

Political/Hydrological: A Watershed Remapping of the Contiguous United States
Lauren Rosenthal

All creative practice is a recombining of old ideas to facilitate new ones. Mapping is no different; it is a process of overlaying and merging ideas about the world back upon the world to create new ways of seeing. In my studio, I am both artist and cartographer. My background as an environmentalist shapes my worldview and it is from this place that the maps of my imagination emerge. I use Geographic Information Systems (GIS) technology to create maps that prioritize river networks. In these maps, I deemphasize the human-made structures by which we usually locate ourselves, leaving only river networks to contemplate.

What at first might seem disorienting leads to the possibility of re-orienting, of identifying with and within these natural systems. By understanding our relationship with rivers, we are better able to imagine alternate paths for the social and physical structures we've built upon them. By re-imagining spatial data for state and watershed boundaries within the U.S., *Political/Hydrological* imagines and illustrates a world where water is the basis for America's socio-political structure. In this alternate reality rivers are given priority, not as resources to be exploited, but as an integral part of the health of a social/biological system. By presenting this model of the world as I believe it ought to be, I question dominant ideologies and lead the way toward new, more ecologically integrated visions of the world in which we live.

We often think about and read maps as objective documents created with scientific accuracy. Standards regarding representational forms including scale, projection, and symbolism help to reinforce our belief in the truth of the map as a reliable translation of the world. Technologies such as GIS and remote sensing have also increased the credibility of maps, using quantitative data and analytical tools to create increasingly detailed and specialized visualizations.¹ As such, maps act authoritatively, and through our learned experience of interpreting and using the dots and lines that shape them, our imaginations are saturated with very particular notions about the social and physical environments in which we live. Both the magic and danger in our common

perception of the map as a neutral expression of space is that its inevitable cultural and political slant as a product of human mediation is hidden. Most map users are ignorant of the cartographer's power to influence what is emphasized in a map through his/her selection and elimination of details in the landscape. However, as Denis Wood states, "maps, all maps, inevitably, unavoidably, necessarily embody their authors' prejudices, biases and partialities (not to mention the less frequently observed art, curiosity, elegance, focus, care, imagination, attention, intelligence and scholarship their makers' bring to the labor)."ⁱⁱⁱ In other words, despite our inclination to think of maps as objective documents, they are also subjective creations. In fact, most maps are made with specific interests in mind.

Modern mapping emerged between the 15th and 17th centuries with the advent of the printing press and the spread of capitalism. European governments funded mapping projects with the goal of managing territories, both public and private, and of creating national identities, statehoods and selfhoods in the collective consciousness of their subjects. It was technology that made the production and distribution of their maps possible and an understanding of the power of maps in shaping the geographical imagination that fueled their development.ⁱⁱⁱ Since then, the production of maps has continued to be funded and directed by people with power in order that they might maintain their elevated positions. Their maps are not necessarily based solely on what is, but also on what they would like us to see and believe about the world. John Pickles writes that,

The world has literally been made, domesticated and ordered by drawing lines, distinctions, taxonomies and hierarchies: Europe and its others, West and non-West, or people with history and people without history. Through their gaze, gridding, and architectures the sciences have spatialized and produced the world we inhabit. And indeed, this is perhaps the crucial issue: maps provide the very conditions of possibility for the worlds we inhabit and the subjects we become.^{iv}

By this he means that maps do not represent the world, but in fact create it by shaping the way in which we imagine/visualize ourselves, both socially and physically, in geographical contexts. Because most of us do not question the truth in maps, cartographers hold great power in manipulating our imaginings as map users. With over

200 million maps currently disseminated via the Internet every day,^v and the use of GIS and satellite imagery in popular computer applications such as *Google Earth*, the interests of map producers are clearly playing a role in influencing our collective understanding about the world in which we live. Keeping this in mind, if we are to enact the freedoms that we hope for ourselves, it is in our best interests to become more astute about the subjective nature of maps.^{vi}

Thus far, I have portrayed technology's function in map production as a facilitator for the creation and widespread distribution of a fallacious aura promoting the authority of maps. However, there is also potential for technology to make the power of maps more democratic through its increasing accessibility. GIS and other mapping technologies put creative control into the hands of a much wider community of potential map-producers, all capable of making visionary contributions in the ongoing construction of our social and physical worlds. According to Bourriaud, this opportunity is fertile ground for artistic contributions. He states that, "this world, which has been deterritorialized and entirely remodeled by technology, geography...is equally a matter for artists, who come to the discipline from a perspective that is both poetic and critical."^{vii} My own artwork engages in critical dialogue with social and physical geography, technology, and ecology through the using GIS technology to generate counter-mappings. By presenting the possibility for an alternate, more holistic system of social organization, my maps necessarily question the values upon which our world has historically been built. I use GIS because, in addition to being a powerful tool for organizing and analyzing spatial data, this system uses a graphic interface to visualize such information. This space where information is translated into image gives way to the natural intersection between GIS and art, and with it the capacity to change the way we see the world.

