

HOW MAPS WORK

Abstract This paper proposes a new definition of the map. It is argued that a map is a weapon in the fight for social dominion, one disguised as a representation of the world, but which in reality links territory with what comes with it (with voting rights or military service obligations, with rates of rainfall or types of vegetation). The map achieves this linkage by fusing onto a common plane (that of the map) multicoded images of the very world the map itself will bring into being.

Maps wear many masks.

And it's not always easy to see beneath them. There's the mask the treasure map wears of singed paper and curled edges trying to pretend the cereal box it's on wasn't printed yesterday. There's the mask of hot colors and this year's copyright trying to smooth away the wrinkles that date the map in the high school text. There's the mask with Boreas and Eurus, Zephyr and Notus in the corners struggling to overcome the chill that blew in with modern mass production. And there's the mask of reliability diagrams and Mercator grid ticks that implies a scientificity maps have yet to achieve.

There's the subtle mask of white gridlines dropped out over the water which stop at the land and promise an accuracy the map can't deliver. And there's the mask of words that cautions, "There is no assurance all vertical obstructions greater than 200 feet have been reported," but by whose maps airplane pilots are nonetheless ... *not afraid to fly*. Each map wears its mask, yet beneath them all lies still another, the mask *no* map goes without. It's a mask of words and shrewdly encouraged self-deceptions, it's a mask of definitions and smoothly elaborated misconceptions. What this mask does is hide the role maps

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play ... in *creating* what they pretend to no more than ... *see*, in *inventing* what they want to pass off as no more than *observations*. This affectation of detached impartiality, this pose of unbiased disinterest, is what *most* makes a map ... *a map*. As out of costume Spiderman is just another yuppie, so without its mask of distanced neutrality a map is just another ... offset litho, just another ... drawing. As out of costume Wonder Woman isn't Wonder Woman, so an image of the world that fails to proclaim its objective neutrality is ... *not a map*.

An image proclaiming its objective neutrality! This trait, by which above all others maps are distinguished from billboards (touting cigarettes) and fine art prints (of Roman viaducts), from photographs (of rain-washed stones) and paintings (of pumpkins sunning along a country road), this trait ... *is characteristic*. Yet it's a characteristic that figures in *no* definition of the map. But, then, why should it? The definitions are no more than part of the mask maps wear, part of their costume. Their function is less clarification than containment, is first and foremost to delimit the frame *within* which we will discuss, think, and talk about maps.

Here, this is a definition recently proposed by the Working Group on Cartographic Definitions of the International Cartographic Association: "A representation or abstraction of geographical reality: a tool for presenting geographical information in a way that is visual, digital or tactile."¹ of course this is all mask, everything essential's been omitted, promiscuously the definition embraces oils by Richard Diebenkorn (aren't his *Ocean Parks* "abstractions of geographical reality"?), and watercolors by J.M.W. Turner (say his *Upper Falls of the Reichenbach*), panoramas by Art Sinsabaugh (like his *Landscape #64*) and photographs by NASA (like this color infrared of the Colorado I have before me). Yet parochially the definition shuns whose *classes* of maps with enormous power over our lives (maps of property ownership, zoning maps, historical district overlays). It's all a mask. *It's all a lie!* Or if true, true only in the most trivial sense, that in which it would be true for me to describe what I am doing now ... as not pissing down my leg.

The truth is ... *maps are weapons*.

Of course it's more *comfortable* to think about them as tools, to extol their utility, to celebrate their ability to serve humankind in this and that and a hundred other wonderful ways. Certainly it's more *genteel* to whisper sweet nothings about Shannon and Weaver, to lose oneself in the intricacies of psychophysics. God knows it's *cooler* to talk about ... design. But the fact is ... *maps are weapons*. Not less than fists and guns, than tanks and fighters are maps *engaged* in the subjugation of the world, in the intimidation of its inhabitants, in the legitimization of the status quo ... *and* of those who would contest it. In the ceaseless contest between those forces struggling to reproduce a society in which they are dominant, and those forces struggling to transform it, the power of maps is significant. It lies not only in the work maps perform — a massive but silent labor of connection — but from the way this work is allowed ... to pass unnoticed, mostly because hidden, hidden behind the mask maps wear of being — with respect to this contest (because with respect to ... *everything*) — no more than passive and impartial ... *observers*. *Maps look, but never touch*, says the mask. *They're nothing but pictures, nothing but ... representations ... of reality. They only blow the world up, or shrink it down* (O! wonderful convenience!), *to bring it within the range of our vision*.

But maps *don't* just look: they ... *touch*, drawing their prying fingers deep into the densely woven fabric of our lives. And they're not just pictures, not of the world anyway. They're ... *marching orders, commandments, injunctions, decrees*. Their rationale is *not* convenience, it's ... *control*. Fortunately this mask is not invisible (or we would be in trouble), and so it's possible to rip it off. And just as Bruce Wayne proves to be more interesting than Batman, so the map unmasked proves to be more interesting, more supple, more ... *useful*, than the superhuman thing it usually seems.

