Wood, Denis. The Interest the Map Serves Is Masked." In The Power of Maps.
New York: Guilford Press, 1992, pp. 70-94.

CHAPTER FOUR

The Interest the Map Serves Is Masked

"To serve an interest": why when it is made of maps is this assertion so hard to swallow?

We have seen that this interest is no more than the inevitable consequence of being enabled to see what otherwise we couldn't, that it is no more than the unavoidable price we pay for the intrusion of that author who brings this vision into being out of the concrete history of a living, that in the end it is this interest that is what the map offers, that distinguishes the map as *representation* from the world it represents. Why then does this interest—this commitment—of the map . . . *stick in so many craws?*

It is because the map is powerful precisely to the extent that this author . . . *disappears*, for it is only to the extent that this author escapes *notice* that the real world the map struggles to bring into being is enabled to materialize (that is, to be taken for the world). As long as the author—and the interest he or she unfailingly embodies—is in plain view, it is hard to overlook him, hard to see around her, to the world described, hard to see it . . . *as the world*. Instead it is seen as no more than a *version* of the world, as a *story* about it, as a *fiction:* no matter how good it is, not something to be taken seriously. As author—and interest—become marginalized (or done away with altogether), the represented world is enabled to . . . *fill our vision*. Soon enough we have forgotten this is a picture someone has arranged for us (chopped and manipulated, selected and coded). Soon enough . . . it is the world, it is real, it is . . . *reality*.

Here, listen to John Van Pelt describe the world of maps in a *Christian Science Monitor* review of Mark Monmonier's *How To Lie With Maps:*

> The primary tool is a healthy skepticism. Any "single map is but one of an indefinitely large number of maps that might be produced . . . from the same data." This learned, we respond with fresh respect to the elegance and exactitude of topographic survey plats, while we energetically question the maps of the proposed housing project, the map depicting concentrations of anything, and that paragon of self-serving cartography, the advertising map.[1]

But how are these maps different from each other? In their embodiment of interest? Not at all. As we have seen, all maps—from the most apparently "objective" to the most blatantly "subjective"—embody the interests of their authors, indeed, *are* the interests of their authors in map form. The maps Van Pelt describes vary only in the degree to which the interest they embody is *patent*, is . . . *rubbed in our face*. The healthy skepticism is brandished only when called upon to defend against *evident* interest (advertising, developers). When the authors have rendered themselves *transparent*, suddenly we have . . . *fresh respect*. And it is astonishing how easily this happens, how readily we take for granted—as natural—what is never more than the social construction of a map. All that is required is the disappearance of the author, the invisibility of the interest.

Here, Van Pelt again. After predictably (but laudably) intoning, "In no case, however, is the map equal to reality," he immediately qualifies himself . . . *on the basis of scale:* "Maps at small scales tend to be less detailed than those at large scales—the mapmaker has less room to illustrate features and hence must be more selective. But maps at large scales also suppress some details."[2] *Some* details? How about . . . *almost all* details? Something in us resists this sweeping assessment, but it is nonetheless true. Outside my window this morning the dogwood across the street is like seafoam. The filtered sunlight on the weathered asphalt makes archipelagos that slip and slide in the breeze. Robins and cardinals, blue jays and doves dive and bank, swoop and holler. I will hear them better once the day warms up and we open the windows, but even with them closed, the planes over head are loud and clear. Joyce walks by with Spot. He lifts his leg . . . and pisses.

I roll out the *Raleigh West Quadrangle/North Carolina—Wake County/7.5 Minute Series (Topographic)* survey sheet. Where a "small" scale map can be as small as 1:100,000,000,[3] its 1:24,000 is big enough to qualify as "large," but I scour the map in vain for these details. Under the red tint that covers my neighborhood only landmark buildings are shown, landmark buildings, hydrography, contour lines, and names. I can see well enough where the house *should* stand, directly under the second "a" in "Cabarrus." There is the road all right, but not the shifting shade or even the cars that despite the early Sunday morning hour do not hesitate

to hustle down the road. The house is there on the larger scale insurance maps that Sanborn used to make: at 1:600, these give its footprint and distinguish porch and address. They even show the garage we took down the day we moved in. But they don't note the squirrels or the pecan tree they nest in, though this is larger (and in the long run more important) than the house. At much larger scales, the maps turn into plans: on a bunch done by landscape architecture students, the pecan tree does make an appearance. But now Cabarrus has disappeared and with it the dogwood across the street.

"Irrelevant," one mutters: "No one insures *trees*." "Too ephemeral, too transitory," says another. "Too auditory," pipes up a third . . . but what is revealed thereby is the *prior* editing the world endures, the way *before we get to the map* the domain of expected detail has been throttled down to a certain class of objects. "Birds and bees? The mapmakers weren't *interested* in those things." Exactly. So what did they map? What they *were* interested in. And this is the interest the map embodies . . . inevitably.

This is easier to see in some maps than others. The interest all but boils off *McCormick's Map of the World*, bubbling as it does with the company name (49 occurrences), its products (illustrations of 13 bottles, jars and boxes), logo (in the center of the windrose) and coat of arms (with its motto wrapped around the globe). Among vignettes illustrating the harvesting of coffee, tea, vanilla and spices are those displaying McCormick's home office in Baltimore, its southern California headquarters in Los Angeles and its Schilling Division offices in San Francisco. Further vignettes of famous explorers bracket another—top and center—of the American flag over Fort McHenry (Baltimore, site of McCormick's home office) triumphantly waving—by implication of its position—*over the world* . . . the flag's of whose other nations ("Flag Research Courtesy U.S. Navy Hydrographic Office") form the map's colorful border. Countries are named, with spice sources indicated (thus: Siam, "White Pepper"), an inset labels the Moluccas "The Spice Islands," the lavish text comprises "McCormick's Encyclopedia of Flavoring Extracts–Spices–Teas–Coffees." What does the map say? It says, "McCormick: From all the World, Known the World over." It says, "Buy McCormick."[5]

