



# Cartographic Perspectives

Journal of the  
**North American Cartographic  
Information Society**  
Number 61, Fall 2008

## From the President

Dear NACIS Members,

I write this at a time of economic uncertainty. Here at Brigham Young University, we have a hiring freeze, and much of our auxiliary budget (travel, student assistants, etc.) is being cut. We recently lost our university map librarian, and the library is considering filling his slot with something different. Funding for my research is harder to come by. My students are worried about their job prospects. In my freelance work at home (Kinesava Geographics), long-time clients are unsure of their own viability and whether they can continue to afford my services.

It is easy to feel that Cartography is headed toward a perfect storm. Economic cutbacks come at a time when the exponentially increasing popularity of mapping as a tool (or a toy) paradoxically seems to threaten mapping as a craft. Will our clients, our employers, our funding sources, or our students' employers soon see us as an expendable luxury that can be easily replaced by free maps off the Internet?

I see two possible courses we can take to navigate this storm. The reactionary approach would be to fight to protect our turf from the "amateur cartographers," using legislative and other means to try to kill neogeography. While some professions, such as surveying and engineering, have been very successful at this "fortress

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# Cartographic Perspectives

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(letter from the editor continued)

plan," I see some problems. It would keep our profession very small, and it assumes that we know everything, and that the newcomers have nothing to contribute.

The proactive approach is exemplified by the graphic design profession. When desktop publishing arrived in the late 1980s to democratize the tools of design, the trade literature was rife with professional designers afraid that the peasants were taking over the kingdom, that anyone who knew what they were doing would be out of a job, and soon every document would have 35 fonts. But they weathered the storm, and in the end the profession was stronger than before. How?

- They allowed the market to blossom. Yes, there are still newsletters with 35 fonts, and there are millions of amateurs making ugly brochures, but eventually, those with serious

needs recognized that they didn't know what they were doing, and turned to designers. By letting a huge number of people make their own mistakes, the market for professionals grew.

- They embraced the technology. New technologies should create new opportunities for newcomers and veterans alike. GIS and the Internet are frequently used by non-cartographers to create really bad maps, but they are also being used to create beautiful, powerful maps that wouldn't be imagined before.
- They got better. I think we all realize that the best way to prove that you deserve to get the job is to show that you are better than the competition. If the competition is increasing, then it is our responsibility to improve our own skills and talents to stay ahead.

Fortunately, we have the perfect resource to weather the storm: NACIS. As I have talked to NACIS members, your observations have

matched my own experience: this community is already taking the right approach to change. In *Cartographic Perspectives*, and at conferences like our very successful meeting in Missoula, Montana, we see firsthand how the best cartographers (i.e., you) are innovating to continually improve the quality of their work. I always come away inspired to develop my own skills, and can't wait for the next map project to improve on the last one. Nick Springer's *Cartography Design Annuua/* and Cindy Brewer's *Designed Maps* were invaluable tools in my cartography class last semester to help my students see the difference between an adequate map and an excellent map (and how to make the excellent map). The MapGiving experience inspired me to better use my skills to make a difference. I was a spectator that night, but I enjoyed seeing professionals that are technically in competition help each other learn and improve. When we work together, we all will succeed.

I look forward to being educated and inspired this year from every issue of *CP* and our conference this fall in Sacramento, California. But we need you! I hope that each of you will be willing to share your insights with the rest of us in the journal and at the conference. We and you both benefit from your active participation in the cartography community.

See you in California!

Brandon Plewe  
Brigham Young University

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## The Cover

### Polar Plait

1995, 10<sup>7</sup>/<sub>8</sub>" x 10<sup>7</sup>/<sub>8</sub>", oil and acrylic on wood panel

Susanne Slavik  
Carnegie Mellon

*Polar Plait* is from a series of paintings inspired by map projections that inevitably distort reality. Some assume shapes that suggest human organs. While the projection of *Polar Plait* is more geometric, I maintain a connection of the body to the world. Geographic boundaries are erased and analytic and schematic information is replaced with an absorbing atmosphere. The new blank world is encircled with an extended braid, spiraling toward a hemispheric pole.

The five girls in my family grew up with my German mother braiding our hair each morning. The impossible plaits in my paintings are light and ethereal, anything but tectonic. They introduce personal memory into a cosmic space, zeroing in on home.

<http://artscool.cfa.cmu.edu/~slavick/>

## Letter to the Editor

*Daniel "daan" Strebe*

I slid into the study of map projections late in the 1980s, naïvely supposing the field must be safely obscure and staid. For the most part it is, and yet I was quickly confronted with the spectacle of Arno Peters. A little reading on the history of map projections revealed it to be speckled with crusaders storming in to offer The Solution to all that ails the enterprise. These days, the Internet being what it is, new crusaders contact me with some regularity. Verbiage attending such campaigns is largely predictable, since the same basic motives and methods fuel all quacks. To the roster of mountebanks we can add Mr. Abbas Bazeghi, who wrote *Cartographic Perspectives'* Winter 2008 **Mapping: Methods & Tips** article, "Matrix Projection—A True Equal-Area Map of the World."

He leads out with a synopsis of the history of map projections. Given that his audience was to be cartographers, one might suppose he would research his material with some care. Remarkably, however, it turns out you must read carefully to find the few clearly correct facts, since it is errors, unsubstantiated musings, and grade school fallacies that comprise the bulk of the narrative. There would be little point in noting every error; this isn't really the forum for that, and in any case surely some thrill of the chase should be left to the reader. Just the doozies will suffice.

Bazeghi asserts, "*Before Ferdinand Magellan's explorations . . . the earth was assumed by most people to be flat.*" Surely most people of the time did not assume anything at all about the shape of the earth and never gave it a thought. The very notion of "the earth" wasn't likely part of the psyche of most people. In any case, what we can say with great certainty is that few educated Christians and Muslims ever believed the earth was flat (Russell 1991). Eratosthenes had settled the matter conclusively with great precision and elegance two hundred years before the advent of the Christian era. Hellenistic culture digested and accepted Eratosthenes's results over the ensuing century. The gross shape of the earth has never since been under any serious dispute in Western or Middle-Eastern culture. The few dissenters, such as Lactantius, were viewed as kooks even in their own time.

Continuing, ". . . Columbus assumed that he had reached the shores of India . . . Consequently, he grossly miscalculated the size of the earth." This inverts cause and effect. Columbus grasped at a lot of straws in order to conclude that the earth was much smaller than Eratosthenes calculated. That's how he convinced himself India was only a short voyage west in the first place. He was wrong, and the scholars knew it.

"[Galileo] was forced by . . . the church to stop teaching Copernicus' theory on roundness of the earth." Actually, the Church never objected to teaching earth's sphericity, since that had long been presumed and was regarded as scripturally compatible. I can't find a single citation supporting the claim of any Church censure on the matter of earth's sphericity.

"Nevertheless, by 1570 AD new world maps based on the spherical shape of the earth began to appear in Europe." Somehow Mr. Bazeghi has managed to miss a century of maps, including those that existed before Columbus ever set sail, such as the profusion of Ptolemaic maps appearing in the 1480s and 1490s. Those maps cannot be credibly argued to represent anything but a spherical earth. And, of course, Roger Bacon invented a map projection (for a spherical earth) in the 1200s. Yet Bazeghi presents Mercator's 1569 map as a landmark in this context, claiming it ". . . provided a grid to expand on and refine as more accurate surveys . . . were prepared in the following

years." How? Even if we dismiss the Ptolemaic projections and derivatives as being only "partial-earth," we have maps conveying the entire sphere starting with Contarini's and Rosselli's 1506 map on a conic projection. Dozens of whole-world maps antedate 1569 in a wonderful florescence of map projection experimentation. Many globes from the period are also extant. Mercator's projection established a meridian in scientific map projections, but it contributed nothing to anyone's ability to put what they had surveyed onto a map.

Then we are told that Cellarius introduced, around 1660, "*the most well known example*" of a projection to present the world more realistically than Mercator. The citation mystifies me. True, Andreas Cellarius produced a star atlas in 1660, but the only terrestrial world map attributed to any Cellarius is that of Christophorus from 1692. This map does, in fact, present the world in two circular hemispheres as Bazeghi describes, but he follows with "*The map is an artistic presentation and is not based on scientific or mathematical rules. The earth map in this design is grossly distorted with a great deal of guess work and many missing or obscure parts of land and seas.*" This is claptrap from start to finish. The projection is the stereographic, introduced in the Hellenistic era, and has a strict mathematical formulation, sports the conformal property, and accrues reasonably low distortion in the double hemispheric format. The cartography is representative of the period and even exemplary in its unwillingness to speculate on such unsupported hypotheses as an Antarctic continent. The projection was used extensively in that format in the seventeenth and eighteenth centuries, but showed up in modern times a century earlier than the Cellarius map, Rumold Mercator's 1587 map being perhaps the first, but followed by many others. One can only speculate on how Mr. Bazeghi pulled the whimsical name of Cellarius out of his bag of imaginary history.

Mr. Bazeghi notes the Robinson as being the National Geographic's standard projection since 1988 but apparently hasn't noticed that they changed over to the Winkel Tripel a decade ago. He compares the Robinson to the Mercator (he seems to compare everything to the Mercator, quite in harmony with every projection quack) by noting that the Robinson preserves the central meridian's length compared to the equator, whereas the Mercator doubles it. In point of fact, the Mercator renders all complete meridians as infinite in length, and no convention cuts them off at double the equator's length. "Double" is therefore yet another spurious assertion.

On page 57, Mr. Bazeghi presents a bewilderingly fictitious display of map projection history. While the dates for the Mercator and Robinson projection are correct, he lists the sinusoidal as "1950s," the Mollweide as "1960s," and Goode's as "1970s." Meanwhile, the sinusoidal was invented by 1570 at latest and has seen sporadic use ever since—and heavy use by Sanson in the 1600s, for example. The Mollweide was described in 1805 and has appeared commonly since then, and Goode's homolosine has featured in that eponymous atlas ceaselessly since the 1930s. These facts are remarkably easy to come by. We can only hope the dates he attaches to his own inventions are correct.

