Off the map: An exploration of emotive cartography

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Abstract
As a graphic designer and design educator I have long had an appreciation of maps and map making. Like most readers, I’ve accepted maps as objective and unquestionable presenters of fact; a necessary belief if they are to have worth as pieces of visual communication. Yet, I’ve also appreciated them on a purely aesthetic level, responding to their beauty and to their ability to act as a gateway to exotic places and imagined worlds.

Maps inhabit the realm of fact as visual representations of data, dimensions, attributes and relationships of elements in the physical and logical world. Map making uses a set of formal conventions, which enable the transfer of data into a recognisable visual representation. Maps, however, are manmade and therefore can be neither arbitrary nor free of bias, as they are a selective observation curated by their maker. They possess, however, great persuasive power, through the viewers’ belief that they are neutral carriers of factual information. This ‘power’ is contained in the maps’ value-laden systems of signs (semiotics) and linguistics. So what is the power of maps to convey meaning, beyond information, and where does the emotional content of that meaning derive from?

Designers and artists harness the map’s power to communicate by playing with the formality of mapping techniques and the inherent authority they bestow. Some use maps to trigger fresh ways of looking at things we already ‘know’ and others use them to deliver social or emotional information in a powerful form. While some use mapping techniques with the intention of creating emotional responses, I have a particular interest in those maps which evoke an emotional response in their readers, unrelated to authorial intent. In these cases, I believe, there is a power shift from the author to the reader.
Semiotics and authorship

Map making fulfils the human desire to understand, and perhaps therefore to control, the world around us. Maps from thousands of years ago record human communities and their relationship with the surrounding environment. One of the oldest surviving maps is a clay tablet nearly 5,000 years old that shows mountains, water bodies, and other geographic features in Mesopotamia. It is thought that parts of the Nile were carefully mapped in ancient times in order to recover property lines after the annual floods.

Mapping is a visual language and, viewed through the science of semiotics, has a set of visual codes that are widely recognised and understood and allow data to be transferred into a recognisable visual representation. However, the readers of maps also operate within individual sets of codes, which both reflect their cultural and personal experiences, and are the medium through which they interpret the world around them. As Noble says in *Visual Research: An Introduction to Research Methodologies in Graphic Design*, “mapping, the systematic organization of complex information in a form which may be transported and reinterpreted, is an activity that has much in common with graphic design – the collecting, editing and re-representation of information in a communicable visual form” (2005, p.72).

A map is a visual text, the result of pre-existing codes that enable it to communicate concrete information in an abstract form. A map presents us with a reality we are conscious of rather than a reality we experience. To read a map we must decode and interpret its codes and signs. In reading a map we don’t ourselves see the views or experience the climb to the top of the mountain, but we engage with what others have discovered or experienced. This is the result of accumulated experience and learning, of cultural and geographic history. For a map to work as visual communication it needs to draw on not just the cartographic history and conventions developed over centuries, but also the accumulated culture of the reader.

Maps are manmade, a selective observation, and therefore can be neither detached nor free of bias. As Monmonier points out in *How to Lie with Maps*:
Not only is it easy to lie with maps, it’s essential. To portray meaningful relationships for a complex, three-dimensional world on a flat sheet of paper or a video screen, a map must distort reality. As a scale model, the map must use symbols that almost always are proportionally much bigger or thicker than the features they represent. To avoid hiding critical information in a fog of detail, the map must offer a selective, incomplete view of reality. There’s no escape from the cartographic paradox: to present a useful and truthful picture, an accurate map must tell white lies. (1996, p.1)

Yet the viewer’s belief that maps are neutral carriers of factual information gives them an enormous persuasive power. As Monmonier says, map users “are a trusting lot” who “generally tolerate white lies” (1996, p.1).

In *The Power of Maps* Wood also points out that “Every map shows this … but not that, and every map shows what it shows this way … but not the other. Not only is this inescapable but it is precisely because of this interested selectivity … that the map is enabled to work” (1992, p.1).

The map’s power to persuade is located in its value-laden semiotic and linguistic system, and we need to be aware, as Cosgrove points out in *Mapping in the Age of Digital Media*, that the “semiotics of the map are as complex as its scientific, technical and aesthetic aspects” (cited in Silver & Balmori, 2003, p.18).

The language and conventions of maps appear to reflect the natural world, but in fact use a carefully crafted set of codes and tap into an accumulated cultural understanding of them. Mapmakers’ selection of content and choices about representation of it create hierarchies that influence how we see the world. For example, the Romans’ worldview led Ptolemy to place north at the top of his map, and mapmakers have followed his lead ever since. There is no good reason for this other than convention. However, its effect has been to create a hierarchy of the earth that has been reinforced so many times that the idea that this particular view is ‘correct’ has become deeply ingrained. This is just one of the system of signs, and underlying values, that constitute cartography. The language of cartography is so ingrained that it has become invisible. We do not question the connection between
the blue line on the map and the idea of a ‘river’, or that roads should be anything other than black lines.