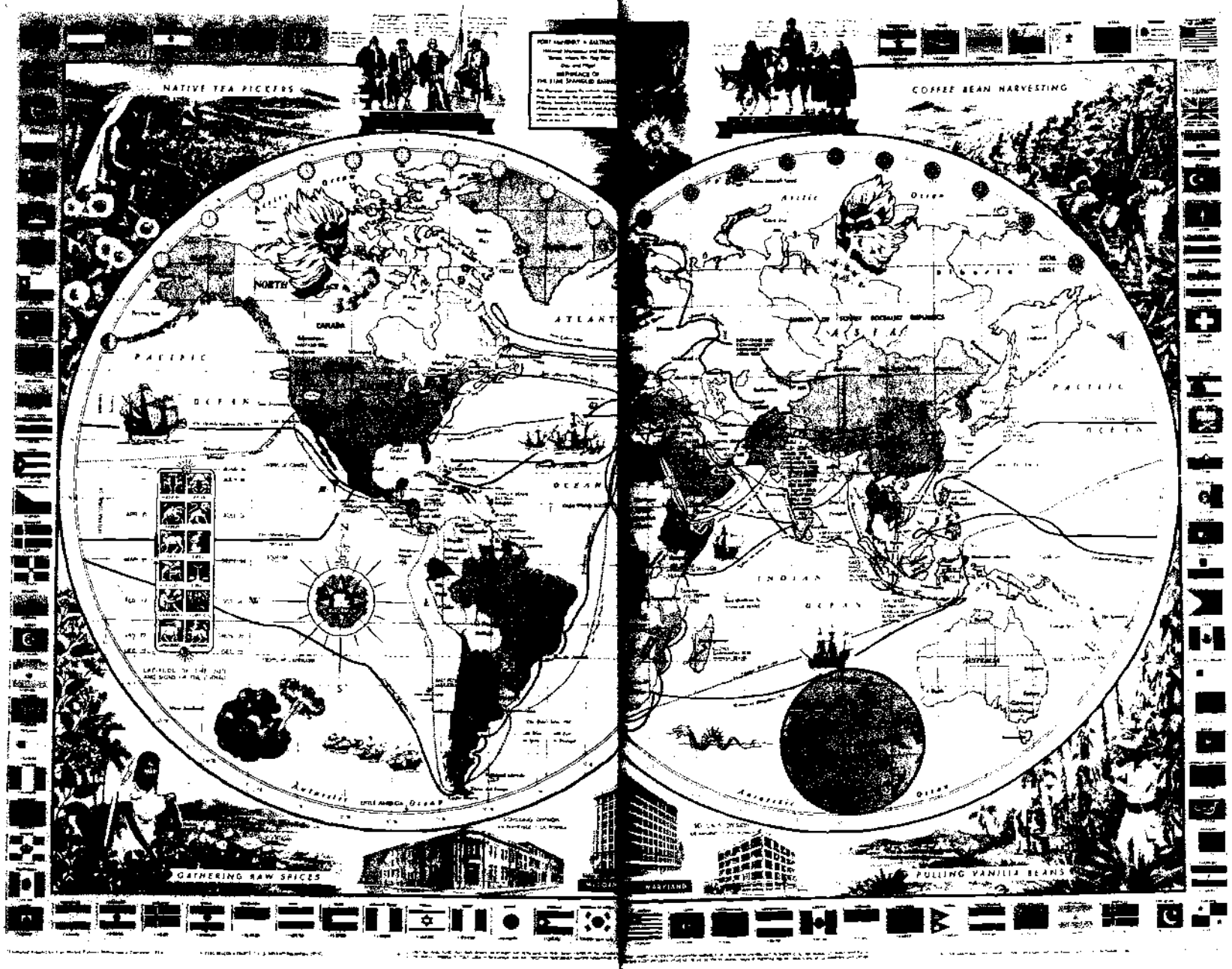
Here's another map feverish with interest, *San Antonio*, a chili con carne ("originated in S.A. in the 1840's and served to the public by chili queens") of people, places and things, spiced with hints of road, Riverwalk and promotional copy ("Schilo's Delicatessen," "America's first public housing for the elderly was in San Antonio," "Lone Star Beer," "Brook's A.F.B. est'd 1917," "Ingram Park Mall"). In the lower corners large vignettes refer to history (colonists, pioneers) and Mexico (mariachi band). Jumbled, crowded, *hot*, the map says, "Historic, modern,

bustling, exciting, Mexican-flavored San Antonio!" It says, "When you get back home tell everyone how much fun you had here!" It says (all but explicitly), "Build your next plant . . . in San Antonio."[6]

A final example, *Delta's Domestic Route Map*, that is, the United States, and parts of Canada, Mexico and the Caribbean . . . all but obscured beneath a thick weave of blue lines symbolizing not merely Delta's *routes*, but the *embarrassing abundance* of Delta's routes. What does the map says? It says, "We blanket America," that is, "We will keep you so warm you will never want to get in bed with another carrier." Does the map lie? No, why should it bother? Delta has no interest in selling you a ticket on a route it doesn't fly. The point is merely to dissuade you—through the exploitation of age-old rhetorical devices (emphasis, exaggeration, suppression, metaphor)—from thinking of American or TWA or USAir next time you want to fly.

But here's another map, another United States Department of the Interior Geological Survey sheet, the *Wanaque Quadrangle*, that is, the Wanaque Reservoir and parts of neighboring hills and towns . . . all but obscured beneath a thick weave of contour lines symbolizing not merely Wanaque *topography*, but the *embarrassing abundance* of Wanaque topography. What does the map say? It says, well it . . . *What does it say?* In the first place it's not nearly as univocal as *Delta's Domestic Route Map*. Where that map makes its point and then moves in for the sale, this map . . . *babbles*. Not content to talk about the topography, it goes on to discuss the extension of urban areas between 1954 and 1971. It mutters about surface waters. Every other phrase is about trees. Yet its manner is disarming: it seems so uncertain what it wants to say that it seems hard to imagine it wants to say anything, or that it wants to say anything . . . *in particular*. What's its point? It would seem, in the end, to have none.

Which is its point. Where have we seen this before? *In almost every map we have looked at*. Again and again we have seen a similar *vagueness* of content and form, a similar *diffusion* of ends and means. The map will show everything (and therefore claim innocence about the choice of anything) and will show it as it is (ignoring the "white lies" the map must tell in order to be accurate and truthful). The map will be seen to serve so many purposes that none can predominate, or its means will be so widely spread in so many social institutions that it can be claimed by none. Responsibility for the map will be shuffled off onto layered and competing user groups, or its authorship will be shown to be fragmented among so many specialists as to be impossible to establish. Lying and lost, vague and confused, the map will *therefore* show the world the way it really is. John Garver praised the Robinson projection for precisely these reasons: ". . . we believe that its compromises are the most reasonable for a general reference map of the world"—despite the exaggeration of the size of Russia and the United States, the diminution of Africa, the



"McCormick: From all the World, Known the World over." (McCormick's *Map of the World* is no longer published and copies are not available.)