That page and the following pages treat the reader to several fantastic claims amongst the illustrations, including one that is patently false. Take, for instance, this hyperbole: "*Truest map of the world ever created.*" variations of which have attended every crusade from the beginning. Further: "*The grid is the most precise ever designed,*" which in point of fact means nothing—any "grid" is completely "precise." "*This map is the perfect map to use when presenting statistical graphic information to scale regarding global warming issues,*" a statement unsupported in any particular way. It's probably

a reasonable map to use, but it is not “the” perfect map to use or the only reasonable map to use by any means.

And the false claim? “*A true equal area map of the world.*” An analysis of Mr. Bazeghi’s description of his method makes clear the method cannot result in a “true equal-area map” by the only recognized definition of “equal-area.” “Equal-area” has a precise meaning based in differential geometry. Just ensuring that a large number of finite regions have the correct area is insufficient to produce an equal-area map. The same objection holds for “*A mathematically precise Direct Equal Area Projection*” whatever that means. Whatever the method is, it is not “mathematically precise” with regard to areal equivalence. It is an approximation.

What are we to make of all this? Given the article’s pervasive disregard for facts in a forum where fabrications about maps hardly could go unnoticed, one is tempted to imagine it’s all a big joke. This interpretation could even be reinforced by pondering the question of why the map projections history was included in the first place. Since the synopsis does not further the “how to” purview of the *Cartographic Perspectives* forum, and does not shine flattering light on Mr. Bazeghi’s work in any apparent way, the answer to the question of “Why?” remains mysterious indeed. Why would Mr. Bazeghi make up a bunch of stuff to print just to risk being discredited? Yet the methodology section is no mere joke. Mr. Bazeghi has contrived a useful method for realizing maps that are “sufficiently” equal-area, even if they are not rigorously equal-area. His interruption schemes are novel, attractive, and “reasonable.” If he had presented *just* his method and its results, without promotional hyperbole and fanciful narrations of history, the work would be unimpeachable and even worthy of peer-reviewed publication.

That is, in fact, what I recommended. You see, Mr. Bazeghi approached me in March of 2007, having mailed me printed copies of his designs. I responded, in part:

*I received your materials describing your Matrix Projection. It was a delight to see such dedicated efforts from someone outside the field.*

*You’ve constructed a unique and useful interruption pattern. It’s rather more complex than Cahill’s Butterfly or Waterman’s projection, both of which share some characteristics. I could imagine it being deployed on other projections as well, although its complexity might come with some difficulties, depending on the projection.*

*Noting a couple of claims: “Truest map of the world ever created” would be very hard to defend. There is no clear metric by which a map could make such a claim, and it becomes even more problematic when the local geometry of the projection has not been described in a way that others could reproduce the projection. I suspect most mathematical cartographers subjected to such a claim would conclude it is hyperbole.*

*I also note that, if I read your description of the construction method correctly, the map is not strictly equal-area. In map projection study, “equal-area” has a specific meaning at a completely local scale. Not only must the area across a broad section be correct, but any division of that section whatsoever must also be strictly equal-area. What you have created is likely equal-area “enough” for most practical purposes, but because the construction method does not report what happens at the scale of infinitesimals, it is impossible to assess how close the projection comes to being truly equal-area and also impossible to compare it usefully against real equal-area projections.*

We exchanged several e-mails in which I advised over and over that he remove the hyperbole and false claim and instead prepare a technical paper for publication. Sadly, the path of integrity did not suit his ambitions. Once *Cartographic Perspectives* accepted his article for publication (the text of which I was not privy to before receiving the issue), he approached me with that ace in hand to ask if he could use me as a "reference" in his efforts to persuade Al Gore to adopt his projections in Gore's presentations about global warming. I declined on the basis of his spurious claims. Now he has gained "publication," willful deception intact, and *Cartographic Perspectives* has gained... what, exactly?

### References

Russell, Jeffrey Burton. 1991. *Inventing the Flat Earth*. New York: Praeger.

## “The Map Shows Me Where It Is You Are”: Gloria Oden Responds to Elizabeth Bishop Across National Geographic and Rand McNally World Maps

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African-American poet Gloria Oden was among those inspired by Elizabeth Bishop’s seminal poem “The Map” (1934). In honor of Bishop, Oden wrote two poems about reading maps: “A Private Letter to Brazil” (1957) and “The Map” (ca. 1961). Like May Swenson’s “The Cloud-Mobile,” Oden’s poems overtly pay homage to Bishop. Like Howard Nemerov’s “The Mapmaker on His Art” and Mark Strand’s “The Map,” Oden’s verses reveal that she shares in Bishop’s understanding of the mapmaker’s art: its imaginative power and limitations, its technical achievement and arbitrary nature. Yet Oden’s two poems are far more politically and historically nuanced than Bishop’s “The Map”—or than any of the other map poems written shortly after Bishop won the 1956 Pulitzer Prize for her collection opening with “The Map” (*Poems: North & South—A Cold Spring*). Furthermore, unlike her peers, Oden found inspiration in Bishop’s poem *and* in an identifiable contemporary map. By comparing both of her poems to Bishop’s original as well as uncovering, with the help of Oden’s own words, the identity of her maps, this paper will demonstrate how Oden’s penetrating critique of two popular 1950s wall maps helped her connect not only with Bishop but also with the world she found reflected in, or absent from, the map.

**Keywords:** American Poetry, African-American Poetry, Gloria Oden, Elizabeth Bishop; Twentieth-Century World Maps, National Geographic Society, Rand McNally & Company

**O**n New Year’s Eve of 1934, Elizabeth Bishop (1911-1979) composed “The Map,” arguably the seminal twentieth-century poem about maps and mapmakers:

Land lies in water; it is shadowed green.  
 Shadows, or are they shallows, at its edges  
 showing the line of long sea-weeded ledges  
 where weeds hang to the simple blue from green.  
 Or does the land lean down to lift the sea from under,  
 drawing it unperturbed around itself?  
 Along the fine tan sandy shelf  
 is the land tugging at the sea from under?

*Initial submission, June 30, 2008; final acceptance, September 5, 2008.*

The shadow of Newfoundland lies flat and still.  
 Labrador's yellow, where the moony Eskimo  
 has oiled it. We can stroke these lovely bays,  
 under a glass as if they were expected to blossom,  
 or as if to provide a clean cage for invisible fish.  
 The names of seashore towns run out to sea,  
 the names of cities cross the neighboring mountains  
 —the printer here experiencing the same excitement  
 as when emotion too far exceeds its cause.  
 These peninsulas take the water between thumb and finger  
 like women feeling for the smoothness of yard-goods.

Mapped waters are more quiet than the land is,  
 lending the land their waves' own conformation:  
 and Norway's hare runs south in agitation,  
 profiles investigate the sea, where land is.  
 Are they assigned, or can the countries pick their colors?  
 —What suits the character or the native waters best.  
 Topography displays no favorites; North's as near as West.  
 More delicate than the historians' are the map-makers'  
 colors.

Bishop subsequently opened several works with this poem, including her 1955 collection *Poems: North and South—A Cold Spring*.<sup>1</sup> After that volume won the 1956 Pulitzer Prize, "The Map" inspired other American poets—Howard Nemerov, May Swenson, Mark Strand, and Gloria Oden—to reflect upon the uses and meanings of maps. In "The Map-maker on His Art," Nemerov wryly compared a writer/cartographer to the explorer whose notes he "translate[s]" (Nemerov 1957, 54; Nemerov 1958). In "The Cloud-Mobile" (1957), Swenson suggested that clouds and sky form "a map of change" reflecting the slower transformations of the continents and ocean they resemble (Swenson 1958; Swenson 1994, 174 and 237). Strand followed both Bishop and Nemerov in recognizing an intimate connection between poets and mapmakers (Haft 1999, 36-38; 2001, 37-65). In his "The Map" (1960), Strand contrasted the world beyond his window with the unified, unchanging, idealized version of his map and poem (Strand 1963, 30; Strand 1964).<sup>2</sup>

Gloria Oden (b.1923) went a step further, penning two map-poems in tribute to Bishop: "A Private Letter to Brazil" (1957) and her own poem "The Map" (ca. 1961). Unlike her peers, however, Oden uses such explicit detail in her verses that we can actually identify the maps that helped shape her words. These maps, in turn, not only were contemporary with her poems but were also the products of two great American cartographic rivals—the National Geographic Society and Rand McNally & Company.

It is no coincidence that Oden felt drawn to Bishop. A John Hay Whitney Fellowship (1955-1957) awarded to Oden following favorable reviews of her first collection, *The Naked Frame: A Love Poem and Sonnets* (1952), led, indirectly, to the older poet. Although she had read Bishop and owned a copy of her 1946 collection, *North & South*, not until her fellowship did Bishop's poetry suddenly "click." As Oden later recalled in a 1977 interview with J. Saunders Redding:<sup>3</sup>

When the very next day [May 8, 1956] *The New York Times* announced that she had been awarded the Pulitzer Prize for 1956 in poetry, I sat down and dashed off a letter to her in Brazil never expecting a reply. But she did reply and even asked to see my poems. In her second letter she asked if I knew about Yaddo. I hadn't. (Oden 1978a, 17).

*"After Elizabeth Bishop's volume won the 1956 Pulitzer Prize, 'The Map' inspired other American poets—Howard Nemerov, May Swenson, Mark Strand, and Gloria Oden—to reflect upon the uses and meanings of maps. Gloria Oden (b.1923) went a step further, penning two map-poems in tribute to Bishop: 'A Private Letter to Brazil' (1957) and her own poem 'The Map' (ca. 1961). Unlike her peers, however, Oden uses such explicit detail in her verses that we can actually identify the maps that helped shape her words."*

*"A Private Letter to Brazil' . . . reveals Oden's gratitude and admiration for Bishop."*

Bishop not only offered to recommend Oden, but even contacted her own mentor and friend Marianne Moore on Oden's behalf; their support, along with that of Saunders Redding and Arna Bontemps, insured her acceptance. Oden's 1956 residency at Yaddo, the prestigious poetry center in Saratoga Springs, was pivotal in introducing the budding African-American poet to a "literary world" (Oden 1978a, 12) and, later, to the wealth of poets, courses, and readings available in New York City. "A Private Letter to Brazil," written sometime after her stay at Yaddo and first published in 1959, reveals Oden's gratitude and admiration for Bishop.<sup>4</sup>

#### GLORIA ODEN'S "A PRIVATE LETTER TO BRAZIL"

The map shows me where it is you are. I  
am here, where the words NEW YORK run an inch  
out to sea, ending where GULF STREAM flows by.

