often relies on spatial imagination and intuition, as in many techniques based on visual examination. She notes that most GIS software ships with only basic spatial analysis capabilities, and suggests that the high reliance on human reasoning in typical usage has been obscured by poorly-designed user interfaces. Most importantly, Pavlovskaya draws attention to the fact that the most common output of GIS use is data visualization, designed for 'visual impact', which preference heuristic interpretation over quantitative analysis. [61]

Proponents of critical GIS argue that GIS should be seen primarily as a power relation, due to its association with 'authoritative' quantitative analysis and the 'fascination of Western science

and geography with vision, seeing, and looking as a primary and supposedly objective way of knowing, which is in fact partial, embodied, and masculinist.' [61][1] The resulting image of 'GIS as a powerful juncture of science, technology, and authority' [61] leads to an exclusivity that places the benefits of geospatial information and technology beyond the reach of the public and in the hands of those already in power. Pavlovskaya and her colleagues advocate a broader and more inclusive practice of cartography which incorporates a more anthropological and 'mixed methods' approach — one which is championed by the Participatory GIS, sometimes known as PPGIS or Public Participation GIS (PGIS) community, which has employed community-produced paper maps and '3D model mapping' where participants construct multimedia scale models of their communities in a discursive and process-focused activity.

Other techniques include ground mapping, performed in an outdoor area using stones or flags to create scaled maps, and relief model mapping using three dimensional cardboard contour maps annotated with pins and labels.[2] As Robert Chambers remarks, PGIS techniques have met with widespread adoption and success across the world, due to their 'power and versatility... the relative ease with which it can be facilitated, the fun, fulfilment and pride which people derive from it, and its multiple uses by so many stakeholders'. [15]

2.2.1 Cartographic ethics

In light of the reassessment of the political and social roles of maps and their production, some from the PGIS community have called for a code of ethics in participatory mapping projects. This seems especially prudent given that the production of maps can have dramatic effects on the residents of the mapped area. Giacomo Rambaldi, Robert Chambers, Mike McCall, and Jefferson Fox proposed in 2006 a set of 33 guidelines entitled 'Practical ethics for PGIS practitioners, facilitators, technology intermediaries and researchers'. The following is a sampling:

- Do your best to recognise that you are working with socially differentiated communities and that your presence will not be politically neutral
- Consider using spatial information technologies that can be mastered by local people (or local technology intermediaries) after being provided sufficient training
- Be considerate in taking peoples' time
- Stimulate spatial learning and information generation rather than mere data extraction for outsiders analysis and interpretation
- Ensure that the outputs of the mapping process are understood by all those concerned

[66]

These guidelines demonstrate a belief that maps should be produced *in collaboration with* local communities, and with respect for their needs and interests. Even in the context of an openly activist agenda, they have proved invaluable to me in formalizing and understanding interactions with mapping participants. In particular, they address the core concern of who owns the maps

[1] See Section 3.5.

[2] A discussion of the challenges the PGIS movement has faced can be found in Section 5.1.

and for whom they are made; there is often the implicit assumption by enthusiasts of open geodata that simply dumping map data into OpenStreetMap is the end goal. It is important to be aware that most people (and especially those in communities in geographic conflict) are unaware of the existence of OpenStreetMap, and would likely be unreceptive to its benefits.

Robert Chambers in particular warns PGIS practitioners against raising expectations of concrete results, noting that 'Any process of analysis facilitated by an outsider is liable to raise expectations of some benefit, even when the outsider goes to pains to explain that they have nothing to offer and nothing will follow from their visit. Disappointment, and reinforced disillusion with visitors and organisations outside the community then follow.' [15]

While this is a highly pragmatic concern, it is concerning and frustrating that many participatory mapping efforts do **not** effect change, or yield benefits for communities in need. It is my belief that by engaging in mapmaking practice which generates truly new information — information which may act as a means of expression and communication with the outside world — there is a strong potential for local communities to gain leverage and derive benefits, including greater inclusion in municipal planning, environmental policy, and legal status. Rather than patronize such participants with a form of mapping which is essentially symbolic and introspective, we must challenge ourselves to invent new rhetorical and tactical mapping tools which can address the needs of the disadvantaged.