Superhuman? Better perhaps to say ... *untouched by human hands*. What draws attention to the mask is this peculiar — indeed unique — status it accords the map. No other image generated by human effort is granted such exemption from the personal, the subjective, the assumption of *interestedness* with which we automatically invest paintings and drawings (even photographs), essays and history (even eye-witness accounts).² Where we are inclined to discount — precisely — the *representativeness* of such expressions, it is nothing *but* untrammelled representativeness that — *out front* — we grant the map. Errors, lapses in accuracy, inevitably these *quantitative* issues will be raised, but never in such a way as to cast into doubt the fundamental proposition that maps ... *represent the world*. So important is the authority this representativeness grants — it's the ultimate source of the map's power — that in the definitions masking the map it's ... *essential*. Here, here's one from 1779, from the French mathematician, J.L. Lagrange: "A geographical map is a plane figure representing the surface of the earth, or part of it."³ Two hun-

dred years later the editors of *Webster's Third International* embroider a bit, but to the same end:

A drawing or other representation that is usually made on a flat surface, and that shows the whole or a part of an area (as of the surface of the earth or some other planet or of the moon) and indicates the nature and relative position and size according to a chosen scale or projection of selected features or details (as countries, cities, bodies of water, mountains, deserts).⁴

Here's a third definition, even more rambling, but from *inside* the compound, from *the* textbook in the field, from Arthur Robinson, Randall Sale, Joel Morrison and Phillip Muehrcke's *Elements of Cartography*: a map is a "graphic representation of spatial relationships and spatial forms," they begin, adding a little later that, "a map allows us to extend the normal range of vision, so to speak, and makes it possible for us to see the broader spatial relations that exist over large areas or the details of microscopic particles." In a concluding burst of definitiveness they insist that, "All maps are concerned with two fundamental elements of reality: locations and attributes at locations."⁵ A final definition, one attempting a greater catholicity, from *The History of Cartography*: "Maps are graphic representations that facilitate a spatial understanding of things, concepts, conditions, processes, or events in the human world."⁶

Contrast the insistence in these definitions on maps as representations with these definitions from *Webster's Third* for painting, "something produced through the process or art of painting," and writing, "something written." A similar definition for a map would read, "something produced by the process of mapping," or "something mapped." And why not? Why *is* the map obligated to assume the representational qualities of a portrait ("a picture, drawing, or other pictorial representation of a person usually showing his face") or a photograph ("a picture, image or likeness obtained by photography"), where even so there is — in contradistinction to the immaculate conception of the map — explicit acknowledgement of the processes whereby the images are created. But what other than a virgin birth would convince us of the map's objectivity, of its representational quality, of its being no more ... *than a record of the world?*

Subjugation

That this is all backwards, that the converse is actually true, that instead of being a record of reality the map is the image of a dream to which the world will be obligated to conform ... this is never said, this is never even whispered. But it's true. Here, an everyday instance from the morning paper:

For 6 1/2 years, Dalton and Esker Preddy have sold glossy tomatoes, mouthwatering peaches and tender, young okra out of their garage in a rural corner of North Raleigh.

That was before the city went to market.

Zoning inspectors, acting on a complaint, say the vegetable stand on Millbrook Road will have to close by today or the family will face a \$100 daily fine.

"Retail sales are not allowed in residential zoning districts," said Hardy Watkins, the zoning inspectors supervisor. "It's really that simple."⁷

Indeed, it is simple, but it's also sort of ... *Alice-in-Wonderland*. A zoning inspector — here revealed as a person charged with checking the precision with which the world resembles the map we've made for it — has ascertained that there are retail sales taking place in the world where there are none on the zoning map. *Isn't that what this amounts to?* This failure of accuracy will be remedied ... *by adjusting the world*. Final irony: instead of the city shelling out to make a more accurate map, the Preddys will shell out for their failure to conform to it.

What is this? Whatever it is, the zoning map is *not* a representation of the world, is *not* a tool for presenting geographical information about the world. It does *not* indicate the nature and relative position of selected features, it is *not* an extension of the normal range of vision enabling us to see the broader spatial relations that exist over large areas. What is it? It's a whip, it's a weapon, used to beat the Preddys into conformity. How does it manage this?

It does it by doing what every map does, that is, by connecting the Preddys through it — *through the map* — to the rest of a vast system of laws and codes, ordinances and covenants, deeds and treaties, contracts and indices, deals and agreements, pledges and promises, which, taken together, constitute (in our case) the City of Raleigh. It's easy to forget this, but a city like Raleigh is no more a *location* than it is a *corporation*. The presence of their property on the zoning map connects the Preddys ... *to a body of persons* — the citizens of Raleigh — united by a charter granting them existence as a separate entity — called Raleigh — with its own rights and privileges, liabilities and obligations quite distinct from those of its members (the city not only forbids retail sales at the Preddys' residence, but has agreed to provide it with fire, sewer, water, police, and other services). These rights and privileges include, as in our case, the right to establish zones on the earth's surface set aside for exclusively ... *residential living*.⁸