Cosgrove, in the conclusion to *Mapping in the Age of Digital Media* points out that understandings of cartography have undergone enormous shifts over the last quarter century. He summarises these changes as, firstly, the detailed exposure and analysis of the ideological power of maps and the roles that they have played in the interactions of power and knowledge and shaping the geographies of the modern world. Secondly, he notes that the accuracy and objectivity claimed by map-making has been challenged. The inevitable imaginative and artistic content that “comes from framing, selection, composition and graphic representation of mapped information” has been recognised and new connections have been made between scientific map-making and creative practices. And, thirdly, he points to the recognition of mapping as a complex cultural and social process (cited in Silver & Balmori, 2003, p.128).

It is undeniable that maps distort reality. A round earth cannot be depicted in two dimensions without some distortions. In fact, a map can represent accurately only shape, or area, or distance, or direction. To focus on achieving accuracy in one of these is inevitably to distort the others, and in doing so our perception of the world is affected. The great debate about depictions of the world has raged for many years: three distinct projections include the Mercator, the Peters, and the Robinson and Goode. Each of them has its strong points. The Mercator is used for navigation purposes, because great circles appear as straight lines using this projection. In doing so, however, this projection is forced to distort the area of any given landmass relative to other landmasses. The Peters projection combats this area distortion by sacrificing accuracy of shape, distance and direction. While this projection is less useful than the Mercator in some ways, those who prefer it say that the Mercator is unjust in that it depicts landmasses in the high latitudes as much larger than they really are relative to landmasses in the lower latitudes. They claim that this creates a sense of superiority among inhabitants of North America and Europe, areas that are already among the most powerful in the world. The Robinson and Goode projections on the other hand, are compromises between these two extremes and so
are commonly used for general reference maps. All projections sacrifice absolute accuracy in any particular domain in order to be relatively accurate in all domains.

Are these examples of maps ‘creating reality’? The answer to that question depends on how we choose to define reality – as the physical actuality of the world, or the perceived truth that exists in people’s minds.

In his essay *The map as a kind of talk: Brian Harley and the confabulation of the inner and outer voice*, Wood notes that Harley, “the late theoretician of cartography”, argued “that the authority of the map derives from the erasure of its authorship” (2002, p.200). The conventions of cartography can create the illusion of an absence of a creative will in the making of maps to the extent that, for many readers of maps, the hand of the cartographer is invisible.

Harley considered that the authorship of maps was shared between the “inner voice of the mapmaker (with his craft and knowledge) and the outer voice of the mapmaker’s patron (with his capital and interests)” (Wood, 2002, p.200). In the interchange between these two ‘authors’, both become invisible.

He describes the ‘inner voice’ of the mapmaker as an internal ‘editor’. Harley pictures the mapmaker drawing his map while listening to an outer voice that commissions him to draw what it wants, for payment, while the inner voice advises the man on how to do this, so that the commission is fulfilled. However, he also explains that the inner and outer voices are both subtler and more pervasive than this picture might suggest. Harley contends that the outer voice, the patron, may in fact have the breadth and weight of ‘market forces’ and that the inner voice or editor, may include the mapmaker’s professional associations and schools, and also his own, internalised view of what is ‘tasteful’. In Harley’s view, says Wood, the map that is drawn is a record or product of the conversation between the inner and outer world of the mapmaker, the discourse between external expectations and needs, and the mapmaker’s understanding, skills, needs, in which the environment makes no appearance (Wood, 2002, p.200).
So, do maps create reality or represent reality? Certainly, they have an authority that sometimes looks like the truth and that lends weight to their content. However, a map is always a selective vision, which represents a particular view.

Some artists and designers have used the cartographic aesthetic to portray information that is not traditionally delivered in this form. Their work relies on the familiarity of the map’s aesthetic and the reader’s trust in it and reliance on it as a source of information to trigger a fresh view or an emotional response when it is used to convey other ideas. Harmon, in her introduction to *You are Here*, says that when we look at these maps, our “minds know just what to do: take the information and extrapolate from it a place where they can leap, play, gambol…” (2004, p.11). These are mapmakers who have set out consciously to show the reader something familiar in a new and intriguing light.

