



think we do the same to an extent. It is perfectly natural for us to use the cognitive faculties that we have developed and honed, in order to understand the world. But these faculties also color our view of the world, filtering out inconvenient information that we prefer to think of as noise because it doesn't fit our modes of understanding. Just to plant a seed, I suggest that what is noise to us is information to some people.

A common belief in our domain is that geographic and map literacy is at a dismal nadir in the United States at least, if not worldwide, and that we ought to be doing more about it, pressing our case and getting educators to understand how they are short-changing the future if they do not improve geographic literacy. We all have and share anecdotes about appalling or amusing misconceptions, misunderstandings, misreadings, or mis-creations of maps. These anecdotes reinforce our belief that something is wrong, something needs fixing, and we have the solution. In order for that belief to be persuasive, we have to document how this illiteracy is detrimental to society at large. But demonstrating just that is nowhere near enough: we have to document that the opportunity cost of remedying the illiteracy does not exceed the gain.

What do I mean by that? People's time is limited. People's interest is limited. People's cognitive faculties are limited. Educational resources are limited. If we improve geographic literacy, it will have to come at a price. Can we demonstrate that the benefits gained by improving geographic literacy are greater than if those resources were used instead to improve computer literacy? Scientific literacy? Conflict resolution literacy? In other words, it's not just a question of whether people could benefit by more geographic literacy. If you strip out the costs and competition, the answer will always be yes. But that's a naïve way to think about the problem. It's really a question of whether, in the mad competition for people's time and money, geographic literacy deserves a larger share than it's already getting. In order to demonstrate that, we have to prove that maps are important, not only in some absolute sense, but *relative to everything else* that competes for attention.

Names like Arthur Robinson, J. B. Harley, and Denis Wood have argued rhetorically for the power of maps, and most of us believe them, but to this date, 2013,