How is this linkage *actually* accomplished? That is, how is the subjugation of the Preddys *actually* brought about? (How is the obligation *of the city* to maintain the right of way before their house *actually* enforced?) Usually we're asked to believe maps do this by incorporating the drawing of a boundary on what it has become habitual to refer to as a *base* map. Now, this obscures — intentionally — almost all of the power of the map. By, as it were, *giving up* as representational the boundary of the zoning district (that is, by acknowledging that it represents *nothing in the world*), the map is enabled to preserve the represen-

tational quality of ... *everything else*. This is because it marginalizes ... as literally superficial ... the drawing of the boundaries on *top* of the *fundamental* portion of the map whose representational character it thereby shields ... *from further scrutiny*. In this way criticism is deflected to the surface, while the rest of the map takes cover ... in the base. But in fact, there is no base, no base in which to seek such refuge, no base on which to erect a map. There is literally ... *nothing there*. Here, I am looking at the one of Raleigh on which the zoning districts were drawn. Except for the *absence* of the zoning districts, it's hard to distinguish it *from* the zoning map. That is, it *too* consists of a base map ... *on which the boundaries of Raleigh have been drawn*. But what of *this* base map? Doesn't it in turn consist of a base map on which the *streets* have been drawn? In an accelerating regress we sink through layer after layer to find at the bottom ... *nothing at all*, there is no base on which to build the map, there is only empty space, a map of which is necessarily ... *blank*.⁹

But if there is no base map the rest of the argument evaporates. The unique, because *superficial*, quality of the boundary line has to be abandoned. As soon as it is, its continuity with the rest of the lines, dots, tones, and other marks printed on the paper becomes immediately apparent. This in turn suggests that the drawing of the political boundary is no different from the drawing of the boundary of an ecotone, a flood plain, a forest, an ocean. Which is basal? The dune or the sandbar? Neither can claim to be ... *fundamental*. Once the culturally contingent nature of each of these acts is grasped, it becomes clear how similar is the drawing of streets and streams, built-up areas and railroads, indeed, every map feature, which is thus evidently not so much ... *selected* as ... *created*.

Let's get a little more concrete. We've seen that the map links the law — the ordinance, the charter, the agreement — with the territory over which it has dominion. At the same time, the map *creates* this territory, the map ... *brings it into being*. Outside of its inscription on this map this territory, *as such*, has only the slightest of claims to existence. Here, another example from the morning paper:

Effort to avoid boundary feud still in limbo

Holly Springs, Fuquay-Varina debate annexation area

Holly Springs and Fuquay-Varina are still trying to draw the line between areas the towns would grow into and eventually annex ...¹⁰

Draw the line: it's not a figure of speech. This is precisely how territories are brought into being. The *land* — the physical stuff — exists, but *not* as Fuquay-Varina, *not* as Holly Springs. Here, a little more from this story:

Originally, Fuquay-Varina proposed to use Wake County's outline for the maximum expansion area for municipalities. Following the county guide would have given Fuquay-Varina all four disputed areas. Countering, Holly Springs proposed using

fire district lines, which would have given it the two subdivisions, the mobile home park and half the residential tract. In the spring, committees from both towns looked at a boundary that combined fire district, planning jurisdiction and the county's expansion lines.¹¹

The map brings these territories into existence by linking together — by yoking *into a single image* — an image of Fuquay-Varina (or Holly Springs) — understood as a corporation — with images of these subdivisions, mobile home parks and residential tracts. The linkage is achieved by uniting on a common plane — that of the map — images of these political units (or things) (like Fuquay) with these dwelling units (or things) (like mobile homes). The consequence of this union between two images *neither of which is fundamental* (both of which are essential), will be the growth of Fuquay-Varina (or Holly Springs). Without their moving, people in one territory — Wake County — will suddenly find themselves ... in another. This is exactly what happened to the Preddys. Three years ago they too were living in the county. Then a line was drawn on a map. Willy-nilly the Preddys found themselves in Raleigh — an incorporated territory — and soon enough within one of its residential enclaves. But in this way the map brings into being not only an enlarged Raleigh (or Fuquay-Varina) (or Holly Springs) — with their subsumed planning and zoning districts, *et cetera et cetera* — but the very *streets* and *houses*, the very *trees* and *streams* with which these territories are *additionally* linked. Not (again) that the stuff of the world fails to exist outside the map, but that it fails to exist *as such*, fails to exist as ... *these trees* and *these houses*, as ... *these streets* and *these streams*. Political units aren't unique. They aren't even special. By virtue of the map (and the other expressive texts with which it forms an intertextual continuum), streets and houses, trees and streams are — *just like the political units* — broken out of the seamless whole in which they actually exist, and made subject to all the effects of classification and nomenclature, location and inventory.

To map the terrain is — unavoidably — to bring into being the streams and rivers which sculpted it, to sketch a stream is to bring into being — inescapably — the land which it drains. What originally was whole is suddenly in pieces — water, banks, slopes, hills — which, as they materialize under the draughtman's hands, take their places on the map, and soon enough ... *their names*. None of these things — anymore than Fuquay-Varina or Holly Springs — *exists in the world*. There is no ... *stream*, there is no ... *hill*, there is only this whole, this whole thing, this atmosphere-hydrosphere-biosphere process-thing circulating water and carbon and nitrogen ... and *this* distillation we call a 'stream' and *that* crystallization a 'tree,' *this* abstraction a 'house' and *that* generalization a 'street,' but it is only this *distillation* (it is not the real tree struggling to get as close to the atmosphere as possible), it is only that *abstraction* (it is not the real home with the groceries coming in and the garbage going out, and the kids

coming home from school in the afternoon and the parents going to work in the morning). The world itself won't come apart ... no matter how hard we pull. But to map it — to represent it, to classify it, to inventory it ... *to control* it — we *have to* take it apart, *have to* break it up — however arbitrarily (and every people in every culture and every historical period has done this differently) — *have to* marry these parts, these concept-things, these signifieds ... to sounds, to marks, to signifiers, *have to* make signs, which only then can we deploy in an effort to put the whole thing back together again.