"somewhat compressed" appearance of Greenland *et cetera et cetera* —precisely because it results in this highly desirable kind of . . . *pointlessness*: "The projection does not espouse any special point of view."[7]

The Naturalization of the Cultural

What is so desirable about this pointlessness achieved with such an effort of willful misconception and delusion, of self-deception and denial? It is the ultimate alibi, it is that most effective mask, it is . . . *the world*. What is the *point* of the world? *It doesn't have any*, it is pointless. The interest unavoidably embodied in the map is thus disguised . . . as natural; it is passed off as . . . Nature itself. Only the little white lies *required by the world* get in the way.[8] As Mark Monmonier puts it:

> 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.[9]

Notice how the sunlight on the street, the birds singing in the trees, the shining dogwood turn into a . . . *fog*, the way exaggerating the size of Russia and the United States at the expense of Africa is . . . *essential*, the way the confusion of truth and lies is passed off as . . . *a technical problem*. In fact they're all passed off as technical problems (not as questions of philosophy), the map *must* offer a selective, incomplete view of reality (*so don't blame me*), and the end result is that except for a little *cartographic mischief*—political propaganda, military disinformation, advertising maps (*McCormick's Map of the World*)—the map remains . . . *pointless*, and therefore the Nature it displays remains essentially . . . *intact*.

What response should be mounted to the bland front of this Naturalization of the Cultural? For Roland Barthes:

> The starting point of these reflections was usually a feeling of impatience at the sight of the "naturalness" with which newspapers, art and common sense constantly dress up a reality which, even though it is the one we live in, is undoubtedly determined by history. In short, in the account given of our contemporary circumstances, I resented seeing Nature and History confused at every turn, and I wanted to track down,

> in the decorative display of *what-goes-without-saying*, the ideological abuse which, in my view, is hidden there.[10]

It is precisely the *what-goes-without-saying* quality of the classical cartographic defense of its practices that is most insidious, not only because it renders the inevitable interest invisible to those who view the map, and who have been induced by a profound cultural labor to accept it as the territory, but because it renders this interest invisible to the cartographers as well who manage in this way to turn themselves into . . . *victims of the map*.

What this amounts to is a form of repression that is, not just the denial of an interest or a point of view (let's face it, God alone has no special point of view), but a denial that anything was denied. R. D. Laing puts it this way:

> When I was thirteen, I had a very embarrassing experience. I shall not embarrass you by recounting it. About two minutes after it happened, I caught myself in the process of putting it out of my mind. I had already more than half forgotten it. To be more precise, I was in the process of sealing off the whole operation by forgetting that I had forgotten it. How many times I had done this before I cannot say. It may have been many times because I cannot remember many embarrassing experiences before that one, and I have no memory of such an *act* of forgetting. I was forgetting before I was thirteen. I am sure this was not the first time I had done that trick, and not the last, but most of these occasions, so I believe, are still so effectively repressed that I have still forgotten that I have forgotten them. This is repression. It is not a simple operation. We forget something. And forget that we have forgotten it. As far as we are subsequently concerned, there is nothing we have forgotten.[11]

It is easy but disingenuous to froth at the mouth over the flimflams of advertisers, or the falsehoods of Nazi propagandists, or the charmless fabrications of military disinformation specialists.[12] But perhaps disingenuous is too kind a way to put what in the end is no different from all these other half-truths, for the fact is all these more or less self-evident falsehoods owe whatever authority they have to the great national mapping projects, to the wall maps in the thousand classrooms, to the road maps the gas companies used to give away, to the plates in atlases, the cuts and insets in newsweeklies and textbooks, each of them, as Monmonier admits, built from *white lies* about which these maps are all but *entirely* silent. Because it is the cartographer and not the graphic artist or political cartoonist who has first repressed the magnitude and significance of his intervention in what passes in the map for a transcription of nature, it is in precisely the *cartographer's products* that the repressed experience—the interest represented, the point of the

map—must be sought. This is not only because it is essential to understand what this interest is, but because it is its *repression* that enables the map to masquerade so effectively as truthful and accurate, that is, to provide the necessary context for the "propaganda," advertising and military disinformation maps to work. Thus the problem was never *"how did this map fool me?"* but *"why was I so inclined to wholeheartedly believe in it in the first place?"* From this perspective:

> Maps cease to be understood primarily as inert records of morphological landscapes or passive reflections of the world of objects, but are regarded as refracted images contributing to dialogue in a socially constructed world. We thus move the reading of maps away from the canons of traditional cartographic criticism with its string of binary oppositions between maps that are "true and false," "accurate and inaccurate," "objective and subjective," "literal and symbolic" or that are based on "scientific integrity" as opposed to "ideological distortion." Maps are never value-free images; except in the narrowest Euclidean sense they are not in themselves either true or false. Both in the selectivity of their content and in their signs and styles of representation, maps are a way of conceiving, articulating and structuring the human world which is biased towards, promoted by, and exerts influence upon particular sets of social relations. By accepting such premises it becomes easier to see how appropriate they are to manipulation by the powerful in society.[13]

This said, Harley turns to an historical survey (he was, of course, an historian). But because this has the effect of isolating such practice in the past (*"I used to be bad, but I'm not anymore!"*), it is essential to stress the extent to which such manipulation is an aspect of neither this nor that historical period, this or that society, but rather a property . . . *inherent in the map*.

The Culturalization of Natural

Before the cultural content of the map can be naturalized *out* of existence, the natural content of the landscape must be culturalized *into* existence.[14] This is a labor of culture, it is a labor of identifying, of bounding, of naming, of inventorying . . . it is a labor of mapping. Since these processes occur bundled up together in the living that human occupance of the land amounts to, there is no first place from which to launch ourselves. The land is not *systematically* divided into plains and hills that are subsequently delimited, named and inventoried. Instead, the human landscape is brought into being historically, sometimes in a rush, but usually bit by bit in a patient dance of disjointed incrementalism. As we know, the map is not an innocent witness in this labor of

occupance, silently recording what would otherwise take place without it, but a committed participant, as often as not driving the very acts of identifying and naming, bounding and inventorying it pretends to no more than observe. To sketch a river is to bring into being—inescapably—the land that it drains; what was originally whole is suddenly in pieces—water, banks, slopes, hills—which, as they materialize take their places (if only vis-à-vis each other) and soon enough, names. This is, of course, a human way of being in the world—mapping is a way of making experience of the environment *shareable*[15]—but in map*making* societies these activities take on a number of less explicit functions:

> The intentional meaning behind the application of the distinctive federal public-land-survey grid to the official topographic series published by the U. S. Geological Survey is straightforward: to assist in locating areas and to assign exclusive coordinates to them. The implicational meaning lies elsewhere in the related concepts of resource inventory, identification, allocation, and purchase of private property; property protection and access through thousands of miles of barbed-wire fencing and pavement; manifest destiny; and the geometry of American society. The act of designing and producing such a map is an action of subjugation and appropriation of nature, a basic value of American society, not merely the reification of an idle curiosity in recording dimensions.[16]

It is precisely to the extent that the map culturalizes the natural that the cultural production the map *is* must be naturalized in turn, this to make it easier to accept—*as natural*—the historically contingent landscape the society that wields the map has brought into being.[17] But if we are to understand how this process actually *works*, that is, how maps *accomplish* this tremendous labor, we must turn to the map, and not one from a distant time or place, or one marginalized by its origins within our society, but one from the heart, one from the core . . .