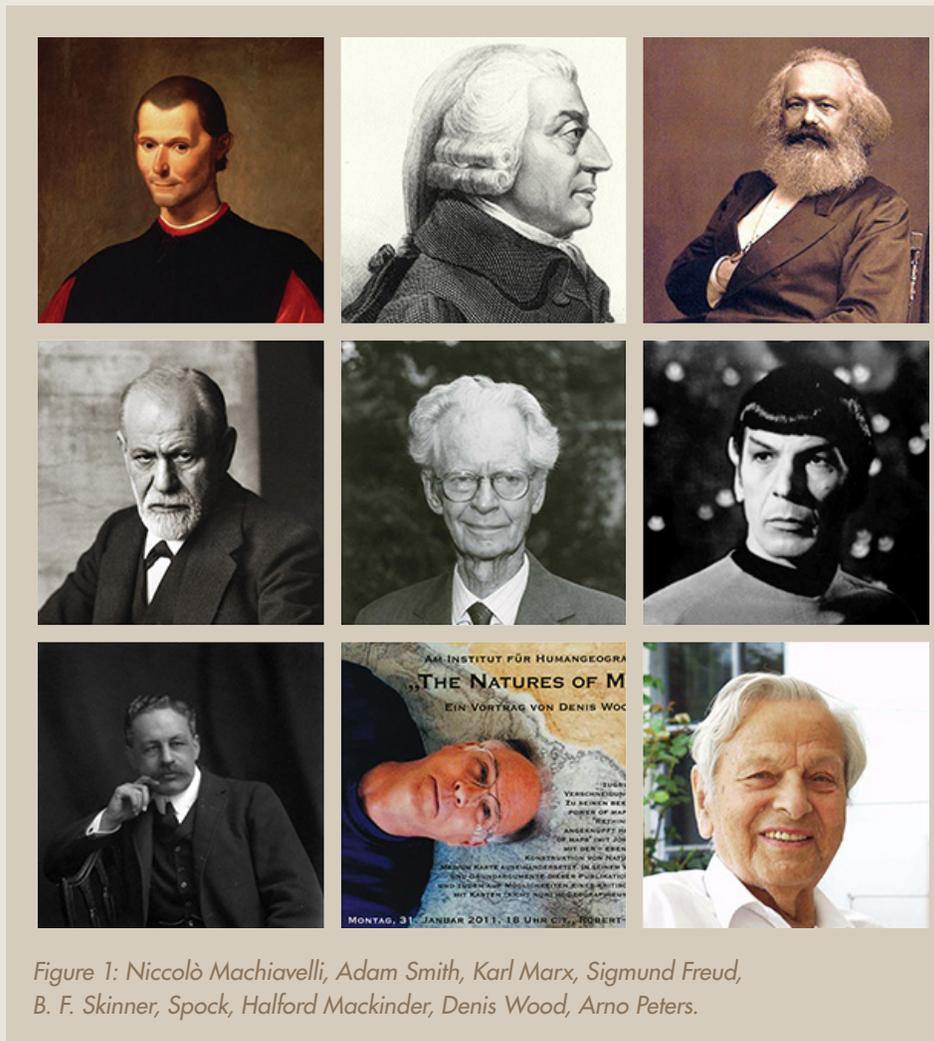


Figure 1: Niccolò Machiavelli, Adam Smith, Karl Marx, Sigmund Freud, B. F. Skinner, Spock, Halford Mackinder, Denis Wood, Arno Peters.

we still have no rigorous studies to inform such a conversation. Meanwhile, when I consider how people really live their lives, I would argue instead for the *impotence* of maps.

Most of you have read or at least know of Mark Monmonier's books, particularly *How to Lie with Maps*. I've found that people familiar with these works commonly presume that because someone has used or misused a map as propaganda, that the subterfuge *succeeded* and therefore that maps are powerful. Not so. A considered reading of Monmonier, particularly of his *Rhumb Lines and Map Wars*, tells you that he does not believe the rhetorical value of maps to be high at all. Most of these attempts at propaganda were flops or made only a marginal contribution to their authors' agendas.

With respect to the seedy affair that inspired Monmonier to write *Rhumb Lines and Map Wars* in the first place, that being the Peters Map and the kerfuffle over it, I point out here, as I have in an essay in a forthcoming volume of the *History of Cartography*, that Robinson and his colleagues at the American Cartographic Association blundered in their handling of the situation. They themselves were so blinded by their conviction that maps carry power that they chose to fight Peters on his own ground, arguing over the merits of specific map projections rather than just denying that any projection has the power to do what Peters claimed. This strategic failure not only left the Peters religion intact, but furthermore left the door open for any quack who wants to start a new crusade. And they do. I hear from them regularly.

Of course high profile uses and abuses of maps crop up now and then. But we are smart people. We should understand that events make the news and stick in our minds *because* they are spectacular, not because they are normal. Meanwhile, deconstructionists like to go on about how maps are tools of empire, how they contribute to the subjugation of native peoples, how they shape thinking, how they insinuate territory and control where there may be little or none. I don't have space to deal with claims like that in a short essay—and in any case, they are not exactly wrong—but let me propose an alternative narrative: even *if* we had no maps, all those things still would have happened. A lack of maps would not have reworked the modern world.

Why? Because maps are just a convenient presentation of underlying information already present. If a map can insinuate something, so can words. So can observing the lay of the land. If a map can express relationships, so can words. We are visual creatures, so maps become a preferred medium to express spatial relationships. Yet nothing novel is brought to bear by their existence. The imperial powers would have done what they did with or without maps. A few details of history would have played out differently, and some endeavors would have taken more effort, but in the large, the world of today would be the same.

How can I claim this? Because earlier cultures that engaged in exploration and imperialism needed no maps. It was other critical technologies and organizational structures that propelled them in their conquests. We have no evidence that the Phoenicians created or needed maps. We are certain the Norse mariners made no maps. The startling achievements of the Polynesian seafarers happened without

anything like what we think of as a map, and though they used intricate stick charts to represent patterns of swells, we have no evidence that those devices were critical to maintaining routes of communication or holding territory, and certainly were useless in moving into new territories. The Mongol conquests forged one of the greatest empires ever, apparently without maps. Therefore I can say with confidence that maps were a convenience to the modern imperial states, but not a necessity.

I'm going to argue for the impotence of maps in two ways. The first is by describing three demographics that have no use for maps:

- The first group is those whose biology precludes the necessary cognitive faculties. These people exist. Not surprisingly, I couldn't find much research on such a sensitive thesis. But they exist, and I predict they are not rare. And no, I don't believe it is just a matter of education. Map reading requires the confluence of many cognitive faculties. If just one of them is diminished, maps are going to be unreadable or too difficult to interpret to be worth the effort.
- The second group is those who live their lives purely locally. This is a large class of urban people for whom venturing forth either holds no attraction or is economically or medically unfeasible. If they wish to explore, they explore some shop they've never visited or some lifestyle venue. This mapless living is common in rural life as well, where, again, many people never go anywhere except places that they already know. And if it's common here, in the United States, imagine someplace like India, where my guess is that a billion people cannot benefit from maps because they do not and never will go anywhere they are unfamiliar with. Surely local living is the dominant human condition.
- The third group is those whose wayfinding is social. How does this work? There is the old saw about the professor who goes into the backwoods looking for a particular pond to study its particular pond scum. He gets hopelessly lost, and so finds an old gentleman sitting on his porch. "I am lost. I can't even figure out what direction I'm headed. I'm looking for Plessing Pond." The gentleman is happy to oblige: "Well, you get back on the road and go west. A mile before the Baptist church, turn left and go straight for a spell. When you reach the intersection where the old schoolhouse used to be afore it burnt down in '62, then you head right. You'll pass a few lanes into the woods. After you pass the one to Auntie Edith's house, stop and pull over in the next hollow. Then you'll hike through the woods straight toward the county line for 'bout three hundred yards, and there you are!"

Jesting aside, I have noticed that a lot of people do not use maps for their wayfinding even when available. They ask people. That is their method. Now before you go into some disapproving clucking, I am going to claim that this method does not limit them. Why? Because they never go anyplace where there aren't any people. Why? Because going somewhere is a social endeavor for them. If there isn't anyone to ask, then it's just not someplace they want to go! Not only does their method not limit them, their method is efficient, utilitarian, and it gives them a pretext to

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converse with people, which is at least as important to them as getting somewhere is. Often they'll protract the conversation with digressions and anecdotes, because in fact that is what is important to them.

These three demographic groups bleed into each other, and of course the biologically constrained faction falls entirely within the other two. That aside, I will point out that those who live stationary lives do not necessarily feel any aversion to using maps; it is just that their need is rare. Social wayfarers might also use maps, but only as a last resort and likely with aversion.

Before you get too uncomfortable about all this, I am aware that maps are used well beyond wayfinding. Of course I am aware; when I was nine or ten years old and poor as a church mouse, I would haunt the second-hand stores looking for used *National Geographic*s that still carried their maps. And, by the way, the fact that about half of those *National Geographic*s did still have their maps—in unopened condition, no less—tells me just how many people aren't interested in maps *despite* subscribing to a geographic magazine! Anyway, you could buy one for 5¢, getting a map whose equivalent at the bookstore or office supply store might cost you a wrenching 69¢ or even a dollar. Did I use these maps for wayfinding? Of course not. I used them to inform myself about the world. I claim there is a huge intersection of people who don't need maps for wayfinding, and people who don't concern themselves with distant geography at all. There is nothing you can do to interest them in a mode of thinking that they either cannot engage in or do not consider useful. They have other ways of understanding the world that are more comfortable or efficient for them. They do not believe that a spatial understanding of the wider world could benefit them more than the other things they already concern their time with. Or even in some rare cases, people acquire a sophisticated spatial understanding by means other than maps.



Figure 2: The pie of potential map power.

Secondly, in this recognition of impotence, we need to understand that, within your lifetime, maps have lost one of the two primary components of their power. You may not even have been aware of this shift, but it is in progress and is nearly complete (Figure 2).

What are the components of a map's power?

The first is its *rhetorical power*. This comes about through the editorial choices you make in constructing your map:

- Selection, rejection, and extent of coverages
- Generalization of features
- Color scheme
- Symbology
- Projection
- Time evolution, if it is an animated map
- Typefaces

And so on. By these choices you set the agenda for the map you make and, for better or worse, its effectiveness as a means for communication and extraction of information. I have no quibble with this aspect of power; this is the craft of cartography and it will persist indefinitely. The other half of a map's power, on the other hand—well. Irreversible decline. Nearly gone. Did you even notice?

What is that half? Historically, to some degree or another, maps were central to the acquisition of information. They were often a *primary authority*. Here's what I mean by that: in order to construct a useful map in times past, potentially a huge amount of work went into collecting information, perhaps in the form of an expedition or a large-scale survey. This information was distilled down into a map. Meanwhile the survey data, with no other practical means of storage, often was lost or discarded, leaving the map itself as the primary record of that survey and hence the primary source for other maps as well as for analysis.

I don't want to emphasize importance of maps as primary authorities because I think it is already overemphasized by map historians. The truth is, often other sources were primary, particularly when it came to things like boundaries, which normally are described legally in written form rather than as maps. Still, sometimes maps were all that remained even in boundary disputes, and certainly when it came to features outside of legal concerns, the map was the sole record and primary authority—at least unless someone went look for themselves. Hence in times past a map might simultaneously be the authoritative source *and* the medium of presentation.