The coastline bristles with place names. The pinch  
in printing space has launched them offshore  
with the fish-bone's fine-tooth spread, to clinch

their urban identity. Much more  
noticeable it is in the chain  
of hopscotching islands that, loosely, moors

your continent to mine. (Already plain  
is its eastward drift, and who could say  
what would become of it left free!) Again,

the needle-pine alignment round SA,  
while where it is you are (or often go),  
RIO, spills its subtle phonic bouquet

farthest seaward of all. Out there I know  
the sounding is some deep 2000 feet,  
and the nationalized current tours so

pregnant with resacas. In their flux meet  
all the subtlety of God's great nature  
and man's terse grief. See, Hero, at your feet

is not that slight tossing dead Leander?

In "A Private Letter to Brazil,"<sup>5</sup> Oden carries on a poetic dialogue with Bishop. Though the poem opens by addressing a nameless "you," Oden's lines "where it is you are (or often go), / RIO..." clearly allude to Bishop, who had moved to Brazil in 1951 and was living at the time in Petrópolis, just north of Rio de Janeiro (Oden 1978a, 16). "A Private Letter to Brazil" is also a meditation on a map in the tradition of Bishop's poem. As if to strengthen her debt, Oden devotes the first five stanzas to the image of mapped names exceeding their bounds: "The coastline bristles with place names. The pinch / in printing space has launched them offshore" to produce "the needle-pine alignment round SA." (Oden abbreviates "South America" here to maintain the *aba, bcb* rhyme scheme of the demanding *terza rima* measure, illustrated by "plain-say-again," "SA-go-bouquet.") In 1959, the same year she published "A Private Letter to Brazil," another of Oden's poems first appeared in print. Its title, "' . . . As When Emotion

*"In 'A Private Letter to Brazil,' Oden carries on a poetic dialogue with Bishop."*

Too Far Exceeds Its Cause," is a direct quote from the second stanza of Bishop's "The Map," where Bishop refers to the excitement the printer experiences in breaking the rules of scale to accommodate place names—"as when emotion too far exceeds its cause" (Bishop 1983, 3, line 17).<sup>6</sup> Years later, when Robert Hayden reprinted "A Private Letter to Brazil" in his 1967 anthology, *Kaleidoscope*, he compared Oden to Bishop:

Miss Oden's poems appeal primarily to the intellect, which is not to say that emotion is lacking in them but that feeling tends to be subordinated to ideas. She has an eye for the vivid detail, and she combines the literal and the symbolic, the real and the fanciful, in a manner similar to that of Elizabeth Bishop. (Hayden 1967, 180)

The beauty of "A Private Letter to Brazil" is that a map connects Oden to Bishop, both geographically and spiritually: "The map shows me where it is you are." Oden composed her poem in New York City, where Bishop had lived and written "The Map" a generation earlier. The words "NEW YORK" touch those of "GULF STREAM," while the West Indies become "the chain of hopscotching islands that, loosely, moors / your continent to mine." The map also serves as an alternative means of travel, allowing Oden to visit Bishop's home vicariously. (Oden has told me that she prefers not to travel, that maps help satisfy her fascination with life in other places and periods of history.) And the map has a political significance as well, one that further demonstrates what Oden and Bishop shared. Though American-born, both poets had deep emotional ties to continents south of the Equator. Bishop lived in South America for twenty-three years (1951-1974), while Oden regards Africa as her ancestral home (Oden 1978a, 24). That continent's importance to Oden becomes evident when she imagines the West Indies' attraction to Africa: "Already plain is [its] eastward drift, and who could say / what would become of it left free?"

By the poem's end, the relationship between poets gives way to an exploration of the fragility of human relationships. Racial issues become more explicit. Consider Oden's description of the depth of the continental shelf off RIO—"Out there I know / the sounding is some deep 2000 feet, / and the nationalized current tours so / pregnant with *resacas*" (emphasis mine). Oden "know[s]" the losses endured during the Middle Passage (Doreski 1999). On slave ships bound for the Americas, nearly two million Africans found watery graves: some perished from the sea's violence or the squalid conditions below deck; others were cast overboard because they'd "mutinied" unsuccessfully, or because they were "dying" from illness and mistreatment, or because their captain feared capture by enemy vessels or by patrol ships after slavery had been abolished; still others committed suicide in the belief that, by drowning, they would not only escape their plight but even return home in death to their loved ones (Rediker 2007, 4-5, 39-40, 288-290, 301-303, 343-347). And the treacherous *resacas* or "undertows," in turn, bring to mind another tragedy. Though muted by time and myth, it is the story of Hero's suicide upon finding the body of her beloved Leander, drowned in the Hellespont/Dardanelles while braving, to reach her, the currents between two other continents: Asia and Europe.

For the classically trained Oden, Hero and Leander symbolized her own isolation. Although she had been writing poems since she was six (Oden 1978a, 10), not until Leroi Jones (Amiri Baraka) began publishing his poetry in the 1960s did Oden know any other African-American poet (Oden 2008a, [3]). The map in "A Private Letter to Brazil" records not only her geographical distance from Bishop, but also her fear of never

*"The beauty of 'A Private Letter to Brazil' is that a map connects Oden to Bishop, both geographically and spiritually."*

*"By the poem's end, however, the relationship between poets gives way to an exploration of the fragility of human relationships."*

really connecting, through poetry, with her own race or any other. Yet as this daughter and granddaughter of African Methodist Episcopal (AME) Zion ministers gazes on her map of the Western Hemisphere, she detects “the subtlety of God’s great nature” beyond “man’s terse grief.” Perhaps the so-called “real” world that the map allows us to imagine is no less a “reflection” than the map itself.

### The Map Behind “A Private Letter to Brazil”

But *which* map? Answering such a question might help literary historians settle the poem’s chronology. But it could also demonstrate how maps are read, responded to, and discussed by readers—including creative artists like Oden and scholars like Doreski (1999), whose analysis of Oden’s word choice and capitalization might be even more nuanced had she recognized that Oden was responding not only to Bishop’s poem but to a specific map’s features and typography. Unfortunately, like Bishop, Oden never names the map she consulted while writing her poem. In later years Bishop recalled only “a red map” (Monteiro 1996, 66), while Oden began conflating the map that had inspired “A Private Letter to Brazil” with the one that she later used when composing her poem “The Map” (see below). During a recent telephone conversation with the author, however, Oden wondered aloud whether the map might have come from a *National Geographic* magazine (14 September 2007). That clue, along with Oden’s recollection of having composed “A Private Letter to Brazil” in 1956 or 1957, led to two supplementary maps: the first, “Atlantic Ocean,” inserted into the December 1955 issue of the magazine; the second, “The World,” into the March 1957 issue.<sup>7</sup> Upon viewing both, Oden conceded that the 1957 map “does tug at me” (Oden, personal email to author, March 28, 2008) and immediately recognized the detail that I had pulled from the world map (fig. 1). Though the same team of cartographers created both maps, differences between them suggest not only that the 1957 National Geographic Society “World Map” is the cartographic model for “A Private Letter to Brazil,” but also that 1957 is the probable date of the poem’s composition.

At the center of the 1957 “World Map” lie both Americas, the traditional focus of National Geographic Society world maps until 1975 (Schulten 2001, 187). Striking as this image is, however, the map includes several other illustrations of the two continents that figure so prominently in Oden’s poem. The legend, for instance, located beneath “South Pacific Ocean,” sports the Society’s former logo—a tiny globe featuring the Western Hemisphere, with North and South America surrounded by the words “National Geographic Society \*Incorporated A.D. 1888\*.” Below the legend, at the bottom of the truncated oval map, four inset maps straddle the Weddell Sea. Though displaying different aspects of the world, each reveals the similarities between North America and South America—particularly Brazil and northeastern United States, where Bishop and Oden were then living. Consider the left-hand pair. The first, titled “The United Nations,” pictures the two continents clothed in yellow to represent their common membership in the U.N.; by contrast, only a few African countries appear in yellow and the rest of the continent remains unaffiliatedly white. The interior inset, marked “Population Density,” drapes the northeastern part of the United States and the coast of Brazil in pink to indicate large population centers, while New York and Rio blush a deeper shade. On the right-hand pair of insets, the “Land Classification” map pictures these same cities in yellow (ironically, the color of farmland and prairies), then surrounds them in regions of forest green. To its right, the bold

*“Though the same team of cartographers created the 1955 and 1957 maps, differences between them suggest not only that the 1957 National Geographic Society ‘World Map’ is the cartographic model for ‘A Private Letter to Brazil,’ but also that 1957 is the probable date of the poem’s composition.”*