**Maps with emotional content**

“A map [atlas] never just shows you where you are, where you want to go to and how to get there. It also fires the imagination. Maps which chart rivers, mountains, towns, countries, far-away regions, oceans and continents can arouse intense feelings. A map combines reality and fantasy. (Van Swaaij & Klare, 2000, p.5)

Artist and designer Scher (2002) makes maps because she likes making maps and uses them to record and chart her own emotional responses. Filled with existing locations and bright colours, Scher’s maps abandon accuracy to achieve a visual aesthetic that expresses her feelings. The combination of traditional mapping aesthetic and novel content is also used by Van Swaaij & Klare. In their work *The Atlas of Experience* they use the conventions of cartography to lead the reader through familiar-looking topography into the regions of imagination, feelings and experience.

Beck’s 1933 map of the London Underground is a design classic. Beck’s map focuses on the needs of the target audience and in an audacious way jettisons all geographic accuracy irrelevant to that audience. This imaginative, yet stunningly simple solution has become a template for transport maps the world over and is
instantly recognisable. British artist Patterson uses the authority of Beck’s map of the London Underground in his work *The Great Bear*, replacing the tube lines and station names with figures from history and popular culture. The Circle line is renamed Philosophers and the Northern line, Film Actors. Charing Cross station becomes Oliver Reed, and Baker Street, Charles Darwin. Patterson playfully subverts the familiar classification system to force the reader into making unexpected connections and associations between fresh and incongruous information. It is the authority and familiarity of Beck’s diagram and its promise of delivering important information that causes a double take. The reader responds by using familiar mapping ‘rules’ to try to make the connection between the new stations and lines. The new information gains legitimacy through its presentation in a medium the reader trusts and takes for fact. Patterson’s map would fail to engage without tapping in to the authority inherent in Beck’s original. It is the reader’s trust in maps as conveyors of truth that gives them power.

A further exploration of this approach can be seen in *The New State of the World Atlas* (Kidron & Segal, 1984). In this text countries are scaled relative to their proportional share of various global resources rather than their geographic form. The resulting schematic maps highlight the way that every map must select and focus on some information at the expense of others. Despite the clinical and industrial appearance of the resulting maps the reader is left with no option but to notice and respond to the obvious extremes in distribution of resources.

This approach has obvious parallels with a group of psychogeographers, which includes designer and educator Barnes. Barnes uses traditional cartographic and information design tools to investigate the human dimension of mapping in urban Nottingham. The information Barnes displays in her maps is selected and strictly limited, creating particular emphasis on the social use of spaces – usually excluded from street maps. Her maps invite the viewer to create links and chart relationships between different aspects of human and physical geography. One of her works, for example, is a map of graffiti sites overlaid with a map showing the distribution of domestic gardens, areas of light and shade or parks and green space for example.
The artists, designers and mapmakers described above have used a range of accepted and recognised cartographic techniques to provoke a response in their readers on an emotional as well as intellectual level. While this response relies on and reflects the set of beliefs that each reader brings to the map, the authors have also set out to manipulate and lead that response.

My focus in this paper is on the emotional response that arises from the set of beliefs which the reader brings to the map. This response can be separate from both the overt and subtler communication intended by the cartographer. It arises in the interface between the cartographer, the artifice of the map, and the viewer and all s/he brings to it, and sometimes adds an emotional weight to the work that is unintended by the author. Kirkpatrick’s maps described below are one such example, and the lightning strikes maps became my case study to explore these ideas.

**Maps without emotional intent**

In the Cultural and Social Shapes section of the first edition of the *Bateman Contemporary Atlas of NZ: The Shapes of Our Nation* (Kirkpatrick, 1999, p.48), Kirkpatrick presents a series of maps based on the lives of three city women. The maps chart the movements of the women over one month, showing the geographic and some elements of the social range of their activities.

For each of the women, Kirkpatrick overlays a series of coloured circles on a map of Christchurch. The circles’ position on the map relates to the position of the places the woman visited and the size of circle equates to the amount of time she spent. The intention behind the construction of the maps is to present factual data in an accessible way. However, despite the clinical methodology, like the maps in the *State of the World Atlas* mentioned earlier, these maps cannot escape the reader’s interpretation of them as a critique of the quality of the lives of these three personalities.

**Lightning maps**

Every second there are a hundred cloud-to-ground lightning strikes worldwide. The temperature of a typical lightning bolt is 40,000 degrees Fahrenheit (seven times
hotter than the surface of the sun). Lightning travels at 60,000 miles per second. Each lightning bolt has the potential to be as strong as a billion volts. A typical lightning bolt has the diameter of a 20-cent piece. Lightning in the USA between 1959 and 2003 killed 3,696 people. Some scientists think that lightning may have played a part in the evolution of living organisms: the immense heat and other energy given off has been found to convert elements to compounds that are found in organisms.