The Wanaque Topographic Quadrangle . . .

"United States/Department of the Interior/Geological Survey" it says in the upper left, "Wanaque Quadrangle/New Jersey/7.5 Minute Series (Topographic)" in the upper right. In between it says, "United States/Department of the Army/Corps of Engineers." The multiple authorship implied here is clarified in a block of type in the lower left. "Mapped by the Army Map Service," it says there, "Edited and published by the Geological Survey." On the next line it adds, "Control by USGS, USC&GS, and New Jersey Geodetic Survey." One is all but over-

The United States Geological Survey's *Wanaque Quadrangle, New Jersey, 7.5 Minute Series (Topographic).*

whelmed by the implications of all this bureaucracy. This *thin sheet of paper* subsumes—and brings forward for potential action—labor performed by four divisions of two departments of the federal government and one of a state government. *You wouldn't imagine it to look at it.* The hills and the streams, the lakes and the towns, the all but unbroken cover of the Norvin Green State Forest, seem unburdened by the pressure of even a single governmental agency. Though attributions to the Army or to the Department of the Interior affect every reading of any image they frame—ineluctably they construct a certain kind of faith (while they undermine others)—the Corps of Engineers, the Geologic Survey, the New Jersey Geodetic Survey, seem unrelated to the content of the map, which, despite everything, appears here to be no more than . . . *observed:* a sewage disposal plant, Oakland, a cemetery, Wolf Den Dam . . .

. . . *Shows Only Selected Features*

The heterogeneity, like the diffusion of authorship through so many layers of government, speaks for the . . . impartiality . . . of the world described here: a place for everything, everything in its place:

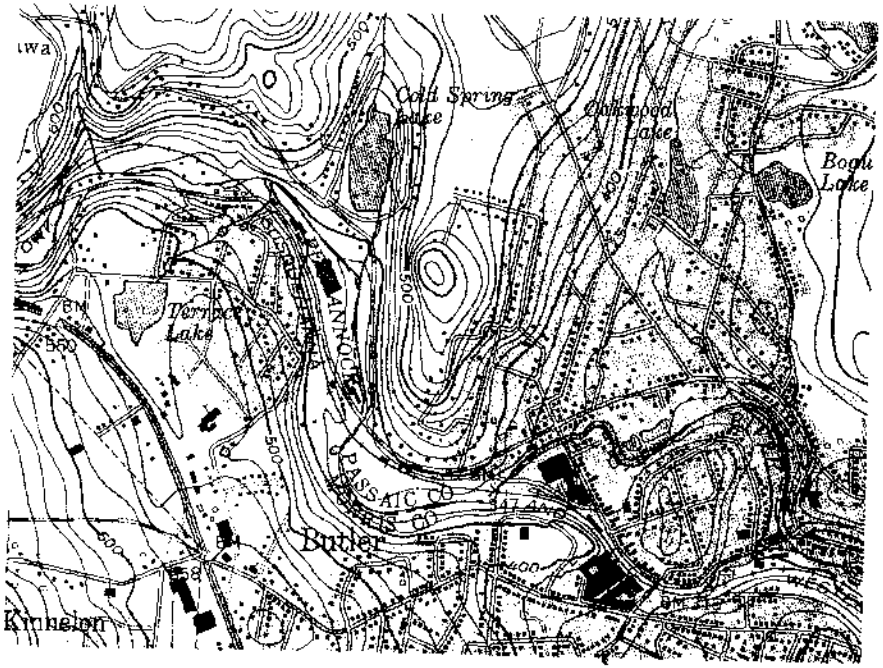
> Unlike special-purpose maps, the quadrangle maps produced by the Survey are designed to be used for many purposes. Scales, contour intervals, accuracy specifications, and features that are shown on the maps have been developed gradually to satisfy the requirements of government agencies, industry, and the general public. Because these maps serve a wide variety of uses, they are called general-purpose maps. The functions a map is intended to serve determine which features should be mapped, *but other factors are taken into account before it is decided which features actually can be shown.*[18]

This, from a sort of official survey of its products published by the U. S. Geological Survey on the occasion of its hundredth birthday, goes on to list three such factors: the *permanence* of the features, the *cost* of compiling the information, and map *legibility*.

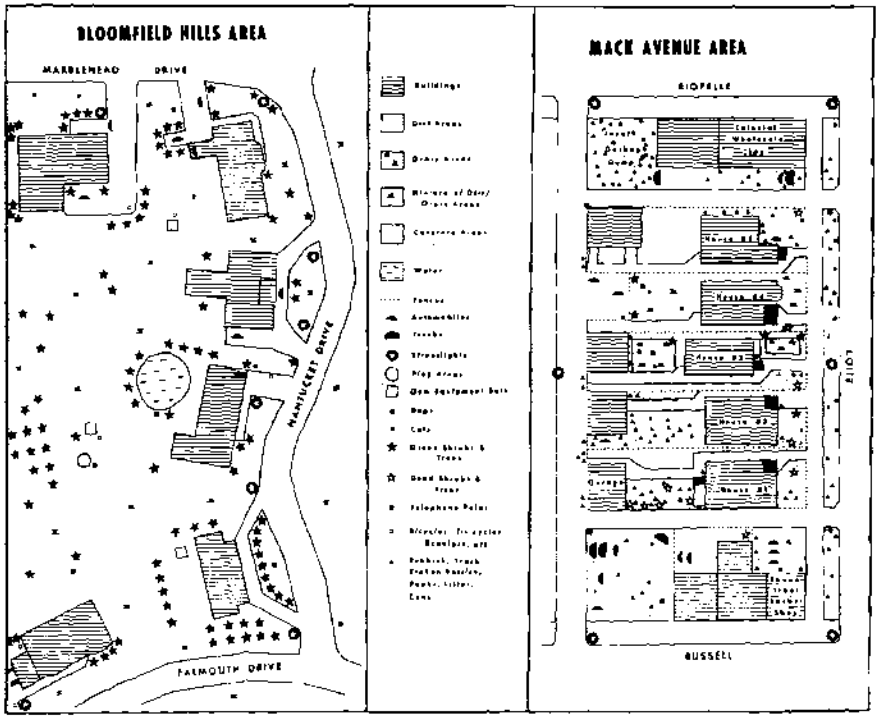
The Wanaque Quadrangle Only Shows "Permanent" Features