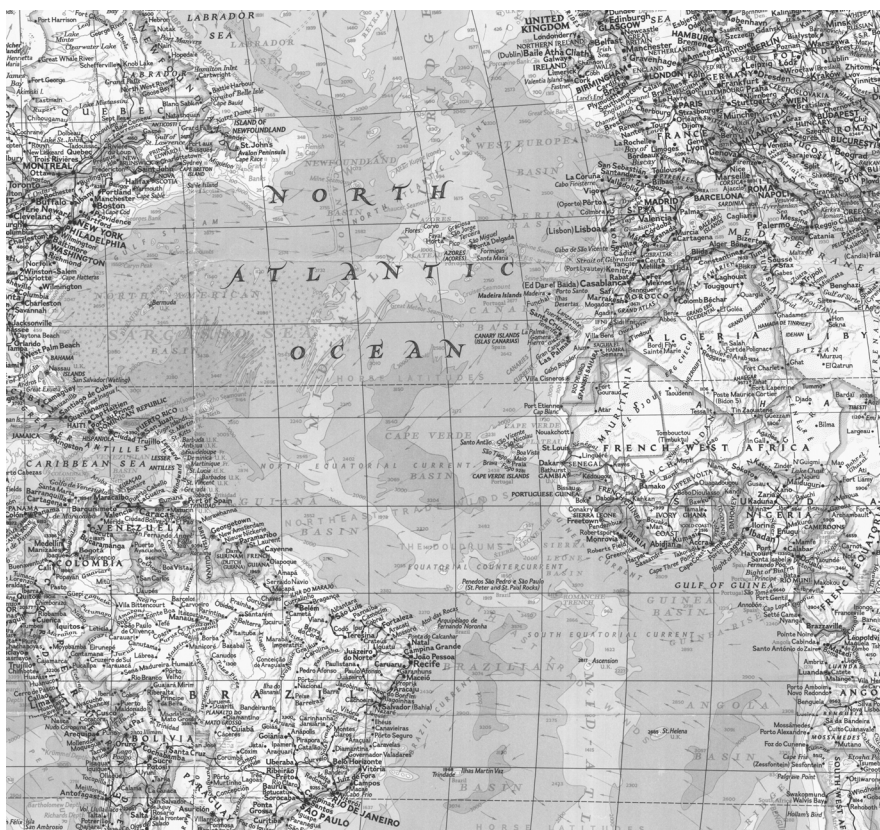


Figure 1. Detail of the National Geographic Society World Map (1957), Washington, D.C. The legend announces that this supplementary map was “compiled and drawn . . . for *The National Geographic Magazine*,” while the words on the top right indicate that the map was included in the December 1957 issue (vol. CXI, No.3). “*The World*” appears on the Van der Grinten projection used on National Geographic world maps from 1922 to 1988 (Schulten 2001, 195); measures 28 1/2 by 42 inches (72.5 cm x 107 cm) from one edge of the paper to the other; and is scaled 1:39,283,200, one inch equalling 620 miles at the Equator. At top center-left, the map lists James M. Darley as chief cartographer. C.E. Riddiford is responsible for typography; Apphia Holdstock, for oceanography; and A. Hoen & Company (bottom left), for lithography. (The same team produced the December 1955 “Atlantic Ocean” map, which this detail of the world map closely resembles.) A notice in the lower right corner indicates that additional maps could be purchased for 75 cents, and that “a special edition . . . , enlarged to 47 x 68 [was] also available at \$3.00 a copy.” Courtesy of the Robinson Map Library of the University of Wisconsin-Madison (3200 1957 .N3) and of the National Geographic Society. (see page 72 for color version)

verticals of “International Time Zones” reveal Rio to be two hours ahead of New York and at least two hours behind Africa, the homeland toward which Oden imagines the West Indies drifting. Moreover, on the map itself, the United States and Brazil are outlined in the same pale green to distinguish them from other countries on their respective continents.

What clinches the identification, however, is the extent to which “A Private Letter to Brazil” echoes the oceanographic detail on the map. It’s not just that the names of cities have been “launched . . . offshore”; that the Caribbean’s “chain of hopscotching islands” “bristles with place names”; that such names form a “needle-pine alignment round SA”; or that “NEW YORK” and “RIO” are capitalized on the map and in Oden’s poem. It’s that her “fish-bone’s fine-tooth spread” aptly describes the slight curve given by the typographer to the names as they extend outward like fish spines or ribs. It’s that “NEW YORK” nearly does “run an inch / out to sea,” then arches downward toward the red capital letters of “GULF STREAM.” It’s that “Rio de Janeiro” is so long that the place name crosses over shallower waters—marked white (less than 100 fathoms), pale blue

*“What clinches the identification . . . is the extent to which a ‘Private Letter to Brazil’ echoes the oceanographic detail on the map.”*

*“There are reasons why Oden must have used the 1957 edition rather than an earlier world map. The tenth such National Geographic Society map since 1900, it differs markedly from the one previously issued in December 1951.”*

(100-999 fathoms), and blue (1000-1999 fathoms)—before extending into the deep blue ocean (2000-2999 fathoms): “out there I know / the sounding is some deep 2000 feet.”<sup>8</sup> Just above Rio’s name are the red capitals of “Brazil Current”—“the nationalized current tours so / pregnant with resacas.” And warm ocean currents, shown as blood-red arrows, circle counterclockwise so regularly around the South Atlantic, and clockwise so regularly around the North Atlantic as to remind Oden of the shipping routes that, for almost four hundred years, brought more than twelve million African slaves to the New World (Rediker 2007, 5): “In their flux meet / all the subtlety of God’s great nature / and man’s terse grief.”

There are reasons why Oden must have used the 1957 edition rather than an earlier world map. The tenth such National Geographic Society map since 1900 (Buxbaum 1962, 223), it differs markedly from the one previously issued in December 1951. Because the 1951 world map contains only two insets, “United Nations” and “International Time Zones,” North and South America are duplicated only four, rather than six times. “New York” is less than a half-inch on the slightly smaller 1951 map, which measures 26 1/2 by 41 inches (67 x 104 cm). Neither “New York” nor “Rio” has full caps. More important is the lack of oceanographic detail on the 1951 world map. Although its legend announces that “elevations and depths are in feet,” soundings are all but invisible; the currents and their names appear in a nearly transparent tan; prevailing winds are not represented; neither the Atlantic nor the Pacific are subdivided into “North” and “South”; and, most telling of all, the seas merge into a single shade of blue—far from the six shades, ranging from white to dark gray, on the 1957 world map.

In fact, the years after 1951 were crucial for producing the map that inspired “A Private Letter to Brazil.” During this period, Bruce Heezen and Marie Tharp were completing their first “Physiographic Diagram” of the Atlantic Ocean (1956), featuring breathtaking images of deep-sea mountains and basins mapped by continuous echo-sounding traverses and precision depth recorders (Lawrence 1999, 36-43).

These advances are evident on the 1955 National Geographic Society “Atlantic Ocean” map. Published two years before the 1957 world map, this supplementary map appeared in December 1955 (volume CVIII, number 6). Measuring 39 1/2 by 27 3/4 inches (100.5 x 70.5 cm) and scaled at 1:20,000,000, it covers a bit more area than the detail of the 1957 map shown in Figure 1, for “Atlantic Ocean” embraces nearly all of Scandinavia and South America, then extends from the Galapagos Islands east to the Belgian Congo. There is no logo, and only one insert: in the lower right, a globe labeled “Submarine Topography of the Atlantic” displays the mountainous ocean floor empty of water and identifies the island peaks that rise above the surface. North and South America appear on the main map and on the inset. Rio’s capitalized name also appears twice, while the name Petrópolis, absent from the world map, lies directly north of Rio’s bold, Federal-District name, and (rather disconcertingly) west of Rio’s serified urban name. Neither of Rio’s names, however, extends into the bluest blue that identifies waters of “2000+ fathoms” lying just beyond the final “o” of “Janeiro.” Yet another feature distinguishes this map from the later world map. “Atlantic Ocean” is covered by explanations, in red type, of discoveries, settlements, geographical facts, and scientific advances. One, by Woods Hole, Massachusetts, is unabashedly self-congratulatory even as it suggests why the oceanographic detail of this map is so sophisticated: “Scientists from here explored the Mid-Atlantic Ridge, 1947-8, in expeditions sponsored by the National Geographic Society, Woods

*“In fact, the years after 1951 were crucial for producing the map that inspired ‘A Private Letter to Brazil’.”*

Hole Oceanographic Institution, and Columbia University." Among the most famous scientists were Tharp and Heezen, whose revolutionary and evolving work at Columbia University's Lamont Labs helps explain why the 1955 and 1957 maps could devote such "tremendous attention to detail—both on land *and in the oceans*" (Maps.com 2008, emphasis mine). Oden's "A Private Letter to Brazil," unlike her subsequent poem, reflects the oceanographic discoveries of her time.

#### GLORIA ODEN'S "THE MAP"

Sometime around 1961, Oden wrote "The Map"—her second poem inspired by Bishop *and* by a contemporary map. Two years later, Arna Bontemps published it in his anthology *American Negro Poetry* (Bontemps 1963, 161-63). Then, in 1964, "The Map" resurfaced in Langston Hughes's *New Negro Poets: U.S.A.* (Hughes 1964, 47-49), from which our text—with minor revisions—derives:<sup>9</sup>

My rug is red. My couch, whereon I deal  
in dreams with truths I never live, is brown;  
a shading more intense than that by my  
skin declared. Richer it is, too, than of  
any of the eight clear hues coloring  
my wide, world map soldiering the white wall  
there behind it. This map is of the world.  
It says so. In type 1/2" high: WORLD;  
and with what I know of maps I do, in-  
deed, believe it—though over it, in type  
now smaller by one-half, I read the word  
"COSMOPOLITAN," and over that, in  
type yet smaller by one-half, these gentle  
modifiers "RAND McNALLY."

The seas  
square off in blue. Or, ought the word be "sea"?  
Uniformly bright, planed by a tone so  
mild you might suppose the North Sea twinned the  
South and that the Moskenstraumen was (for  
the most part) Poe (quote) *Sailing directions  
for the northwest and north coast of Norway*  
(unquote) to the contrary; seven diminishes  
to one, where none arrests attention.

Not  
so the land. Flowering forth as spring in  
May will settle down to deed, it woos us  
with such yellows, pinks and greens as would, I'm  
sure, lure the most selective butterfly;  
and each trim hue is sized the living room  
of nations.

*"Sometime around 1961, Oden wrote 'The Map'—her second poem inspired by Bishop and by a contemporary map."*

America (U.S.) is  
 daffodil; Canada carnation; while  
 leaf-like as an elephant ear, Greenland  
 hangs indifferent to those arctic winds parching  
 the cell-like bounds of Russia (here halved and  
 showing both to the left and right of this  
 our hemisphere—indeed, as is a good  
 part of the orient split, some even  
 to doubling appearance.)

Europe (also)  
 lies fragmented; though from nature's—not the  
 mapmaker's—division. Ireland off-  
 set from England, offset from France (feigning  
 oasis beside the rot-brown fill to  
 Germany) supplies one awkward revel  
 of abstraction as that gross bud of Spain  
 (with Portugal) patterns another; not  
 to mention Italy's invasion of  
 the sea.

Norway, Sweden, much as giraffes  
 must bend, towards Denmark group in restricted  
 covenant; yet, though this canvas—Europe—  
 at its center holds, such unity rests  
 more upon imagination than that,  
 let's say, of Africa islanded in  
 those deeper latitudes.

There, it is the  
 green (again) I think. In candescent flood  
 like the dead reckoning of spring; at four  
 points edging sea; it seems a fever of  
 the mind within that broad head housed (it shapes  
 —Africa—a head to me!) which in its  
 course will blaze the length of continent as  
 now it fires breadth.

And who will say it  
 won't? Not the mapmaker, surely, who must  
 exact truth. Not I, high hoisting same to  
 state whirlwind. Will you, because you might not  
 particularly care to see it so?