Do maps carry out this work alone? No. Precisely as maps form a continuum with laws and codes, deeds and treaties, ordinances and charters, so they participate in another with novels and textbooks, paintings and songs, drawings and short stories; and of course it is this *entire* system of representation and modes of discourse that is ultimately responsible for the world's fragmentation. But if maps do not carry out the shattering of the world alone (or in isolation), neither are they particularly innocent, and in the absence of maps — especially given their unique *claims* to objectivity — the history of agriculture and trade, private property and the nation-state, would not have been the same. (Indeed, it is not too much to say, that their history *is* the history of cartography and vice versa.) Even to locate a tree is — inevitably — to turn a process into a thing, to isolate it from the source of its carbon dioxide, from the soil which provides its nutrients, to pry it out of the community of other trees with which it is united by genes and bees, to assign it an identity, to give it a name, and a place, which always is less the tree's than ours. In mapping stream or tree — or road or house or neighbourhood — the map shreds a continuity, defines things in particular ways — just as words do. Are they inaccurate? Maybe, maybe not. But the point is that the map takes a stand, makes a decision, creates a definition, where it wants to pretend ... *only to observe what's going on*. The map does not *catch* or *seize* the material world (that *would* be magic), but no more than encodes images of it, which — selectively — it then forks onto a common plate (that of the map).

This is to say that in linking the territory (the Preddy's property, the Endless Mountains of Pennsylvania, the United States, the Atlantic Ocean) with what comes with it (tax rates, a certain level of precipitation, obligations to military service, a hurricane season), what the map actually does is link up — yoke, chain, combine, knot, tie — different images of the world. Because we have been accustomed to seeing this relationship — which flows both ways (which flows ... in *many* directions) — as arising *from* the territory, we have been accustomed to granting the map the ontological status we grant ... *the material world*. This materiality of trees and streets, homes and streams — the materiality, that is to say, of the continuous wholeness from which these are only more or less arbitrary isolates — seems to pass, as if by contagion, into the map. But this is no more than an illusion; this materiality does

not pass into the map. On the contrary: through its pulverizing of the world, the map grinds the land down. Subjugated in the process are not merely the Preddys, but through the mapping to which it has been subjected, the very land itself. As Roland Barthes has said, "Ownership depends on a certain dividing up of things: to appropriate is to fragment the world, to divide it into finite objects subject to man in proportion to their very discontinuity: for we cannot separate without finally naming and classifying, and at that moment, property is born."¹²

And what does the map do but fragment the world, divide it up into finite objects subject to man in proportion to their very discontinuity, name, classify and assign ownership? The map gives us the land, but only as those who made the maps have mapped it.

Intimidation

Here, let's look at another everyday example of the way this linkage — silent, all but unnoticed — is effected:

For more than 30 years, many Cardinal Hills residents didn't know they had a lake. Now they have one they don't want. Under a recent court ruling, residents in Cardinal Hills have been given sole responsibility to take care of White Oak Lake, which is nestled in a wooded area outside the Beltline. Trouble is, residents who don't live right around the 13-acre lake didn't even know it existed. Now they fear they could be forced to pay more than \$150,000 to repair the lake's small dam and spillway. "I really think the whole thing is just preposterous," said Margot Williams, who's separated from the lake by the Beltline. "We are one of the original owners. We bought our house in 1957, we have never been to this lake. How can they possibly assess us any money?"¹³

How? Because:

... in ruling for the lakefront homeowners, a judge ordered that all Cardinal Hills landowners must maintain the lake. According to county deed records, close to 300 homeowners live in the area known as Cardinal Hills, a 35-year-old subdivision bounded roughly by Avent Ferry Road, Athens Drive and Powell Drive. Adding to the tension is the owner of the lake, W.E. Stevens, who recently circulated a letter primly informing the residents of their new lake-related responsibilities. "We think it's just a fright tactic, and I'll be honest, people are frightened," said Janet Giannattasio, who first visited the lake Wednesday. "They want to scare us and make us mad at the people who fought to save the lake."¹⁴

One sees the judge's point. If the lake *is* an adornment to the subdivision, the subdivision *should* maintain it. But the subdivision exists ... *only on a map*. Where on the map in the Wake County Register of Deeds, one finds Cardinal Hills, on the ground the Community Watch signs refer to Athens-Comb, to Driftwood, the lake around which a few homes nestle is all but invisible, Margot Williams is hardly the only subdivision resident never to have

seen it, even with determination it's hard to find ... and harder to get to. Nonetheless, she and others, connected to it by a map, will be assessed to maintain a dam they never knew they owned. "This is outrageous," Giannattasio said. "We didn't even know we were involved, and suddenly we find we're going to have to pay for this lake."¹⁵

What is this? It's subjugation with a twist, it's ... *a form of intimidation*. The map in the Wake County Register of Deeds is being used to terrify a group of residents who may in the end *not* have to pay to maintain the dam, but because of their presence on this map are now afraid they might. "There is not one homeowner whose deed says anything about lakes,"¹⁶ says Giannattasio, but of course there is not one homeowner whose deed says anything about being taxed to support the county schools, or anything about having to shovel sidewalks when it snows. The power of the map is that it *silently* connects the Preddys, the Williamses, the Stevens and the Giannattasios to the City of Raleigh, *to each other*, through a document whose representational authority is so great as not only to evade questions, but to impose its nightmare vision of reality ... *on the land*.