Permanence of the features? What could this mean? "Purple indicates the extension of urban areas," it says on our map, and, "revisions shown in purple complied by the Geological Survey from aerial photographs taken in 1971." Because none of the revisions was field checked—which makes it sound like the map was *revised* instead of *updated* to grab a landscape in

flux—they aren't named. But there are what? *Over fifty new ponds? A dozen new subdivisions? Miles of new road?* Maybe I'm missing something, but where's the permanence in this? What we sense here is . . . transition, change.[19] What we also sense is the presence of a code: permanent = important. Needless to say, this is not made terribly explicit, on or off the map: "Cultural features are especially subject to change. If the maps are to have a reasonably long useful life, the features portrayed must be restricted, to some extent, to relatively permanent objects" is all Thompson has to say about it[20]; and though this may explain why the birds in my backyard don't show up on the *West Raleigh Quadrangle*, the remark is otherwise of the surpassing vagueness we have come to recognize as an attribute of the . . . *objective*. Another way to approach this is to look at the "topographic map symbols" the Survey uses. This *legend*—which is not printed on any of the quadrangles (because the symbols are presumed to speak for themselves?) constitutes a *catalogue* of the features the Survey deems permanent enough to map. In 1979 there were 106 of these: *primary road, hard surface; secondary highway, hard surface; light duty road, hard or improved surface; unimproved road; trail; railroad, single track; railroad multiple track; bridge; drawbridge; tunnel;*



Everything mapped here is permanent. On what time scale?



Mapped here from the Bloomfield Hills and the Mack Avenue areas of Detroit are things the U.S. Geological Survey overlooks: dead shrubs and trees, broken bottles, paper, litter, bicycles, tricycles, scooters . . . (From the Detroit Geographical Expedition and Institute, *Field Notes: Discussion Paper No. 3, The Geography of the Children of Detroit*, Detroit, 1971.)

footbridge; overpass; underpass . . . You get the idea. Permanent features included *campsites, picnic areas, exposed wrecks, fence or field lines, glaciers, intermittent streams and land subject to controlled inundation.*[21] Though this list hardly clarifies what is meant by "permanence of the features" (it is littered with so many contradictions it seems churlish to add that the definition of "permanent" is, *au fond* . . . political), there is nevertheless so sturdy a commonsensicality about it all that doubt is all but put to sleep: what else should the Survey *map?*

It all depends on the intention. At the moment I am looking at two other maps, one of a block in Bloomfield Hills, the other of a block in the Mack Avenue area of Detroit.[22] Here are some of the things on *their* common legend: *automobiles; trucks; dogs; cats; green shrubs and trees; dead shrubs and trees; bicycles, tricycles, scooters etc.; rubbish, trash, broken bottles, paper, litter, cans.* Bloomfield Hills is clotted with grass, green

shrubs, and trees. Bicycles and tricycles are everywhere. In the yards, which are unfenced, are three gym sets, a play area and a pond. In the Mack Avenue area, dead shrubs and trees outnumber the living, there is more litter than grass. In the yards, most of which are fenced, are no bicycles, gym sets, play areas or ponds. Evidently the two places are markedly different, but it is not a difference the Geological Survey acknowledges. Why? Because few of the things that mark it are mapped by the USGS. The reason? *Because they're not permanent*. Of course they *are*, the grass and toys of Bloomfield Hills are as permanent features in Detroit as the trash and broken bottles of Mack Avenue, *more* permanent, in fact, than the buildings that went up in the flames of 1967 or in the slower conflagration that followed.[23] But permanence never had anything to do with it: the Survey has no interest in the durative. That it's not an issue is written all over the Survey legend, *all over the quadrangles;* the issue lies elsewhere, in property perhaps (and 13 different boundaries are mapped on topo quads, to say nothing of section corners and boundary monuments), or in concrete (most of the culture of the Survey maps is cast in concrete), or in some other function better served by whatever agenda it is the Survey ends up actually following, which (let us admit it now) does not have on it anywhere a concern for the relative hostility of the American landscape to children.

The Wanaque Quadrangle Only Shows Cheap Features

In this regard a topo sheet is deceptive: the apparent richness of the detail promises a *deeper* understanding than can be struck. Take this factory in the floodplain of the Pequannock River, for example, way down in the southeast corner of our quad, all but off the map, an industrial intruder in this landscape of blue waters and green hills. The fine lines behind it speak of spurs from the New York, Susquehanna and Western railroad. A light road crosses them, runs back into the lot behind the building. I'll bet old C-clamps and spike plates are rusting there along the right-of-way where the goldenrod and Queen Anne's lace are running riot. In the scrub beside the road, old pallets and cable spools are probably rotting, and in the mornings when the mist lies just above the river you can probably *taste* the creosote on that heavy bottom air. Or maybe not. Maybe the lot is paved from the tracks to the river, maybe brightly colored 50-gallon drums are stacked 10 deep inside a chain-link fence festooned with concertina wire. Maybe the smell is so lethal all you want to do is get away. But these are not details the quad can spare, the purple tint covers all, and one wonders: did the survey silently delete features present on the 1954 edition but absent from the airphotos taken in 1971? Or were they . . . *left behind* . . . to give some substance to the idea of permanence?

Whatever was done was done with the approval of the Office of Budget and Management: "The extent to which some kinds of map features are shown is determined partly by the cost of compiling the information."[24] How different this sounds from Monmonier's, "to avoid hiding critical information in a fog of detail, the map must offer a selective, incomplete view of reality."[25] Monmonier's constraint derives from an inherent "paradox" in cartography, that is, from one "natural" to mapping. The survey is more candid; it's a question of budgetary—that is *political*[26]—priorities:

> Aerial photographs are the source of most map information, but features that cannot be identified on photographs must be mapped by field methods, an expensive procedure. As an example, not all section corners are shown; they are too small to be seen on aerial photographs, and the cost of mapping them using field surveys would be excessive.[27]

But what this means *in effect* is that nothing that can't be photographed is mapped. Like what? Well, like what the factory does, the number of people who work there, how much they get paid, how much they're worth, how much is shipped out on the New York, Susquehanna and Western, what the land is worth, how much it's taxed, where the folks who own it live, the kinds of wastes they dump in the Pequannock, the way the factory smells, its *sound* . . .