For several years, until recently, a small map appeared in the New Zealand Sunday Star Times, which registered the lightning strikes for the past week. These maps recorded the energy emitted from air to ground or sea strikes, which is picked up, accurately to within 5km, and relayed by satellite to a station in Christchurch. Most of the strikes occur at sea – more than 90 percent of those shown on the maps. The maps have little aesthetic impact and no apparent purpose. These lightning maps contain a tightly cropped outline of New Zealand, coloured green, set inside a frame little larger than a matchbox. Each map is supported by three lines of text including the number of lightning strikes for the week. Each single lightning strike is shown as a black dot on the map. Together these dots create a unique pattern of instants in time, never to be repeated. It seemed incongruous that such a visually insignificant little map was used to reflect such dramatic and ephemeral natural phenomena. Occasionally a map did not appear in the paper, although a blank space remained in its absence.

As a visual communicator these maps raised some questions for me, namely, who was their target audience? On enquiry, the New Zealand Meteorological Service, who supply the information, revealed that, although the data was stored and had long term value in forecasting, the maps themselves were not kept by anyone and did not have a defined audience in the newspaper readership. This lack of purpose or audience was reinforced by the maps’ absence, apparently unremarked, from the newspaper for almost a year. The diagonal orientation of New Zealand meant that inside the tightly cropped rectangle, large open spaces of water were shown to the north/west and south/east but none directly north or south. This area does not correlate to New Zealand’s exclusive economic zone, quota management areas or
commercial fishing zones. Whose need defined the area around New Zealand that the reader would be shown - was it just the space allocated by the newspaper?

As Cosgrove, in *Mapping in the Age of Digital Media*, points out “maps are the product of a complex cultural and social process” (Silver & Balmori, 2003, p.76). Cosgrove’s argument is apparent in the lightning maps. The maps were published weekly to fit with the publishing schedule of a weekly newspaper. Therefore, the lightning strikes were arbitrarily depicted in groupings of those that occurred within the same week although the occurrence of the strikes was intermittent and random and completely unrelated to the weekly schedule. The interchange between the external ‘patron’ and the invisible mapmaker is clear in the arbitrariness of that grouping as well as the dimension of the map and the area of sea depicted.

Although the New Zealand Meteorological Service display the five-day data using colour coding to determine the age of the strikes on their website, the mapmaker has chosen to depict each strike as a black dot in the newspaper version. The limitations of the map’s size and the method of newspaper printing create their own distortions. For legibility reasons the dots are closer in scale to the size of a large city than the point of contact of a lightning strike. Because the maps show a week’s worth of strikes and because of the coarse nature of newspaper print the dots frequently fuse together to form large dark masses. Although we know that the map depicts strikes across a whole week, we are unable to deconstruct this single snapshot back into its constituent moments.

With most lightning strikes occurring at sea, what we are left with is an image of dark forms gathering along the New Zealand coastline.

The New Zealand Sunday Star Times lightning maps use two co-existent semiotic categories: a representational sign or icon, in the outline of New Zealand, and an abstract sign or symbol, in the dots for the lightning strikes. The maps have no definable audience, the framing bears no relationship to New Zealand’s social and economic interests and the maps themselves are insignificant and insipid. By any measure these maps are at best old fashioned and at worst hopelessly unequal to the task of describing such violent and transient events.
Nonetheless, I was interested in my emotional response to these unimposing maps. They fail to connect with their reader in the way that the cartographer intended, but the response they evoke illustrates the connotative power of the map’s visual elements. The outline map of New Zealand has emotive power as a symbol of home. While being on the map as part of the pink of Empire that coloured much of the landmass of the world once, for many, created our sense of belonging, New Zealand’s developing sense of nationhood and growing acceptance of our position in the southern Pacific has cemented the simple outline map as an important symbol. Its use in national and international logos and in popular culture, be it on T-shirts or tattoos, have made it a highly visible and broadly accepted icon of our country, like the koru, kiwi, silver fern and Southern Cross. In some uses its form is so abstracted that becomes a symbol of the map of New Zealand, rather than a map in itself.

One cannot look at the map of New Zealand without placing oneself, and important locations, within it. The lightning strikes are therefore seen by the reader relative to places of personal importance. The lightning maps starkly illustrate New Zealand’s physical isolation by the framing and emptiness of the ‘white sea’ around the islands. No other land mass is included. The grouping of a week’s worth of lightning strikes in each map results, in some, in a swarm of black dots that obscures half of the country, suggesting a country under siege.

To some extent it is because the map fails in its overt purpose in conveying information about lightning strikes that it succeeds in connecting with the reader. The absence of overt meaning gives the reader freedom to interpret and respond to the map and shifts the power to determine its meaning from the author to the reader. While this was never part of the author’s intent, these maps have as much value as visual communication as those that set out to convey emotional content. In relation to my study of semiotics they have greater value, highlighting in their simplicity the power of the basic outline of New Zealand and its ability to extract an emotional response from its reader.
References


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