Standing at the lake this is not always easy to accept, but it is not only the connections of people to it, but the very pines, the homes around it, the lake itself that the map has brought into being. One struggles to visualize the hardwood forest that once pushed down to the creek — it's barely a creek this close to the ridge line — before Stevens, or the land planner he hired, drew on a map a lake and some roads and a crazing of property lines. But by this sleight of hand what was once whole was broken, lots surfaced, for sale signs, a dam was built, curb and gutter was installed with curb cuts where the driveways would be, the land — rapidly, overnight it must have seemed — approached more and more closely the map which represented ... *not the world* but a dance of sugar plus fairies in a developer's head.

Looking at the water shivering now beneath the caress of the wind, at the pines on the opposite shore bending and swaying on its surface as they don't in the air, feeling on this awful day its coolness, hearing — beneath the roar of the adjacent Beltline — the crackle of insects and the song of bird (a heron is supposed to live here: I haven't seen it), White Oak Lake, despite the name, seems ... *so natural* ... that it is hard to imagine that a map ... *called it into being*, that a map summoned it from the rain and the topography with the aid of a dam it indicated should go ... right ... *here*. But it did. And the naturalness of the lake — in the picture in the paper Williams and Giannattasio stand beside it — infects the map, every line on it takes on the same representational quality as that bounding White Oak Lake. And because the (map-made) lake in its shimmering materiality cannot be questioned, neither can the lines tying Williams and Giannattasio to it. It is this naturalness — this *apparent* naturalness — that intimidates, that terrifies, hiding as it does (behind the sun

spanking the water) the power relations embedded in the map that but for the broken dam would never have surfaced.

Yet the lake and the lines bounding it are as open to question as anything. Here, an even more complicated story, this from the local weekly:

Making the next move in the Falls Lake watershed saga will be the Durham County Commissioners. The board will decide whether to adopt the federally designated water level of 251.5 feet for Falls Lake — the drinking water reservoir for Wake County that extends into northeastern Durham County.

The anticipated approval of that lake level should lead to the correction of the bogus maps drawn by county planners in 1985 and the enforcement of Durham's one-mile water-quality critical area around Falls Lake.

But due to concerns that enforcement would be too restrictive to development, it's likely that at least some of the commissioners will press for something less. The argument for reconsidering the one-mile limit is that they approved it based on a lower lake level (the Corps originally designed it at 250.1 feet) and on a set of maps that erroneously defined the boundaries of the lake.

Those maps, prepared by former county planning director Deryl Bateman, severed off the Eno, Flat and Ellerbee Creek arms of Falls Lake. All the commissioners polled said they would support the adoption of 251.5 feet as the official lake level. But three of them said they would not necessarily recommend enforcing the one-mile water-quality critical zone in the areas encompassed by the new maps.

"I cannot support the [Army Corp's] elevation for the lake and not revisit the one-mile limit," Bill Bell says. "When we supported the one-mile area, we did it according to the maps the planning department presented us with. If those maps are going to change, then we may want to change the ordinance."¹⁷

What we see here is not only that the lines bounding the lake are as open to question as any others on the map, but that in this case (at any rate) they have precisely the *same* relationship to that vast system of laws and codes, ordinances and covenants, deeds and treaties, as *property* lines and *political* boundaries. We see the way the lake will be forced to conform to the map ... just as the Preddys were: to maintain the lake at the level specified, more water will have to be sent down the spillway during times of higher rainfall, *et cetera et cetera*, but the lake ... *will resemble* ... the map, it will *not* be the other way around. Any failure of agreement will be rectified ... *by adjusting the world*.

Here, in fact, we see *explicit* acknowledgement of the interactive relationship among map, lake, ordinance, and development, the way the lake boundary is subject to explicitly political considerations related at least to water quality and real estate development. That is to say that the lake's boundaries *are* political boundaries, which is to say that the lake *is* a political entity, one brought into being by the map in precisely the same way Fuquay-Varina or Holly Springs is. Here, this was in this morning's paper:

BOARD OKs CHANGE IN FALLS LAKE MAPS

Move will expand shore by 7 miles

The Durham County commissioners voted Monday to redraw maps of Falls Lake, setting the stage for what is likely to be a bitter dispute over watershed protection in the coming months. The commissioners agreed to adopt a definition of the lake favored by the U.S. Army Corps of Engineers. The decision adds about seven miles of shoreline to the lake by including portions of three tributaries.¹⁸

It wasn't rain that increased the size of the lake, it wasn't beavers raising their dam, it wasn't even an avalanche blocking a channel, it was five county commissioners sitting around a table voting unanimously to ... *redraw a map* in a process indistinguishable from that Fuquay-Varina and Holly Springs engaged in to change the size of these ... *unquestionably* political entities.