Composed four years after "A Private Letter to Brazil," Oden's poem "The Map" is even more obviously a tribute to Bishop. Not only does Oden use the same title, but her apparently spontaneous critique of a map also bears the hallmarks of Bishop's classic (see Haft 2001, 40-49). First, there's the arbitrary use of colors, especially the seductive hues of countries. These, in turn, contrast with the "uniformly bright" blue that unites seven so-called "seas" while pacifying the Moskenstraumen. Norway's treacherous two-and-a-half-mile-wide whirlpool, the Moskenstraumen was not only an iconographic staple on early maps (see Haft 2003, fig.2), but also terrorized the narrator of Edgar Allan Poe's *Descent into the Maelström* (1841: see Poe 1965). When describing mapped colors and patterns, Oden imaginatively conjures up flowers (daffodils, carnations), animals

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Figure 2. Rand McNally Cosmopolitan World on Mercator's Projection, [1955?], New York: Rand McNally and Company. This folded and dissected wall map measures 34 3/8 x 52 inches (87 x 132 cm) with a scale of ca. 1:37,000,000, one inch representing 583 statute miles at the Equator. Mounted on cloth, it folds into 12 parts, each part measuring approximately 13 by 11 inches (33 x 28 cm). Patrick Morris, Map Cataloger and Reference Librarian at the Newberry Library, suggests that the Newberry's copy of the Cosmopolitan World Map—given its simple black binding, cloth mounting, metal grommets, and obvious wear—may have been a traveling sample. Courtesy of the Newberry Library, Chicago (Rand McNally Collection, Map5C G3200 1955 .R3 (PrCt)), and of Rand McNally & Company. (see page 73 for color version)

(butterflies, elephants, giraffes), even a human head: "(it shapes /—Africa—a head to me!)." Like Bishop, she animates both earth and water. But whereas Bishop's land "leans," "lifts," "draws," "tugs," "takes," "runs," or "investigates" the increasingly "quiet" sea (Parker 1988, 78), Oden's land "flowers forth," "lures," and "woos us" even as her seas betray their violence with words like "square off," "uniform(ly)," and "arrests" (cf. Oden's threatening *resacas* in "A Private Letter to Brazil"). Both poets analyze the map as a work of visual art. Bishop refers to Labrador's "oiled" yellow, the glass under which the map is viewed, and the printer's excitement; Oden portrays her map as a "canvas" on which "each trim hue is sized." In her enigmatic final line, Bishop underscores the imaginative aspects of mapmaking: "more delicate than the historians' are the mapmakers' colors." Oden too recognizes that when mapmakers "exact truth," such "truth" is both relative and subjective: "with what I know of maps I do, in- / deed, believe it—though . . ." Both poets make ironic use of their title's definite article since every map—including their own—invites multiple interpretations of its "facts" and can offer only a generalized, simplified, and selective view of the world.

Yet despite Bishop's influence, Oden attempts to deal with the world, not simply the North Atlantic. For that reason, she fills her seventy-line poem with some twenty place names in contrast to Bishop's lonely three (Labrador, Newfoundland, Norway). And, in the end, Oden's poem is far more overtly personal, political, and didactic than Bishop's—as her treatment of Africa makes clear.

In the first stanza alone, she specifies where Bishop generalizes or only hints. Although we know that Bishop composed "The Map" while home with the flu, the poem itself doesn't indicate where she was when gazing at her map. Oden, on the other hand, not only invites us into her apartment, but also immediately identifies the map decorating her living

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*“When Oden was living in New York City, a Rand McNally wall map like this one hung behind her couch from the late 1950s to the early 1960s.”*

*“Omitted from the legend and, for that matter, from the map itself is any reference to publication or copyright date. Rand McNally was notorious for leaving maps undated . . .”*

room. It is a wall map with the elegant title “Rand McNally Cosmopolitan World.” A “match” can be found at Chicago’s Newberry Library, which has housed the Rand McNally Collection since 1988 (Akerman 1989). This “Cosmopolitan Map of the World” is indeed “wide” at 34 3/8 by 52 inches (87 x 132 cm), significantly larger than the 1957 National Geographic Society World Map, which measures only 28 1/2 by 42 inches (72.5 x 107 cm) (fig. 2). When Oden was living in New York City, a Rand McNally wall map like this one hung behind her couch from the late 1950s to the early 1960s (Oden, telephone conversation with author, September 14, 2007).<sup>10</sup>

The legend, near the bottom center of the Cosmopolitan World Map, shows precisely what Oden is describing: print size can be manipulated to minimize the participation of mapmakers—anonymity cloaked in the “gentle modifiers ‘RAND McNALLY’” (fig. 3). Print size also highlights the apparently impartial title, “WORLD.” Measuring the different fonts confirms Oden’s calculations: the word “WORLD,” its graceful cursive script rubricated within black lines on a white background, is indeed a “1/2” high”; “COSMOPOLITAN,” capitalized and framed with double black lines, is 1/4”; and the unadorned capitals of “RAND McNALLY” are only 1/8”. Although Oden does not mention other elements in the legend—its copyright notice, for example, or the lines symbolizing “Air Distances” and “Water Routes,” the map’s Mercator projection does become a focus of her next stanzas.

Omitted from the legend and, for that matter, from the map itself is any reference to publication or copyright date. Rand McNally was notorious for leaving maps undated (Koenker 2002a and 2002b), a savvy commercial policy that allowed the company to reprint “up-to-the-minute” maps from the same printing surface. Our only clue comes from the letters “NYC901,” located in the lower right corner<sup>11</sup> (fig. 4). For twenty years, from 1942 through the spring of 1962,<sup>12</sup> Rand McNally used this code to identify its “Cosmopolitan Map of the World” *no matter how many updates this popular wall map underwent.*

While some Rand McNally catalogs list it as a “general reference map of the world” (Rand McNally 1957, 31; 1958a, 30; Wing Modern MS, RMcN

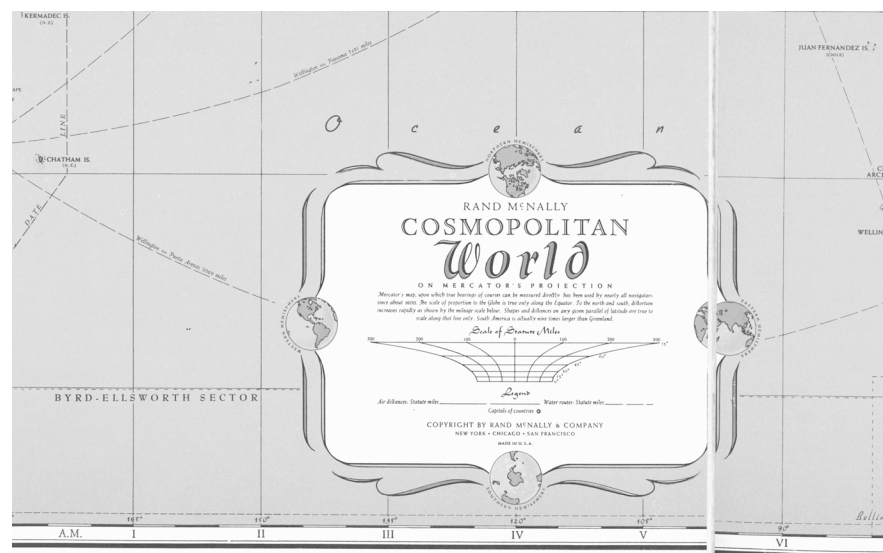


Figure 3. Legend of the Rand McNally Cosmopolitan World Map, (1955?): detail of Figure 2. Courtesy of the Newberry Library, Chicago (Rand McNally Collection, Map5C G3200 1955 .R3 (PrCt)) and of Rand McNally & Company. (see page 74 for color version)

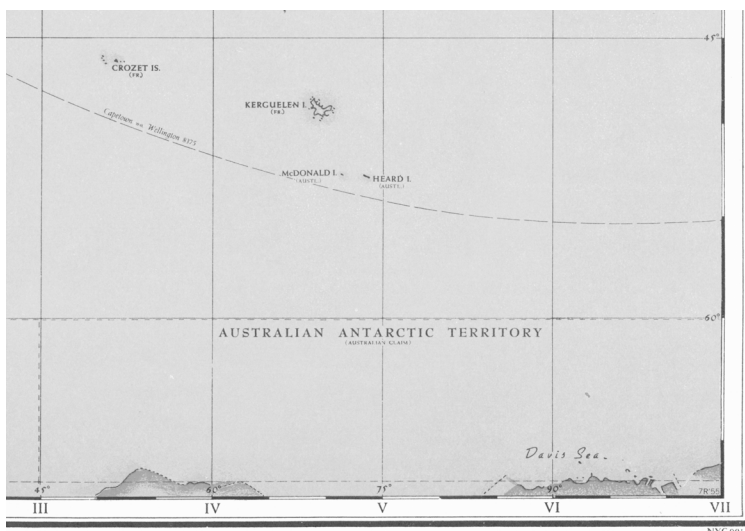


Figure 4. The code “NYC901” from the lower right corner of the Rand McNally *Cosmopolitan World Map*, (1955?): detail of Figure 2. Although the Rand McNally Collection has yet to yield its secret to this code, researching this paper has revealed that “90” identifies the map as a world map. (See note 11 for more on the code.) Courtesy of the Newberry Library, Chicago (Rand McNally Collection, Map5C G3200 1955 .R3 (PrCt)) and of Rand McNally & Company. (see page 74 for color version)

Collection,\* Series 4, Box 5, folder 52), another contrasts the *Cosmopolitan World Map* with “school-type wall maps” that sacrifice detail for legibility at a distance (Rand McNally 1955a, 34; Wing, Series 4, Box 5, folder 52). That catalog entry goes on to boast:

Because it is unusually attractive and decorative, this up-to-the-minute, new world map, showing latest world boundaries [sic], is particularly suited to hang on the wall in the home or office. It is printed in eight colors, which, in combination, give fifteen distinct tints. Countries are shown in rich contrasting colors and water areas in blue. The selection of types and symbols used on the map are also particularly pleasing and a handsome compass rose adds to its charm. This is a Mercator map, with North and South America in the center to emphasize their relation to the rest of the world. There is a 45° overlap at the east and west ends of the map to help maintain continental relationships.