Despite sharing many of the same goals of inclusive, participatory techniques, an emphasis on making the audience into producers of information, and inexpensive tools designed for non-experts, neither the critical GIS movement nor the experimental geography movement widely collaborated with or even communicated with the next group, which from a technological perspective has perhaps the greatest potential to innovate new tools and techniques.

2.3 Neogeography

With the rise of web-based data and display systems came a group composed primarily of entrepreneurs, programmers and web designers, who have adopted the name *neogeographers*. This group positions itself in contrast to traditional approaches such as GIS, and favors open data sharing, standards-based data formats. Neogeographers advocate a kind of 'people's GIS', and have worked to develop free and open source software tools to replace proprietary solutions. The neogeographic movement, though it may have found its roots in the opening of the Google Maps Application Programmer's Interface (API) (see Section 5.2), focuses today on largely web-based open source software such as OpenLayers, Mapnik, and GeoDjango. Some desktop map viewing and editing packages such as QGIS or Java OpenStreetMap Editor (JOSM) are also available, though even these are often used to produce data for online publication. The availability of a relatively complete open-source toolchain for authoring and publishing maps is a result of the gradual shift away from easy-to-use commercial APIs. [68] However, some services such as Google's geocoding API, Yahoo's Placemaker API, and a variety of commercial satellite imagery sources, are still relied upon — generally because they outperform open-source alternatives. In some cases, equivalent open alternatives are nonexistent or not widely known.

One identifying theme in the neogeography movement is the shift of users from consumers to producers of maps, though primarily in the online world. [55] The ability to create and publish

map data using simple and free tools has dramatically broadened participation in map making, and Rana and Joliveau suggest that neogeography rejects the 'prescribed role/interaction between the four main components, namely the audience, the information, the presenter and the subject...'. [68] Neogeographers prefer 'crowdsourced' data, contributed by collaboration and volunteerism, to proprietary data, which they have come to distrust due to copyright, access, and format and quality limitations. Data produced by the public and liberally licensed for public use may be translated, republished, remixed, and repurposed without parasitic dependence upon large and often uninterested organizations and governments.

Another important aspect of the movement is that the creators of neogeographic software tools typically do not have a formal or academic background in geography or GIS, but come from a programming and software engineering background. This has some technical benefits, in that the solutions they promote and develop are often conceived of from a novel perspective, sometimes resulting in higher performance, broader applications, and reconcetualizations of both for what and for whom maps are made. It has also resulted in an 'outsider' attitude amongst neogeographers, and even some resentment from traditional GIS practitioners; this has played an important role in how the movement presents itself to the rest of the world, and what choices it makes in the development of tools. For example, the OpenStreetMap project, discussed at length in Section 5.2.2, was developed in response to the restrictive crown copyright of the British Ordnance Survey national map. [17], and was eventually instrumental in Ordnance Survey's decision to provide a free dataset. [8]

While neogeography shares many of the goals of the PGIS movement, relatively little communication exists between these two factions due to their different origins and mutually isolated venues for publication.[3] Rana et all describe neogeography as an 'outcome of the increasingly close integration of our lives with geocomputational and World Wide Web technology.' That statement may be more accurate if 'our lives' refers to the lives of neogeographers, or at most refers to that thin slice of the global population which knows what an API is, or owns an iPhone. As discussed in Chapter 4, most of the world has little or no access to digital geospatial services and information, and this may account for the mounting interest in such tools' application in areas of crisis or humanitarian need. In the last few years, we see an increasing number of neogeographers engaging in socially or politically engaged work — groups such as the Humanitarian OpenStreetMap Team, DevelopmentSeed, NiJeL, Ushahidi, and many more. Many of these have formed partnerships with larger and more traditional organizations such as the World Bank and the United Nations. A more in-depth examination of such works and the relevant technologies was published in 2008 by Sean O'Connor and the Tactical Technology Collective under the name 'Maps for Advocacy'. [55] Neogeography and the open technologies it has brought set the stage for an even more inclusive cartography which stands to benefit those beyond the reach of iPhones, GPS devices, and APIs.

[3] An exception is Mikel Maron's efforts in Kibera, among other places, which makes explicit reference to PGIS practices.