But is everything brought into being this way, everything on a map created through the ministrations ... *of a map?* As such, *yes!* Recently an acquaintance challenged me to develop this argument in the context of what seemed to him a simple mapping problem, that of representing ... *the outline of Manhattan*. It was not, of course, an innocent question. Not that it was malicious, or tricky, but that when he asked the question, he already *had* the answer, it was already *there* in his mind in the form of a simple outline map: the silent work of the map ... had already been completed. As usual, it has passed ... unnoticed. So that when I began to enumerate the issues involved in mapping a city like Manhattan — that is, a process-thing inhaling and exhaling unbelievable quantities of food and water and people on a continuous basis, one whose tentacles reached directly into Westchester County and New Jersey and Long Island — he could interrupt me with, "No, no, no ... *just the island*." He had already bought into the map, the map had already *given* him Manhattan, had already *created* it for him, and that is what Manhattan ... *had to look like*. "But this *is* the island," I said, referring to the way it sucks its water from upstate New York and sends its voice out into the furthest reaches of the planet as news and entertainment. "No, no, just the *physical* island."

Okay, I could have pressed it. The water and food and people *are* physical. So are the radio waves and newspapers. It's hard to imagine *any* description of the island today which could afford to ignore this, the roots of the building sunk to the bedrock, the bedrock tunneled by Con Edison, by the New York City Transit Authority, the microclimate of the city determined by the people and their cars, its vegetation, its soils ... what *is* there to map if we dissociate the actual *life* of the island from ... from what? What, outside of some image *given* on a map, could he have been thinking of? Did he want me to go back, to strip away the esplanades and the docks, to sheer off the fill that over the years had increased the size of the island, to — "No, just the physical island, just like it is, but after a neutron bomb has killed everybody, just that, okay?"

No problem, as long as we admit that what we're mapping's a cadaver.

Still, the problems do not go away. The water, for example, moves around Manhattan in complicated ways. Certainly it goes up and down, which, as we have just seen in the case of Falls Lake, means onto and off of greater or lesser portions of the land. Where shall we draw this line? At high water or low? Yesterday's or tomorrow's? Or shall we choose some mean? The shoreline on the topographic maps of the U.S. Geological Survey is drawn at mean high water (inconsistently the water is referenced to mean low water). The answer increases or decreases the real estate available for development; were the island inhabited, much would depend on it. Granted that we're mapping a cadaver, do we map it with its clothes on, or off? That is, do we choose its manmade shoreline, or its 'natural' one? If the former (thus keeping the World Financial Center on the island instead of consigning it to the river), how shall we handle the bridges? Does the island end where the bridge first shoots out over the water? Or does it reach to its center line? Or because it's *over* the water do we deal with it when we try to map the boundary between the island ... *and the air*? If we kill the bridges, do we kill the planks that tie the boats at the docks to the land, do we kill the boats? Ordinarily we'd ignore them — they come and go (*but what doesn't?*), but with nobody to take them out, they're just about as permanent as the docks. Suddenly we see we not only have to specify a water level, more or less arbitrarily, and work out what we'll count as land, but have to choose a temporal window. Again, it can't be too big (at geological time scales whole islands come and go), but it can't be too small either (there would be no way to derive *mean* high water, we'd be stuck with the tide going out, or at flood). But the real problem is that this way of thinking about the relationship of land and water is crazy — is already an imposition of the map on the world. It is as though there were wet places and dry places, it ignores what we find in the world, a range of places, some more or less wet, some more or less dry, it draws a line where in the world we find a swath of shifting dunes and ceaselessly changing tides, where there are tidal pools and a salt marsh, where there is marsh or swamp, an everglade or a bog, a slough or a fen.

Cartographers want to pretend that this is just a problem of generalization, of simplification and classification, of symbolization and interpolation, that is, that it's just a technical question. Here, listen to this description of simplification:

In the simplification operation the elimination of information regarding a feature or an area must be done in such a way that maintains, as far as possible, its intrinsic geographical nature. Some things are unavoidable, however; the lengths of irregular lines (rivers, coasts) become shorter and the areas bounded by irregular lines (lakes, countries) become smaller as the lines themselves become simpler.¹⁹

Put this way it is hard to understand why anybody cares how the Durham commissioners voted, but then, the assumption of the cartographers is ... *that the map represents the world*. As soon as it's accepted ... *that the world represents the map*, it's easy to see what the hollering's about, suddenly the loss of acres has *financial* consequences, *political* outcomes. As Dan Quayle and his Council on Competitiveness, and the White House Domestic Policy Council's Interagency Task Force on Wetlands continually remind us, *where* we draw the line between the wet and the dry is as political an issue as there is, is hard to distinguish in the stridency of the debate from the question when life begins or what constitutes a family. Is it conceivable that the map with its simple lines segregating the land from the ocean played no part in the development of Quayle's inability to imagine wetlands as other than the ever wet, played no part in his reduction of the problem to the simplistic either or of black and white? No, it is not. It is the map that permitted, that *encouraged* him to conceive the world the way he does, as it is the map that will be the instrument through which this picture of the world will be transformed ... *into the world*.

Legitimation

How is it that the map can be *so* convincing, what is it about it that is so ... *overwhelming*? We have seen the way the map *fuses* onto a common plane, and thereby *confuses*, an image of, say, a municipal corporation with that of a trailer park; or one of hills with another of roads; or one of school attendance with another of streets. The *confusion* of these images makes it hard for us to disentangle them, hard for us to understand what has been forked onto the plate of the map, hard to accept the way the map represents ... less the world, than someone else's vision for it. What makes it *so* hard is the sense the map projects ... of completeness, of thoroughness, of picking *it all up, whole*, and slam-dunking it onto the paper.