Cheap Maps Are Silent

It's easy to scoff at this, but those who do haven't tried to sleep near a drop forge, with beds *blocks away* rising from the floor with each crash of the hammer—*boom, boom, boom*—every 2 minutes, night after night. Or a speedway. It's easy for Sherre Glover to say:

> In response to the May 7 article "Homeowners raise a din about speedway noise": Oh, come on now. Have we come to the point where we can no longer tolerate any inconvenience even for a few hours one night a week while a majority of people are enjoying themselves? Why don't people check for things such as speedways, airports and hog parlors before moving into a new area . . .[28]

But in a world where sounds and smells are rarely accorded the status of things we can photograph, it's not as easy to do as to say. Certainly it's cheaper not to map them, given the way our national mapping program has evolved, but this was never independent of the priorities and prejudices brought to bear on it. Yet as Bunge and Bordessa have observed, "sounds can tell an extraordinary amount about an area."[29]

Kevin Lynch made similar observations as early as the first edition of his site planning text,[30] and the idea is central to his *Managing the Sense of a Region*, which deals with "what one can see, and how it feels underfoot, and the smell of the air, and the sounds of bells and motorcycles, how patterns of these sensations make up the quality of places, and how that quality affects our immediate well-being, our actions, our feelings and our understandings"[31]—that is, which deals *with a more comprehensive reality* than can be caught in a photo.[32] In *The Tuning of the World*, R. Murray Schafer torqued the idea into "a theory of soundscape design."[33]

Each of these projects demonstrated the plausibility of soundscape mapping. Bunge and Bordessa mapped the quiet groves in Christie Pits: "In Christie Pits, the only quiet groves are the church yards on Ossington, and Leeds Ave., the back lanes, the schoolyards on a non-school day, and parts of the park. Any corner of this community where one can have a quiet game of marbles or where there is a bench to read a newspaper is a sought after commodity."[34] Lynch reproduced a map Michael Southworth had created in an exploratory effort "toward escaping the visual bondage of the contemporary city."[35] Although Lynch found Southworth's soundscape of central Boston *too detailed* for regional analysis, he nonetheless advocated small scale "mapping of the audible field of selected desirable or undesirable sounds (church bells, music, birdsong, early morning garbage cans, helicopters, jackhammers and so on)."[36] Schafer reproduced an isobel map of Stanley Park in Vancouver as well as a "sound map" compiled from "listening walks." He also explicitly addressed the conflict between visual and acoustic space in terms of property:

> A property-owner is permitted by law to restrict entry to his private garden or bedroom. What rights does he have to resist the sonic intruder? For instance, without expanding its physical premises, an airport may show a dramatically enlarged noise profile over the years, reaching out to dominate more and more of the acoustic space of the community. Present law does nothing to solve these problems. At the moment a man may own the ground only; he has no claim on the environment a meter above it and his chances of winning a case to protect it are slender. What is needed is a reassertion of the importance, both socially and ultimately legally, of acoustic space as a different but equally important means of measurement.[37]

Is the Geological Survey remiss in not mapping sounds? Not necessarily. No map can show everything. Could it, it would . . . *no more than reproduce the world*, which, without the map . . . *we already have*. It is only its *selection* from the world's overwhelming richness that justifies the map; it is only its selectivity, its attention, its focus on this at the expense of that, its enthusiasm, yes, its *passion*, that distinguishes the map from

the world it represents. It is only *because* it doesn't show everything—or anywhere near everything—that the map has *any* claim on our attention. It is not that every map must be all inclusive, but that maps must come clean about, *must face up to*, the embodied interest that drives—and energizes—their selectivity, that is, their historically driven contingency. Behind the bland face of *permanence* and cost lie the real interests the map serves, but, repressed, the map not only denies their existence, it denies that it's denying them.

Here, Thompson again, discoursing on the selection of mappable features, but this time with respect to special-purpose topographic maps:

> For example, a map made for the purpose of designing a new highway would show the type of woodland cover and the classification of soil and rock along the route. Information about drainage, property lines, and buildings would be shown in detail as required. The map would be in the shape of a strip and would cover a relatively small ground area.[38]

It sounds like: *what else would you need?* From the perspective of a highway engineer, probably nothing. But how comprehensive is it really? How wide a range of interests does it actually embody? It depends . . . *on your point of listening*. Here, this paragraph from a local paper:

> More than 150 North Raleigh residents gave state transportation officials an earful Thursday on plans to widen a 9.7-mile stretch of the Beltline—and more than double the traffic noise—near their homes. "If anybody from state government doesn't know what noise is, you are all invited to my house for a backyard party," Sylvia Ruby of Stanley Drive said at the Highway Building auditorium. "You won't hear a thing that's said in the backyard."[39]

But it's not that state and other officials aren't aware of the problem, don't measure noise, even map it; it's that noise fails to achieve that *taken-for-granted* quality of features mapped by the topographic survey, is marginalized, often as *nonphysical*, as though sound were not subject to the laws of physics, could not make life miserable, could not bring about a ringing in the ears, could not cause death.[40] It is this *isolation* of everything *not* on the map that so potently *naturalizes* what's *on* it (what's not on the map . . . *isn't real*).

Legible Features on the Wanaque Quadrangle

A third filter. Having run the world through that of the permanent, and then—under the name of cost—through that of the visible, we will now

drip it through the charcoal bed of the . . . *legible*. This is Thompson, but he is echoing academic cartographers everywhere:

> The legibility requirement means that small features must be represented by symbols that are larger than true scale. For example, roads are shown at least 90 feet wide on 1:62,500-scale maps despite the fact that they are actually narrower. Buildings and other structures also are depicted by symbols that may be larger than the scale size of the features. If smaller objects were represented at their true scale size, the symbols would be too small to be legible. Symbols larger than scale size take up extra map space; therefore, where small features are close together, the less important features are omitted in congested areas.[41]

It's wonderful the way this is all so logical: this requires that, and that requires this and *therefore* . . . It's not that we *want* to omit anything (except less permanent features or those too expensive to map), but that we're *compelled* to. Logic and the physical limitations of the eye . . . *insist*. Except for the intrusion of that phrase "less important" the matter seems almost too technical (and therefore too trivial) to even mention. But here's Eduard Imhof:

> The topographical map shows more than a photograph. It is not only a metrically and graphically produced ground plan of the earth's surface, but should also present a wide variety of information which could not be picked up from a direct image such as an aerial photograph.[42] Due to scale restrictions, the cartographer makes a selection, classifies, standardizes; he undertakes intellectual and graphical simplifications and combinations; he emphasizes, enlarges, subdues or suppresses visual phenomena according to their significance to the map. In short, he *generalizes, standardizes*, and *makes selections* and he recognizes the many elements which interfere with one another, lie in opposition and overlap, thus *co-ordinating* the content to clarify the geographical patterns of the region.[43]

Coming from a cartographer, the language is extraordinary: *intellectual simplifications and combinations, emphasizes, subdues, suppresses* . . . Imhof's cartographer is far from the automaton "objectively" omitting "less important features" that Thompson evokes. Instead, he is a scientist who, in clarifying geographical patterns, *creates knowledge*, knowledge that by definition is *instrumental*.[44] In such a context, legibility is less a matter for the eye than the mind, and this brings to the surface the question that Thompson elides—along with the rest of those laboring to keep cartography in its psychophysical dungeon[45]—and that is . . . make *what* legible? What is it that with all this machinery of decision making—what to show, how to show it—we are laboring to see?