My most recent project, *Political/Hydrological: A Watershed Remapping of the Continental U.S.*, uses GIS to imagine and illustrate a world where water is the basis for America's socio-political structure. In this river-centered vision, watershed divides act as state boundaries, allowing citizens to locate themselves within the river networks upon which they depend instead of the arbitrarily bounded political districts within which American identities are currently formed. This project moves rivers from margin to

center, positioning them at the heart of each political entity within the United States. Such a system takes into account that, “This world is a tangled web of waterways that ignores national boundaries.”^{viii}

Water is the basis of life on earth, and it is a finite resource. Of all the water on the planet, only 2.5% is freshwater. Sixty percent of this freshwater is stored in polar ice caps and glaciers, unusable to humankind.^{ix} This leaves a relatively miniscule portion of the earth’s waters in the rivers, lakes, and groundwater stores that we depend upon to maintain our own health as a species. With this knowledge it seems rational to assume that freshwater should be treated as a precious resource, protected and managed with exceptional care by people all over the world. However, this scenario is not true in contemporary society. In general, we have overpopulated and overirrigated arid lands, draining rivers, lakes, and groundwater stores that take hundreds of years to replenish. In the United States and other developed countries, we have also contaminated, excessively extracted, and utilized our waters for the advancement of industry. The consequences are that our limited water resources are becoming even scarcer, we have been afflicted with diseases, including cancer, from polluted drinking water, threatened vital ecosystems, plants and animals, and disturbed the healthy balance of our planet, on which our survival depends. This is not a sustainable scenario and we can do better.

Political/Hydrological proposes a solution. It presents a visual framework within which we might begin fashioning a more ecologically integrated picture of American life. By merging two maps, one of them depicting the current boundaries of the 48 contiguous United States and the other displaying hydrological divisions within the same land mass, I created a new atlas that redefines state boundaries taking into account water resources. In this new configuration, both social and physical systems are honored. One might ask why this matters. How can national or state boundaries, since they are immaterial constructs, have any physical impact on the planet, including water? The answer is that their design reveals and perpetuates the socio-political values upon which our human societies function. For instance, in the United States these lines are drawn without clear or consistent reference to the physical environment. This is almost certainly a symptom of our culture’s own intellectual disconnect from the natural world. It follows that in

such a system our social and personal practices are not likely to take the earth into consideration. If, in contrast, these lines were to be drawn in harmony with the physical environment, it would reveal a more holistic understanding of human and natural systems. A culture existing within such a structure would probably be guided by rules that lead to more ecologically integrated and sound practices. Further, there is a strong link between the visual and intellectual realms of human knowledge. If we continue to look at the world through the lens of the lines that currently crisscross the globe, it is probable that we will, in general, continue to perceive and act in concert with the values that they represent, which presently do violence to the physical world. This is why it is important to present new visions of these systems, in order that our social consciousness, and in turn our actions and governing principles, might expand and evolve.

The foundations for *Political/Hydrological* are not exceptionally radical; since the beginning of time civilizations have centered their societies along waterways. Even in the United States, the idea of defining a political system around water resources has been explored. In 1890, John Wesley Powell, one of America's most famed naturalists, explorers, and public servants published a report in *Century Magazine* that included a such a proposal. I find his language to be clear and beautiful, and have included an excerpt here to help clarify the intentions of my contemporary version of this integrated approach,