How does it do this? It does it by coding each image in more than one way, then encouraging us to accept these *codes* as aspects of the map rather than as aspects of the *components* fused onto the map. It presents us with White Oak Lake, for instance, as an area set off by a black line, but it *also* names it. It then mingles this *name* with all the other *names* ... White Oak Lake with Ravenwood Road and Cardinal Hills and Raleigh — just as it mingles all the graphic marks — the boundary of White Oak Lake nestled inside that of Cardinal Hills inside that of Raleigh — to produce a scaffolding of cross-references so thick — names to names and names to marks and marks to marks — that the question of disentangling them is never even raised. The map manages to convince us because there are names *all over it*, that these names — including that of White Oak Lake — are features of the map (that is, of the world it supposedly represents), rather than features of the image of a lake forked onto the plate of the map along with an image of a subdivision and a city.

There are at least ten of these codes (the scaffold they construct is strong), which either the map exploits or by virtue of which the map is exploited.²⁰ Because it's the crisscrossing which makes the map look like it can't be taken apart, none of these codes operates independently, and no map fails to be inscribed in (at least) these ten. When I speak of the image of a trailer park, the inclination is to understand by this a *picture* of a trailer park, or a collection of little rectangles arranged in a certain way on a field of green. But this is to think of only the first code, one that John Fels and I elsewhere have called ... *iconic*. This codification is indispensable, is the source and principle of the map's analogy to objects and places, to relations and events, is where the map most thoroughly shreds the world. But icons never exist by themselves (not even in kids' drawings), always they are somewhere, and so visualize, necessarily, an image of space (Fels and I have called this the *tectonic* code), and unavoidably, one of time. The map has a certain spatial scale and a certain temporal thickness. It refers to *these* locations on the globe (it refers to so many square miles), and to *those* chunks of time (it embraces a millennium or a millisecond). The icons also come to the map with name tags pinned to their chests — we have seen this — that is, in a *linguistic* code, a code with a beguiling iconicity all its own. Names of countries are writ large and square, those of rivers small and in and out along their courses. As icons and words — visualizing space and time — point back and forth, it becomes hard to separate them, hard to imagine one without the other — or in another space or time — and so *on* the map (and *in* the world) name and thing link up, fuse, turn into one. Titles, dates, legends, keys, scales, graphs, diagrams, emblems, texts, references, footnotes, all these along with the map image itself are gathered up by the *presentational* code, which makes of all of it a coherent and purposeful proposition. It is here that the essential mask is donned, here that the map declares ... its impartiality, its neutrality, its objectivity.

Each of these is a code the map exploits to move between vision and world, to implant image on paper, each operates, as it were, *within the map*, at the level of language. As image of Fuquay-Varina — bounded, set aside from the rest of Wake County, named, dated — is fused with that of a trailer park — identically signed, sealed and delivered — each code melts not only into its counterpart (Whispering Oaks Trailer Park in smaller letters set off below Fuquay-Varina in large letters across the center of the page) but over all the others as well (the name of Whispering Oaks *sticks* to the map only because the temporal codes of the two images are synchronous). Like cross-bracing these interpretations construct from the coded contents of the images a map that seems to be as hard to pull apart ... *as the world* (the very fons et origo of the mask of unbiased disinterest).

But outside the map, other codes take over. Operating at the level of myth, these codes seize the map, they make off with it for their own purposes (which specified the

map in the first place), exploit the map to ends ... beyond it. Here the maps don their superficial masks. As the presentational code allowed the map to achieve a kind of coherence, the *thematic* code establishes the subject of that coherence: *on what shall the map discourse? what shall it argue?* Though it is precisely this code which selects what the iconic code visualizes, from the perspective of the map reader this *theme* is experienced as a latency in the 'things' iconically encoded (a residential zoning district), the subject of the map seems to rise naturally from its content (it's a zoning map), which, one *with* the world is therefore given *by* the world. So a zoning map comes to be experienced as a map *of* the world, rather than one imposed *upon* it. As the thematic code runs off with the icons, so the *topic* code runs off with the space established by the tectonic code, turns it from space to place, gives it a name, a character. Suddenly there is someplace called Cardinal Hills and it seems to be ... *in the world*. The *historical* code does the same thing with the temporal code, turns time into period, names it, sets it apart from other periods, or outside them in an aorist time of eternal present: this *is* Falls Lake. If the thematic code sets the subject, if topic and historical codes secure the time and place, the rhetorical code sets the tone, that, having consumed the presentational code, most completely orients the map in its culture. The map is serious, it is a legal document; it has immense precision, it will be used to subdivide some land. Finally the map is picked up by the *utilitarian* code, which puts it to work, which assigns it a battle station, which hurls it into the fray ... to protect *these* development interests, or advance *that* view of how people ought to live, to secure a *safe* supply of drinking water, or extract *these* revenues from *that* piece of land.

They are weapons, these maps, weapons in the fight for social dominion, weapons *disguised* as representations, weapons which work ... *by linking territory with what comes with it*, something they achieve by fusing onto a common plane multicoded images of the very world the map itself will bring into being.

The power of maps ... to fight the good fight ...