*“Narrowing the date of Oden’s long-missing map, on the other hand, proved more difficult.”*

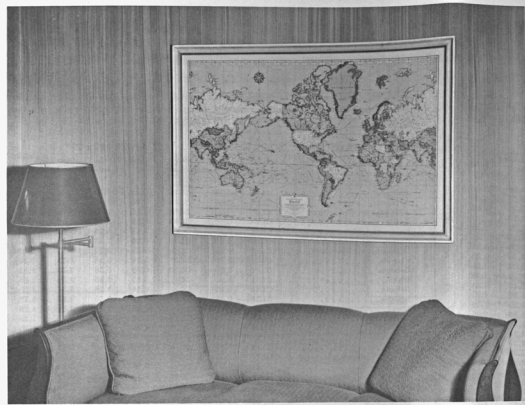
No wonder Oden displayed a map like this over her couch (fig. 5).

Narrowing the date of Oden’s long-missing map, on the other hand, proved more difficult. Was her map the same edition as the one in the Newberry? If so, does the Newberry’s wall map—originally catalogued as “1958?”—reflect the political divisions of that date? Answers to these questions required a reassessment of the Newberry’s tentative date for its wall map. Ultimately, research on Oden’s cartographic inspiration would result in the Newberry’s re-cataloguing its *Cosmopolitan Wall Map* as “1955?.”

Here is how it happened. Examining Rand McNally’s 408-page *Cosmopolitan World Atlas* revealed that the Newberry’s Wall Map does resemble the double-page world map in the 1958 atlas (Rand McNally 1958b, 2-3). Obvious differences are small or cosmetic. The atlas world map has no

\*The citation “Wing Modern MS RMcN Collection” (Newberry Library) will be shortened henceforth as “Wing.”

World Maps Rand McNally



**Rand McNally**  
**COSMOPOLITAN**  
**MAP OF THE WORLD**

**An attractive new world map—designed for utility and beauty**

Distinctively different, this beautiful map is as useful as it is decorative for it not only enhances its surroundings but serves as a fascinating, reliable, and up-to-date source of geographic reference.

Printed in eight soft colors which in combination give fifteen distinct tints. The type and symbols used on it are particularly pleasing and a handsome compass rose adds to the map's charm. It is richly framed in a handsome, hand-rubbed, hard-wood frame, finished in a modern light-gray tone that blends beautifully with every background.

The Cosmopolitan Map of the World is drawn on a Mercator projection with North and South America in the center to emphasize their relation to the rest of the world, and a 45° overlap at the east and west ends to help maintain continental relationships. The detail shown includes all country boundaries and names; over 2,000 principal cities; rivers, lakes, and islands. All changes in territories and names resulting from World War II are included.

Mounted and framed 55 x 38 inches.  
1" = 583 miles at Equator.

**Ideal for home or office use . . .**

Whether it be used for decoration, reference or both, the Cosmopolitan Map will fit perfectly into every home or office.

Shown in detail to the right, this attractive map provides reference material that should be at the fingertips of every executive, as well as every person in the home.

To provide greater clarity, country borders only are presented; local boundaries that would detract from the legibility and beauty of the map are not included.

Country boundaries are shown in ribbons of a deeper tint of the same color that defines the country itself; this clearly sets out the borders and creates an unusual blending of colors.



NO.	TITLE	PAPER SHEET	CLOTH MOUNTED	ROLLER CASE	FRAMED BOARD	WASHABLE SURFACE
NYC901	Cosmopolitan Map of the World . . . . .	\$3.00	\$7.75	\$14.25	\$27.25	\$3.25

20

Figure 5. *The Cosmopolitan Map of the World*—"designed to grace the walls of a tastefully furnished living room or library"—is pictured above a couch in this advertisement from an undated, unnumbered catalog titled "Rand McNally Maps, Atlases, Globes, Guides" (Wing Modern MS, RMcN Collection, Series 4, Box 5, folder 50, page 20: FMP 4856). Followed by nearly identical catalogs in 1951 (Cat.251), 1953 (Cat.353), and 1954 (Cat.354) (Wing, Series 4, Box 5, folders 50-52), this one presumably dates to 1949, for it declares the *Cosmopolitan World Atlas* "completely new and strikingly beautiful, . . . reveal[ing] for the first time a truly modern picture of today's world" (Wing, Series 4, Box 5, folder 50, page 20). Intriguingly, the catalog entry on pages 20-21 assigns no code to the *Cosmopolitan wall map*, as if suggesting that this "attractive new world map" is completely new to the market rather than part of a series that dates back at least seven years. Courtesy of the Newberry Library, Special Collections, and of Rand McNally & Company.

*"Yet in one respect crucial for Oden, the Newberry's Cosmopolitan Map of the World bears an even greater resemblance to the world map in the 1955 Cosmopolitan World Atlas: specifically, in regard to the names of countries in Africa."*

ornamental compass rose or legend, and it differs from the wall map in size, scale, hue, and projection. Not only are its dimensions and scale smaller (14 x 22 inches/35 x 55 centimeters and 1:90,000,000, with one inch equaling 688 miles at the Equator); but it also presents the United States as green rather than "daffodil," employs the Mercator-based Miller cylindrical projection, and confines its overlap to between 60° and 70° east longitude.

Yet in one respect crucial for Oden, the Newberry's *Cosmopolitan Map of the World* bears an even greater resemblance to the world map in the 1955 *Cosmopolitan World Atlas*: specifically, in regard to the names of countries in Africa (fig. 6). Furthermore, the discovery of three similar wall maps, this time at the New York Public Library, demonstrated that Rand McNally did, in fact, produce a *Cosmopolitan World Map* closely resembling the 1958 *Cosmopolitan World Atlas* in its depiction of political divisions in Africa and elsewhere.<sup>13</sup> Equally important, the New York Public Library's updated world map represents Germany as green, rather than the "rot-brown fill" that Oden describes. Since all the colors mentioned in "The Map" mirror those found on the Newberry's map, Oden must have owned a *Cosmopolitan World Map* dating ca. 1955, Rand McNally's centennial year. We even know what she might have paid for it: the "flat paper sheet" cost \$3.00; cloth mounting ran to \$9.65; and a "framed board with washable surface" brought the price up to \$31.65 (Rand McNally

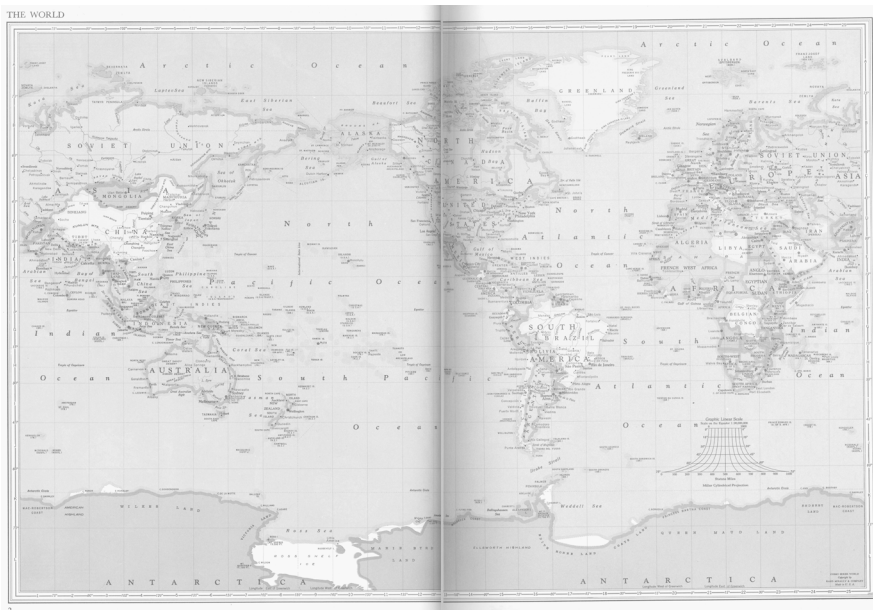


Figure 6. The "World Map" (1955). In Rand McNally's *Cosmopolitan World Atlas: Centennial Edition*, Chicago: Rand McNally, 1955, 2-3. This double page, 14 by 22 inch (35 x 55 cm), world map from the 1955 centennial edition of the atlas resembles the *Cosmopolitan World Map* pictured in Figure 2. On both, Northern Rhodesia and Southern Rhodesia sport different colors; Algeria, Tunisia, and most of Morocco are swathed in green; and the Sudan is called "Anglo-Egyptian." By the 1957 atlas, however, Rhodesia is united; Algeria, Tunisia, and Morocco appear in different colors; and "Anglo-Egyptian Sudan" has become "Sudan." Courtesy of the Newberry Library, Special Collections (folio Rand McNally Atlas .C77 1955: FMP 4857), and of Rand McNally and Company. (see page 75 for color version)

1955a, 34; 1957, 31; 1958a, 30: Wing, Series 4, Box 5, folder 52). By contrast, the *Cosmopolitan World Atlas* cost \$13.95 (Rand McNally 1955, 40; 1957, 34; 1958a, 36: Wing, Series 4, Box 5, folder 52.).

But before Oden turns to Africa, the first stanza of "The Map" suggests that the colors in her living room—red, brown, white—are as significant as those on the map where "each trim hue is sized the living room / of nations." The "white wall" provides a neutral background. Yet "white" also describes the complexion of the majority population in North America, around which the map is centered. (Although the American firm Rand McNally labels its nation "United States," in her fourth stanza Oden initially calls her country "America," as if highlighting its appropriation of a name equally applicable to either continent in "our hemisphere"; South America, in fact, receives no mention in Oden's "The Map." And by parenthesizing "U.S.," she identifies her nation with US, her main readers.) The "intense" brown of her couch—"whereon I deal / in dreams with truths I never live"—is "richer" for Oden than the map's pacifying "eight clear hues," since it is also the color of her "skin declared." And the red of her rug, a detail that opens "The Map," alludes to the bloody struggles that those of African-ancestry have had to endure in order to achieve their freedom in the U.S. and their independence in Africa. While Bishop reveals herself only through a single "we" and the disconcerting questions she poses throughout "The Map," Oden wants her readers to have no misconceptions about her own biases, or ours.