In a group of mountains a small river has its source. A dozen or score of creeks unite to form the trunk. The creeks higher up divide into brooks. All these streams combined form the drainage system of a hydrographic basin, a unit of country well defined in nature, for it is bounded above and on each side by heights of land that rise as crests to part the waters. Thus hydraulic basin is segregated from hydraulic basin by nature herself, and the landmarks are practically perpetual...Such a district of country is a commonwealth by itself. The people who live therein are interdependent in all their industries. Every man is interested in the conservation and management of the water supply, for all the waters are needed within the district. The men who control the farming below must also control the upper region where the waters are gathered from the heaven and stored in the reservoirs. Every farm and garden in the valley below is dependent upon each fountain above...Thus it is that there is a body of interdependent and unified interests and values, all collected in one hydrographic basin, and all segregated by well-defined boundary lines from the rest of the world. The people in such a district have common interests, common rights, and common duties, and must necessarily work together for common purposes. Let

such a people organize, under national and State laws, a great irrigation district, including an entire hydrographic basin, and let them make their own laws for the division of the waters, for the protection and use of the forests, for the protection of the pasturage on the hills, and for the use of the powers. This, then, is the proposition I make: that the entire arid region be organized into natural hydrographic districts...The plan is to establish local self-government by hydrographic basins.^x

Powell's vision for the western United States was ahead of its time, and without a doubt unpopular. After years of overpopulation and development in these desert landscapes, where the price of water is on the rise and groundwater stores are quickly vanishing, it might be possible for people to begin seeing the sense in placing rivers at the center of our social construct. *Political/Hydrological* presents a visual depiction of how the Continental United States might look if we followed such an organizing principle.

Some might argue that my vision is nostalgic, harking back to the ways of life of pre-modern cultures. To paraphrase the photographer Robert Adams, people often dream about going back to nature, but rarely talk about going forward to nature. It seems that people are more interested in going back than in going to nature. This concern is valid, and I would like to conclude by saying that the question I am most interested in asking through my maps is, how do we go forward to nature? I hope for *Political/Hydrological* to be a jumping-off point, which might provoke dialogue and stimulate change around how we construct both the physical and social landscapes in which we live.

Maps are not simply the objective representations of the world that we often imagine them to be. They are also subjective proposals, imbued with the ideas, values, and interests of their creators. As such, they not only describe the world, but also create it by influencing how we imagine ourselves as actors in both the social and physical landscapes. Technologies have facilitated the production and distribution of maps, thereby affecting our collective understanding of our world. As access to such technologies makes map-making more democratic, artists and other innovatively critical thinkers are in a position to contribute to the ongoing construction of reality.

Political/Hydrological: A Watershed Remapping of the Continental United States is one such counter-mapping that offers a more integrated vision of American society and its ecological context.

ⁱ Sebastien Caquard and D. R. Fraser Taylor, “Art, Maps and Cybercartography: Stimulating Reflexivity among Map-Users,” in *Cybercartography: Theory and Practice*, ed. D. R. Fraser Taylor (Amsterdam: Elsevier, 2005), 288.

ⁱⁱ Denis Wood, *The Power of Maps*, (New York: The Guilford Press, 1992), 24.

ⁱⁱⁱ John Pickles, *A History of Spaces: Cartographic reason, mapping, and the geo-coded world*, (London: Routledge, 2004), 96-106.

^{iv} *Ibid*, 5.

^v Caquard and Taylor, “Art, Maps and Cybercartography,” (see note i), 286.

^{vi} Pickles writes, “we need to be much more attentive to the institutions within which geographical and cartographical knowledges are produced and disseminated...(state apparatuses, military power, supranatural institutions, non-governmental organizations, corporate and commercial interests, media and tourism, and education and research institutions), each producing distinct, overlapping and particular forms of governmentality.” (see note iii), 18.

^{vii} Bourriaud:, Quoted in Caquard and Taylor, “Art, Maps, and Cybercartography,” (see note iii), 291. This paper examines how artists can serve as collaborators and models for cartographers in making their maps’ subjectivity more transparent.

^{viii} Robin Clarke and Jannet King, *The Water Atlas*, (New York: The New Press, 2004), 75. They go on to state more specific statistics, “At least 260 river basins cross 145 international boundaries. Thirteen river basins are shared by five or more countries...At least 40 percent of the world’s population lives in a river basin shared by two or more countries, and at least one-fifth of the world’s population is under potential threat from upstream neighbors.”

^{ix} George M. Hornberger, et. al., *Elements of Physical Hydrology* (Baltimore: Johns Hopkins University Press, 1998), 8.

^x John Wesley Powell, “Report on the Lands of the Arid Region of the United States, with a More Detailed Account on the Lands of Utah,” in *Seeing Things Whole*, ed. William deBuys, (Washington D.C., Island Press, 2001).