Notes

¹ Christopher Board, "Report of the Working Group on Cartographic Definitions," *ICA Newsletter*, 19, May 1992, p. 12. This portion of the newsletter was also published in *Cartographica*, 29/1, Spring 1992, pp. 54-57.

² In a recent 'Calvin and Hobbes,' Calvin says, "This is what I like about photography. People think cameras always tell the truth. They think the camera is a dispassionate machine that records only facts. But really, cameras lie all the time! Select the facts and you manipulate the truth! For example, I've cleared off this corner of my bed. Take a picture of me here, but crop out all the mess around me so it looks like I keep my room tidy." "Is this even legal?" Hobbes asks. "Wait, let me comb my hair and put on a tie," says Calvin ('Calvin and Hobbes,' *News and Observer*, September 17, 1992, p. 6E).

³ J.L. Lagrange, 'Sur la construction des cartes géographiques,'

Nouveau mémoires de l'Académie royale des sciences et belles-lettres (1779), pp. 161–210, quotation on p. 161. The reference is due to J.B. Harley and David Woodward, editors, *The History of Cartography: Volume One: Cartography in Prehistoric, Ancient, and Medieval Europe and the Mediterranean*, University of Chicago Press, Chicago, 1987, p.xv.

⁴ P.B. Gove, editor, *Webster's Third New International Dictionary*, G. & C. Merriam, Springfield, Massachusetts, 1971, p. 1379. It would be interesting to know what was going through their minds as they loaded Lagrange's definition down with all that stuff about nature, position and size of selected features. What did they think they were gaining (or what did they imagine they were excluding) with all qualification? If anything what they end up achieving is a definition that sounds like it excludes ...
Thematic maps

⁵ Arthur Robinson, Randall Sale, Joel Morrison and Phillip Muehrcke, *Elements of Cartography: Fifth Edition*, John Wiley, New York, 1984, pp. 3–4.

⁶ Harley and Woodward, *op. cit.* p. xvi.

⁷ Debbi Sykes and Bill Muller, 'Produce vendors will fight city hall,' *News and Observer*, August 27, 1992, p. 1B.

⁸ Though this applies only to the humans *resident* there. Travelling salesmen, plumbers, suppliers of oil, newspaper carriers, and high school kids raising money to take their marching band to Vienna may engage in the retail sales with impunity.

⁹ The idea that empty space can compromise a base ignores the reciprocal relationship between matter and space. In John Wheeler's words, "Spacetime tells matter how to move, matter tells spacetime how to curve," (in John Archibald Wheeler, *A Journey into Gravity and Spacetime*, Scientific American Library, New York, 1990, pp. 11–12.)

¹⁰ Anne Doggett, "Effort to avoid boundary feud still in limbo," *News and Observer*, September 17, 1992, p. 3F.

¹¹ *Ibid.*

¹² Roland Barthes, 'The plates of the Encyclopedia,' *New Critical Essays*, Hill and Wang, New York, 1980, p. 27.

¹³ Bill Muller, 'Court victory divides neighborhood,' *News and Observer*, August 29, 1992, p. 2B.

¹⁴ *Ibid.* p. 2B.

¹⁵ *Ibid.*

¹⁶ *Ibid.*

¹⁷ John Manuel, 'Falls follies,' *The Independent Weekly*, September 23, 1992, p.3.

¹⁸ Craig Whitlock, 'Board OKs changes in Falls Lake maps,' *News and Observer*, September 29, 1992, p. 1A.

¹⁹ Robinson *et al.*, *op cit.*, p. 129.

²⁰ These are detailed in Denis Wood and John Fels, "Designs on signs: myth and meaning in maps," *Cartographica* 23/3, Autumn 1986, pp. 54–102.

Résumé Cet article propose une nouvelle définition de la carte. On soutient que la carte est une arme dans le combat pour la domination sociale, arme déguisée en représentation du monde, mais qui en réalité lie territoire avec ce qui l'accompagne (avec le droit de vote ou le service militaire obligatoire, avec les taux de précipitations ou les types de végétation). La carte accomplit cette liaison en fusionnant sur un même plan — celui de la carte — des images multicodées de ce même monde que la carte elle-même va créer.

Zusammenfassung Dieser Artikel stellt eine neue Definition der Karte vor. Es wird argumentiert, dass die Karte eine Waffe im Kampf um soziale Herrschaft darstellt, die zwar als Repräsentation der Welt maskiert ist, die aber in Wirklichkeit das Staatsgebiet mit dem verknüpft, was dazugehört (Wahlrecht oder Militärdienstverpflichtung, Regenfall oder Vegetationstypen). Die Karte erzielt diese Verkettung, indem sie multikodierte Abbildungen auf eine gemeinsame Ebene (die der Karte) der gleichen Welt vereinigt, welche die Karte selbst ins Leben ruft.

Resumen Este artículo propone una nueva definición del mapa. Se ha argumentado que un mapa es un arma en la lucha por el dominio social, disfrazado como representación del mundo, pero que en realidad conecta el territorio con lo que este conlleva (derechos de voto u obligaciones de servicio militar, con cantidades de lluvia o tipos de vegetación). El mapa compila estas conexiones mediante una fusión en un plano común (el del mapa) de imágenes multicodificadas de ese mundo que el mapa, propiamente, convertirá en realidad.