What Are We Looking for in New Jersey?

"Ringwood": hard to miss this word in the upper right of the Wanaque Quadrangle, one of only four set in 12 point type, "RINGWOOD," "WANAQUE," "WEST MILFORD" "OAKLAND." To what do these names, the most prominent on the map, refer? They refer to boroughs of New Jersey (three in Passaic County, one in Bergen), a borough being the municipal corporation proper to New Jersey, that is, a town or a village. Ringwood village proper doesn't actually appear on the *Wanaque Quadrangle* but on a neighboring quadrangle, *Greenwood Lake*. As the *Wanaque* does, so *Greenwood Lake* too speaks of an embarrassing abundance of topography. It presents the country as a green skin slashed by a long pond (and in fact Greenwood Lake was once known as Long Pond) liberally pocked with warts and knots and welts and blisters, with hills, that is, hills and mountains . . . and lakes and streams, *completely wooded*—indeed much of it lies within the Abram S. Hewitt State Forest—except in the northwest where orchards slip down the northwest faces of Round Hill and Taylor and Warwick Mountains. The startling presence of the Appalachian Trail reminds us that among the uses for topographic maps which Thompson lists (hunting, fishing skiing, camping . . .), hiking figures second.[46] The copy of this quadrangle on the table before me was not photorevised in 1971 like the *Wanaque*—though like the *Wanaque* it was created in 1942 with culture revised in 1954—and so in butting them together I'm slamming 1954 into 1971. This explains why they look so different, the purple tint screaming "change" absent from the *Greenwood Lake*, which therefore looks older, looks less modern, less . . . *developed*. "Ringwood" is a name that appears often on the *Greenwood Lake*, in 12-point type in the borough name, in 10-point type over the cluster of houses that comprise the village, in 6-point type in "Ringwood Creek," "Ringwood Mill Pond," "Ringwood Manor State Park," and in even smaller type along "Ringwood Avenue" running out to Hewitt. But, *whoa!* What are these crossed picks all over the place, *look*, they're, they're . . . *iron mines? Inactive iron mines?*

We're Looking for Iron

In New Jersey? Absolutely. "Ringwood," Allan Nevins reminds us, "might well be called the birthplace of the American iron industry."[47] A settler under George II was the first to build a forge along the Ringwood River, he points out; not much later the Ogden family formed the Ringwood Company, and in 1742, it put up its first furnace. At the time iron was smelted with charcoal—even a small furnace consumed a thousand acres of forest a year—and waterpower was required both for the "blast" and the working of the resulting metal.[48] Little surprise then to

find the Ogdens supplementing their purchase of the few acres around the original forge with enough land to give them control of most of the Pequannock and Wanaque Rivers. A little after the French and Indian wars, Peter Hasenclever acquired the property for the London Company, adding to it 10,000 acres around Ringwood and Long Pond acquired from the colonial government. Hasenclever had an 860-foot dam built across the lower end of Taxito Pond—now Tuxedo Pond (on the neighboring *Sloatsburg Quadrangle*)—to provide the waterpower needed to boost the Ringwood works to a capacity of 20 tons a week. Under the subsequent management of Robert Erskine, the mining operation churned out iron products for Washington's Continental Army. Of course the Ogdens, Hasenclevers, and Erskines didn't have the New Jersey iron business to themselves: "Shortly after the Revolution it was said that a man could not ride across the State in any direction without stumbling upon at least two of these old works; and in Morris County alone there were nearly a hundred iron forges in operation by the year 1777."[49] The din was terrific. Waterwheels turned the great tilt hammers used to beat impurities from the pig iron: "As they dropped, rose, and dropped again, their noise had once boomed through the quiet valleys for miles."[50]

Sometime after the Revolution, the London Company unloaded the property onto James Old. He sold it to Martin Ryerson, who for half a century, was the most important iron maker in New Jersey. His sons were less successful, however, and in 1853 they sold the estate to the Trenton Iron Company.[51] Founded in 1845 by Edward Cooper and Abram Hewitt, this had rapidly grown into the nation's largest iron works. Hewitt had often explored the New Jersey countryside searching for ores to supply their mills:

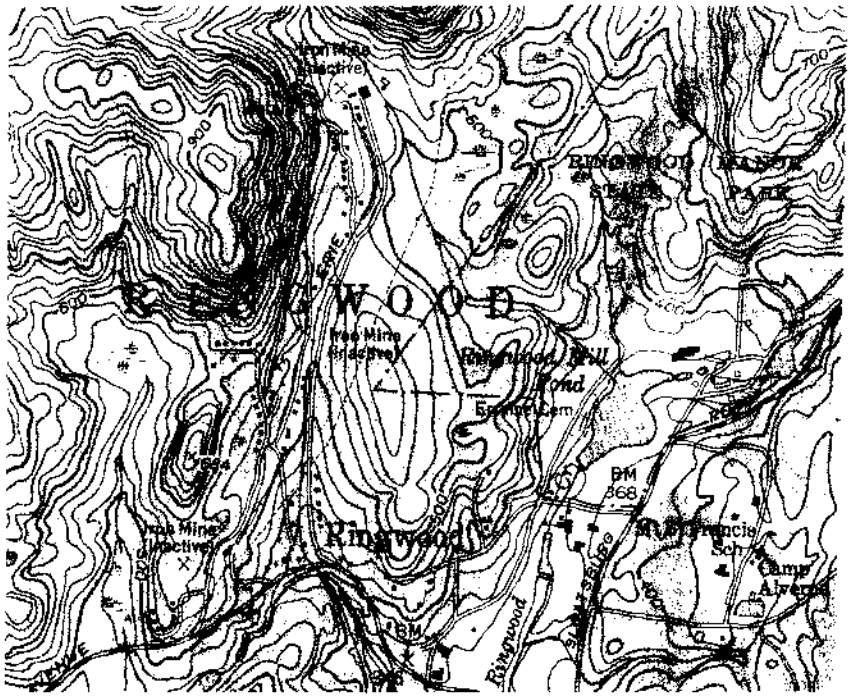
> In searching for the best ores for his Trenton mills, [Hewitt] steeped himself in the lore of the old Jersey mines, furnaces, and forges. He formed the habit of spending two or three days, when he could spare them, in excursions into the hills of the four northwestern counties, Hunterdon, Warren, Morris, and above all, Sussex. The woods—beech, oak, maple, and birch below, pine and spruce on the crests—were still deep; they were filled with the melody of waters, dashing over the gneiss and limestone rocks. In these forest recesses, following half-faded paths, he would sometimes come upon remains that seemed to speak of an older race of men. Shafts, with rusting bars and chains at the top, would suddenly open into the rocky hillsides. Heavy walls of crumbling masonry, enclosing a dilapidated waterwheel, would rise beside some brawling stream, whose waters had been diverted into a deep pit-like basin. Or some stark donjon of stone and brick, overgrown with vines and moss, with a gaping iron maw at the bottom, would close the end of a deeply rutted road, where slag lay mixed with clay and gravel—the ruins of an old furnace . . . [52]