Well, gentle reader, those days are over. The map is not a primary authority anymore. It is only a visual artifact representing information that is encoded elsewhere as digital structures. Maps have moved from the center to the periphery, and they will remain there. The information they purvey is available elsewhere now in more accurate form and free from some of the possibilities for rhetorical taint. That does not mean the need or use for maps will fade away. Humans, after all, will always be visual creatures. But it does mean that maps have lost half of what little power they once had (Figure 3).

Half. Gone. In your lifetime. Just as people like Denis Wood began preaching the power of maps, they've lost half their potency, relinquishing their position of authority. How's that for power?

So, the pie here loses almost half due to this shift of authority. Half of the rest is lost due to inapplicability or audience apathy (Figure 4).

Of the remaining quarter, we must then consider what fraction of a typical person's life is consumed by using maps. Typical, okay? Not even Joe the Plumber; he used maps to make house calls. Certainly not you, with your lives wrapped up in maps. I think the average American who uses maps at all probably spends under a minute a day examining them. That's one part in a thousand of a person's waking life, and that's the ratio of time a map has to compete with the whole rest of what's going on in a person's life to exert power over it.

There's your sliver (Figure 5).

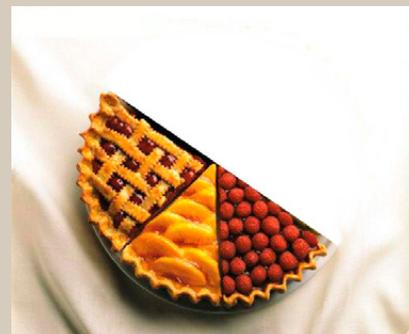


Figure 3: Half that pie has been eaten recently.

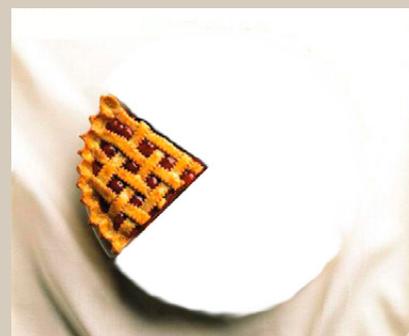


Figure 4: Another half of the remaining.



Figure 5: The real sliver of maps' power.



Figure 6: By this iconic map you might think Baron's Court, Hammersmith, Goldhawk Road or Holland Park were closer to (the now defunct) Addison Road than your destination Shepherds Bush. But Shepherds Bush is only half the distance of some of those, is the closest, and really, you might as well walk the ten minutes rather than take the red route. People don't use subways in a vacuum of surface context.

Not very impressive, is it? Before you fetch the pitchforks and torches, let me just say I don't write this to crush your soul or stir up trouble or play contrarian. Obviously I like maps; that's why I spend so much time on them. I also happen to think they're quite important—even critical—for specific purposes, and they need to be done right. That's where you come in. All this toiling over map design, all this honing of professional skills: this is good and necessary. Even the educational lobbying and pushing for more map literacy is good because without the amount of pushing we do, we'd lose what little we have. I just advocate taking up a more objective view of the situation. A more objective view means you can reach your goals more efficiently. In particular, maybe you should recognize that a lot of people are not, *and never will be*, your constituents. You have nothing to say to them. If you have nothing to say to them, then *stop talking to them!*

By which I mean, mapmakers spend a lot of time simplifying, reducing, discarding. As matters of design,

those are good ideas anyway. But if you give up on the idea that *everyone* needs to understand a map, maybe, just maybe, you can keep more of what's important to the people who are likely to listen to you in the first place. I've seen examples of self-conscious modern maps that, in their obsessive drive for minimalism in order to expand their audience, leave off elements that I thought would improve their narrative (Figure 6).

I don't have any specific recommendations here; I prefer that someone who actually knows how to make a map take up this idea and put some serious thought and research into it. I do want to advocate a little more humility. We're excellent—in our field. Not everyone needs our field, and those who do, generally not nearly as much as we tend to think. Rejection of maps doesn't imply ignorance or stupidity; nor does it even necessarily run counter to the interests of the person rejecting them. Don't worry about that. Make better maps for the people who do need them.

*(From an "Aesthetics of Mapping" presentation at NACIS 2012, 18 October, Portland, Oregon.)*