As an African-American, Oden recognizes how culturocentric a map can be. What first attracts her attention is the title: "COSMOPOLITAN" suggests that this "WORLD" map is international and sophisticated. At the inception of its long-heralded *Cosmopolitan World Atlas* in 1949, Rand

*"As an African-American,  
Oden recognizes how  
culturocentric a map can be."*

McNally put out a brochure entitled "The Rand McNally Cosmopolitan World Atlas: How and Why it was Made." It began:

This really modern atlas enables the contemporary observer to see a true picture of today's world....  
... The title was chosen with that end in view, for "Cosmopolitan" aptly describes the distinctive quality of this work as an "atlas of the world" rather than an "atlas of nations." (Rand McNally [1949], [1-2])

Like Oden's sprawling poem, the world map opening the atlas supposedly epitomizes this message. Yet, the arrangement of the landmasses belies its cosmopolitanism. That the Americas appear in the middle of "The World" might have satisfied Rand McNally's primary audience—the Americans to whom its 1955 "Business and Reference" catalog (quoted earlier) proclaimed, "North and South America [are] in the center to emphasize their relation to the rest of the world" (Rand McNally 1955a, 34; Wing, Series 4, Box 5, folder 52); since 1850, in fact, we had grown accustomed to seeing our hemisphere so centered (Henrikson 1980, 79). It also underscores the commercial importance to us of both the Atlantic and the Pacific during the twentieth century (Schulten 2001, 233)—all the while asserting the emergence of the United States as "the geostrategic center of the world" following World War II (Henrikson 1980, 86).

*"When Oden's 'The Map' reappeared in the popular textbook Probes: An Introduction to Poetry, William Harlan 'illustrated' the poem with a simplified world map that placed Asia in the center and cut the United States off at both margins. Under the map were the provocative words 'Your Map Says a Lot About How You See the World and Shape It'."*

Yet, the central placement of the United States and Canada necessitates that other areas be "fragmented . . . [by] the mapmaker's division." Oden illustrates her words by depicting her mapped world not as one unified stanza but as several, each severed mid-line from the next. Some might argue that the Rand McNally world map marginalizes what Oden calls "Russia" and "a good part of the orient" by splitting them at the map's edges. In fact, when Oden's "The Map" reappeared in the popular textbook *Probes: An Introduction to Poetry*, William Harlan "illustrated" the poem with a simplified world map that placed Asia in the center and cut the United States off at both margins. Under the map were the provocative words "Your Map Says a Lot About How You See the World and Shape It" (Harlan 1973, 132).

Others, however, might protest that the "Western Hemisphere" seems menaced by the vast drab expanse of the Soviet Union. Enlarged forty-five degrees by the repetition, on either side, of the area spanning from 60° to 105° East Longitude, "the cell-like bounds of Russia" do seem to stretch ominously like an iron curtain toward the map's center. This "doubling appearance," noted by Oden, may help readers understand how the right and left sides of the map fit together. But neither the 1951 nor the 1957 National Geographic Society world map resorted to overlapping east and west. Moreover, the duplication of such an enormous tract as that extending from Afghanistan to central China, as well as the placement, along the top of the map, of more than twenty-four international time zones, ultimately reveal the representation for what it is: *a disorienting fiction*.

In contrast to a divided Asia, Greenland appears to Oden "leaf-like as an elephant ear" on the map's popular Mercator projection. Greenland's name and obligingly green color on the map disguise its icy terrain and make it appear "indifferent to those arctic winds parching . . . Russia." Because of its high latitude, Greenland's area is wildly exaggerated. Meanwhile, Scandinavia leans giraffe-like over Europe, and the United States deceptively dwarfs the larger Brazil (Greenhood 1964, 128). Africa also looks smaller than it should because it lies "in the deeper latitudes" near the map's Equator, where scale is truer and so less stretched (Hall 1992, 380). Gazing at a Mercator projection, a naive map-reader would assume

that Greenland is approximately the same size as Africa and certainly larger than South America. But Oden has read the text squeezed, on the legend, between the title and the flaring graph that indicates “Scale of Statute Miles”:

The scale of Projection to the Globe is true only along the Equator. To the north and south, distortion increases rapidly as shown by the mile-age scale below . . . . South America is actually nine times larger than Greenland.

Framing the legend, four small globes illustrate the same message in graphic form. No wonder that Rand McNally’s school catalogs advertised the Cosmopolitan World Map as suitable only “for libraries and school offices” (Rand McNally [1946?], 25) and withdrew the map entirely from its educational offerings after about 1953 (Rand McNally [1953?], 33).<sup>14</sup> As the publisher of *Goode’s School Atlas* since 1923, Rand McNally had been touting the merits of other map projections not only to students and educators, but later, in the opening pages of their *Cosmopolitan World Atlas*, to the general public as well. Yet even as map readers were “confronted with multiple ‘truths’—projections of all kinds that reconfigured the earth in startling ways” (Schulten 2000, 14; see Schulten 2001, 186-195), Mercator-style projections would remain immensely successful “because of their historical power and their narrative power to contain the world within a single view . . . . This is the world we recognize. This is the world that is familiar” (Schulten 2001, 242).

Confusing the landscape with its mapped representation is exactly what Oden means to discourage. Not only is the Rand McNally wall map biased and potentially racist, Oden suggests, but it is also outdated. A traditional political map, the Cosmopolitan World Map belongs to a popular older genre increasingly challenged by the likes of the National Geographic Society world map, which—with its attention to the physical as well as the political world (Schulten 2000, 17)—had helped inspire Oden’s “A Private Letter to Brazil.” In “The Map,” however, Oden tackles what she sees as an antiquated *world order*. Europe, the subject of the next two stanzas, illustrates her point with its profusion of colors as well as its natural and political divisions. For Oden, Europe’s fragmentation and history of conflicts represented a failure to create an enduring social “covenant” benefiting more than an elite minority or region. Oden’s condemnation is particularly apparent in her description of the Axis coalition and its sympathizers. In contrast to the flowery adjectives she uses when portraying the colors assigned by Rand McNally to the U.S. (“daffodil”), Canada (“carnation”), and Greenland (“leaf-like”), Oden’s France is a “feigning oasis” of green beside Germany’s “rot-brown fill.” Italy’s protrusion into the Mediterranean becomes an “invasion of the sea.” And Franco’s Spain resembles a “gross bud.”

Worse still, Europe had imposed its own divisions upon Africa, the focus of Oden’s final stanzas. Divvied up by the European powers between 1880 and 1912, the continent had acquired political boundaries that bore little or no relation to its physical geography or to the socio-political organization and practices of its diverse peoples. (Earlier, Oden’s phrase “world map soldiering the white wall” suggests one way that imperialists impose their maps and sovereignty on others. And her hyphenated lines “with what I know of maps I do, in- / deed, believe it—though . . . .” suggest that a map can function as a “deed,” conveying territorial rights to the claimants whom the mapmakers serve.<sup>15</sup>) Look at Rand McNally’s “Political Portrait of the World” (fig. 7). Unique to the first edition of the

*“Confusing the landscape with its mapped representation is exactly what Oden means to discourage. Not only is the Rand McNally wall-map biased and potentially racist, Oden suggests, but it also out-dated.”*

*“In ‘The Map,’ however, Oden tackles what she sees as an antiquated world order.”*

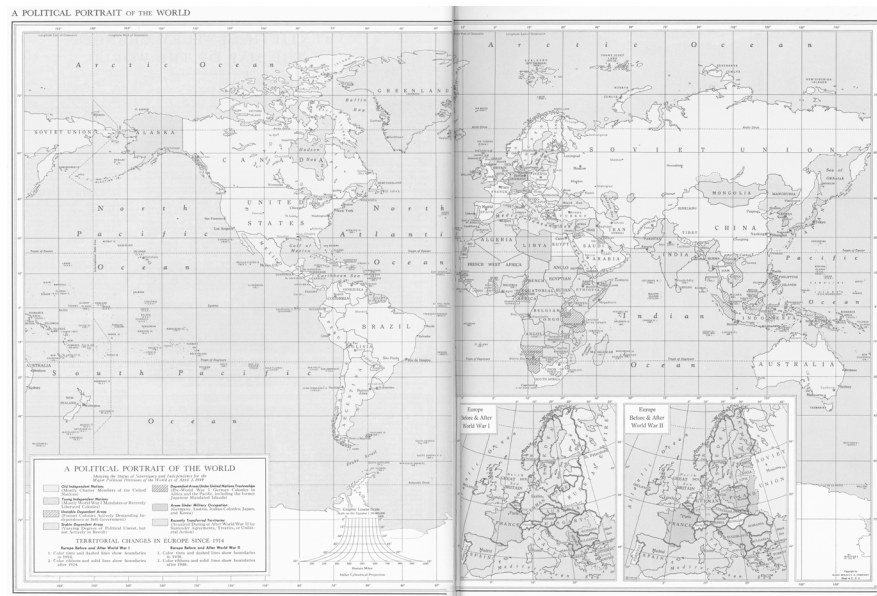


Figure 7. "A Political Portrait of the World" (1949). In Rand McNally's *Cosmopolitan World Atlas*, Chicago: Rand McNally, 1949, xiv-xv (14 x 22 inches/35.5 x 56 cm). The atlas is prescient in noting that the "Portrait" "should also serve as an historical reference map with which to measure the political changes and developments which are still to come" (xiii). In Africa, the washed-out orange shading much of the continent represents "stable dependent areas" with "varying degrees of political unrest, but not actively in revolt." Washed-out orange with red diagonal stripes indicates "dependent areas, under United Nations Trusteeships" (e.g., Togo, Cameroon, South West Africa, Tanganyika), while lavender cautions "areas under military occupation" (e.g., Libya, Somaliland, Eritrea). On the other hand, sage green signals "young independent nations—mostly World War I mandates or recently liberated colonies" (e.g., Ethiopia) and yellow celebrates "old independent nations—mostly charter members of the United Nations" (e.g., Egypt, Liberia, Union of South Africa). Courtesy of the Rand McNally Collection, Newberry Library (folio Rand McNally Atlas C77 1949 copy 1: FMP 4858), and of Rand McNally and Company. (see page 76 for color version)

*"Snapshots of these changes are apparent in successive editions of Rand McNally's Cosmopolitan World Atlas. During the 1950s, the maps entitled 'Africa' show most of the continent still clothed in green, representing France, or 'carnation,' representing Britain. For Oden, the most obvious changes occurred in those countries originally shaded French green."*

*Cosmopolitan World Atlas* (Rand McNally 1949, xiv-xv), this map illustrates the profound changes that the First and Second World Wars had wrought upon Europe's political boundaries. (The "Europe before" and "Europe after" insets, bottom right, display angry red lines slashing through boldly colored countries.) But the map also displays the "dependent status" that continued to shackle much of Africa—depicted in washed-out orange—to its European colonizers. From 1950 on, however, growing African nationalism compelled the colonial powers to begin granting independence to many territories in North and Central Africa, and then, from the early 1960s on, to Algeria [1962] and to territories south of the Equator.