> To Hewitt the study of these ruins was business, but he felt their romance nonetheless. They evoked the romance of woodland adventure; men had pushed into tough mountain wastes, into swamps and tangled forests, fighting the Indians and panthers as they went, not merely to take furs or clear farms, but to lay the foundations of mining and industry. Their names called up the romance of business risk; the "London Company" which built the works at Ringwood, Long Pond, and Charlotteburg in Colonial days had spent more than £54,000 before any tangible returns appeared. And there was the romance of invention. These early ironmongers had to sell their wares in the form of stoves, farm implements, kitchen utensils, hardware, and arms, and they exercised great ingenuity in devising new iron commodities . . . The iron plant at Trenton was the inheritor of all this and of the inventions made with increasing rapidity in English mills during the previous century. The ores which Cooper and Hewitt used came in the main from the Jersey hills, though some were also brought from Pennsylvania. They went to Phillipsburg, where the three tall blast furnaces—for a third was built in 1852–1853—were able to smelt at least 25,000 tons of ore annually . . . [53]

"The possibility that they might run short haunted [Hewitt's] pillow. If only he could find another property like Andover! In 1853 Ringwood, the most celebrated iron-ore property in all the East . . . came upon the market."[54] Hewitt leapt at the chance. A glance at the map showed it could easily be connected with the new Erie Railroad, and Hewitt immediately sent the company's mining expert to look at it. After receiving his enthusiastic report, Hewitt himself made a visit, pronouncing the prospects at Ringwood the best he had ever seen. Since 1763 a dozen highly productive mines had been opened there: "the Blue, the Little Blue, the London, the Cannon, the Peters (which Erskine considered the best), the St. George, and others. When Hewitt bought the place, from 300,000 to 500,000 tons of ore had been taken out, but enormous quantities were still in the ground; and he breathed easier."[55]

Suddenly the Map Looks Different

And now the map looks different; it's not the same landscape anymore. What seemed a bucolic picture of hills and lakes turns out to be an industrial site: the sound of tilt hammers booms through the quiet valleys, blast furnaces rise above the woodlands which in any case are nothing but fuel and flux, the streams are dammed for waterpower. On every side stand wire mills and rolling mills, heating furnaces and puddling furnaces, machine shops and pattern shops. Canals and railroads wire the valleys. Boats and trains carry iron ores and iron pigs. When Hewitt and his bride



Traces of Robert Erskine and Abram Hewitt linger in abandoned iron mines and place names on this corner of the U.S.G.S.'s *Greenwood Lake Quadrangle*.

moved to Ringwood, they took over the house the old ironmonger Martin Ryerson had erected near Peter Hasenclever's mansion. They stabled their horses in what had been sorting and crushing mills. Despite the gardens for which Mrs. Hewitt became famous, there was no escaping the iron. On the terrace before the house Hewitt placed a link from the famous chain—supposedly of Ringwood metal—that the Revolutionaries had strung across the Hudson to stop the British. Beside it stood the anvil on which it had been forged, and beside that the waterwheel which had raised the anvil's great hammer.[56]

Though Hewitt was no robber baron—Henry Adams regarded him "as the most useful public man in Washington"[57]—he nevertheless held that "the consumption of iron is the social barometer by which to estimate the relative height of civilization among nations."[58] This is the spirit—with its complicated commitment to both iron *and* the public—in which, as a member of the U. S. House, he wrote the bill that in 1879 consolidated the four or five existing national surveys (King's, Hayden's,

Powell's, and Wheeler's) into the Geological Survey that would come in time to produce the *Wanaque* and *Greenwood Lake* quadrangles:

> This legislation met with much opposition. There were jealousies regarding the headship of the new Geological Survey, for Hayden had his champions as against King and Powell, who actually became the first and second heads respectively. There was the old jealousy with the War Department of civilian encroachments. There were powerful Western interests which fought to the last against any measure designed to strengthen the land laws. All Hewitt's skill and force was needed to carry the legislation in the House. He answered every objection, struck out vigorously at the "grasping corporations and overpowering capitalists" who were trying to seize our great western heritage, and showed that the Engineering Corps of the army would be kept quite busy enough in making needed military surveys. As he said, eminent scientists would not care to place themselves under young officers of the army. Above all, he explained the incalculable importance of the Western domain, the vast potentialities of wealth and growth locked up in it. In the end, he triumphantly carried the bill. Years later, when the Geological Survey hung the portraits of King and Powell in its offices, it wrote asking for that of Hewitt as well.[59]

They needn't have bothered: his portrait is inscribed in every topographic sheet the Survey produces.

What is it that with all its machinery of decision making (what to show, how to show it) we are laboring to see in the maps the Survey produces? It turns out to be quite straightforward. In Hewitt's words: "What is there in this richly endowed land of ours which may be dug, or gathered, or harvested, and made part of the wealth of America and of the world, and how and where does it lie?"[60] What we're laboring to see is . . . *America as a great cornucopia, a vast cupboard*.[61] Given Hewitt's liberalism this commandment has to be taken liberally—that is, with "for the benefit of all" scrawled across it[62]—but given the forces he had to contend with, it must be accepted that his liberalism is but one of the many interests inscribed on the *Wanaque* (and every other quadrangle), including those of . . . *grasping corporations* (and let's face it, the Trenton Iron Company *had* to have that ore), of . . . *overpowering capitalists* (and, however awkwardly, this is what Hewitt was), of . . . *the War Department* (which in fact made our map, and whose arguments for exclusive control of all surveying Hewitt was initially inclined to lean toward), of . . . *eminent scientists* (a number of whom, including Clarence King, Hewitt counted among his friends), of . . . *powerful Western interests* (which Hewitt was not entirely lacking).[63] No wonder the map does not speak in a single voice. It has never been a question of conspiracy, from the

beginning we have insisted that the interest embodied in maps was neither simple nor singular.

Yet despite this polyphony, the chord that is sounded is that of a . . . *disinterested science*.[64] In its rhetorically orchestrated denial of rhetoric (the austere white margins, the tastefully subdued colors) the map seems to represent only this. Powerful Western interests, capitalism, the troubled sleep of the iron-ore poor . . . *have disappeared*. The rigorous dispassion of the survey sheet is seductive precisely in the degree to which no sign of seduction is apparent: the message of Nature Subdued (howsoever liberally the wealth is distributed)—or . . . *untouched*—is the more powerful because it seems to be spoken not by the *map* (*it* appears to say nothing, appears to *allow* the world to speak), but by Nature itself.