Snapshots of these changes are apparent in successive editions of Rand McNally's *Cosmopolitan World Atlas*. During the 1950s, the maps entitled "Africa" show most of the continent still clothed in green, representing France, or "carnation," representing Britain. For Oden, the most obvious changes occurred in those countries originally shaded French green. "There, it is the green (again) I think," she writes while contemplating the political revolutions that were already rendering her map out of date. Three years before she penned "The Map," the map of Africa in the 1958 *Cosmopolitan World Atlas* depicted as French those countries that would become autonomous that very year (1958) and independent in 1960 (Rand McNally 1958, 41) (fig. 8). "French West Africa" and "French Equatorial Africa" would have been prominent names on Oden's wall map. But the map of Africa in the 1962 *Cosmopolitan World Atlas* shows countries like Mauritania, Mali, Guinea, Niger, Cameroon, Gabon, and the Central

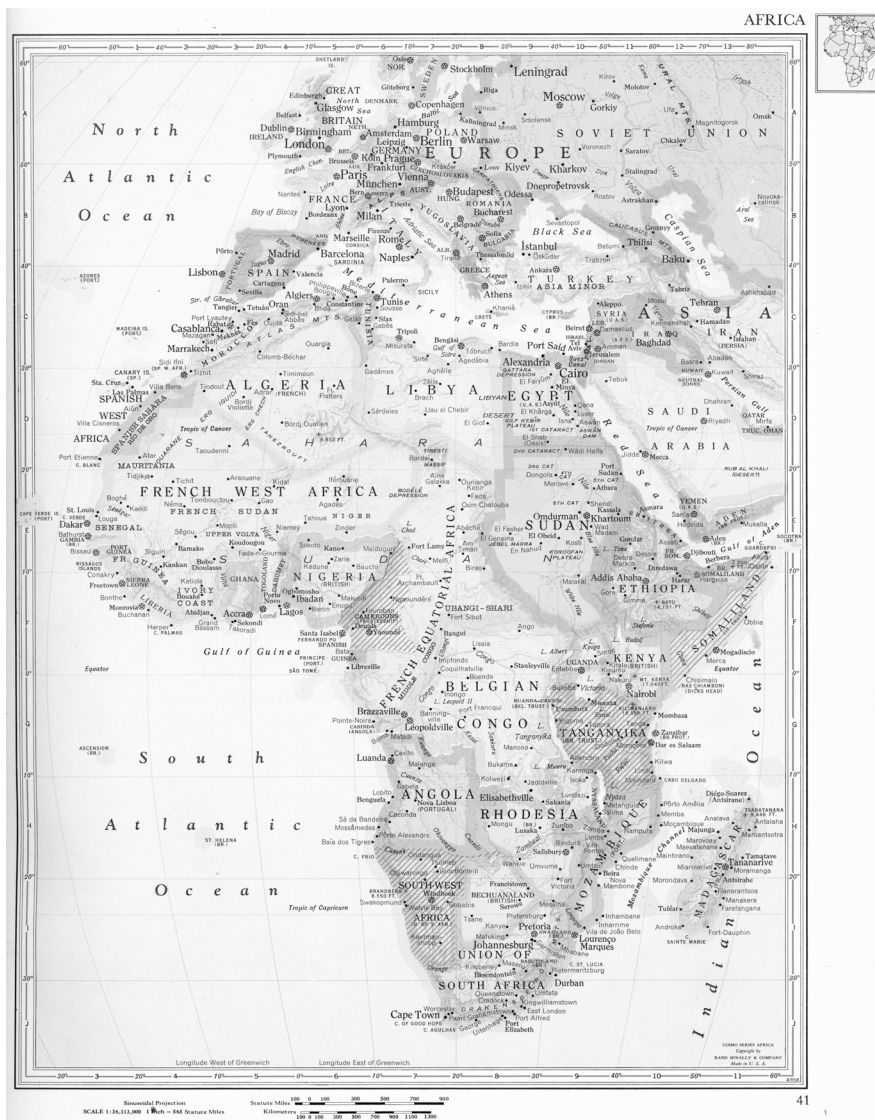


Figure 8. "Africa" (1958). In Rand McNally's *Cosmopolitan World Atlas*, Chicago: Rand McNally, 1958, 41. Measuring 14 x 11 inches (35.5 x 28 cm), this sinusoidal projection is scaled 1:36,313,000, with one inch equaling 565 miles. Courtesy of the Rand McNally Collection, Newberry Library (folio Rand McNally Atlas .C77 1958 copy 3: FMP 4859), and of Rand McNally and Company. (see page 77 for color version)

African Republic as independent and sporting their own colors (Rand McNally 1962b, 42) (fig. 9).

Because the British held onto most of their carnation-colored colonies into the 1960s and the Portuguese would only belatedly relinquish their purple-hued colonies in the 1970s, Oden views "green" as prophetic for Africa. The color presages the "spring" of African independence, a "fever of the mind . . . which in its / course will blaze the length of continent as / now it fires breadth." Oden even imagines the continent as offering a social paradigm for the future. And she invests that "broad head"—her own as well as Africa's (fig. 10)—with the same hope that would give birth to the Organization of African Unity in 1963: the dream that the entire continent would someday achieve unity. Having revealed her biases and desires, in her final lines Oden makes us confront our own: "And who will say it / won't? Not the mapmaker, surely, who must / exact truth. Not I, high hoisting same to / state whirlwind. Will you, because you might

*"... Oden views 'green' as prophetic for Africa."*

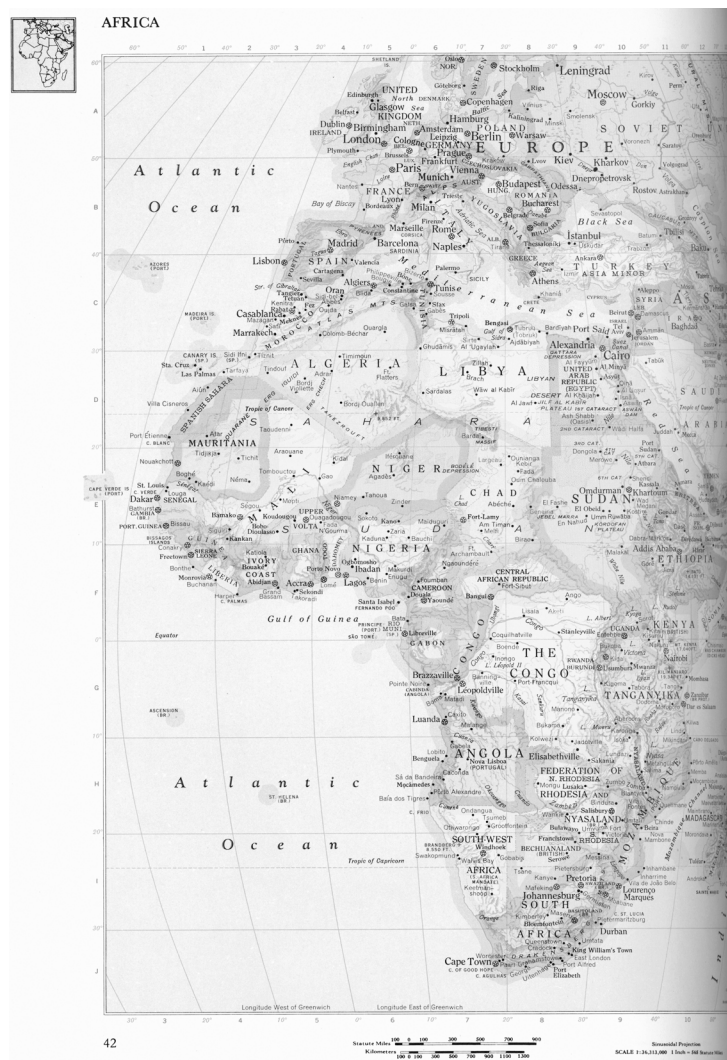


Figure 9. "Africa" (1962). In Rand McNally's *Cosmopolitan World Atlas*, Chicago: Rand McNally, 1962, 42. Measuring 14 x 11 inches (35.5 x 28 cm), this sinusoidal projection is scaled 1:36,313,000, with one inch equaling 565 miles. Courtesy of the Rand McNally Collection, Newberry Library (folio Rand McNally Atlas .C77 1962, copy 2: FMP 4860), and of Rand McNally and Company. (see page 78 for color version)

not / particularly care to see it so?" Raising the map of Africa to affirm that continent's heady changes, Oden ends with a question—not of confusion, as in Bishop's "The Map"—but of challenge.

#### Aftermath

*"The Cosmopolitan World Map became so popular that in 1959 Rand McNally began offering a 'giant' version too."*

The *Cosmopolitan World Map* became so popular that in 1959 Rand McNally began offering a "giant" version too. Transparently coded "GCW901," it measured 50 by 76 inches (127 x 193 cm) and cost between \$4.95, for a paper sheet, and \$85.00, for map board backing mounted in a wood frame (Rand McNally 1959, back cover: Wing, Series 4, Box 5, folder 53). In 1963, the year that Oden's "The Map" was first published, a reduced version of the map also made its appearance. A mere 21 by 32 inches (53.5 x 81.5 cm), it bore the code 4908 and joined the giant and regular editions, now labeled 4910 and 4912, respectively (Rand McNally 1963, 22: Wing, Series 4, Box 5, folder 54).



Figure 10. *Africa as Two Heads* (1980). Front cover of the British edition of Ingoapele Madingoane's poetry collection *Africa: My Beginning*, London: Rex Collings, 1980. Although the cover artist is unnamed, Madingoane describes Egypt as the head of Africa in his epic poem "Black Trial," which occupies most of the collection (15-16).

Meanwhile, even as the giant version the *Cosmopolitan World Map* disappeared, the regular 34 by 52 inch version morphed by 1975 into map 21912-X (Rand McNally 1975, 22: Wing, Series 4, Box 6, folder 58) and by 1986 into map 813161-5 (Rand McNally 1986, 18: Wing, Series 4, Box 6, folder 65). The reduced version, now coded 83437-C (with frame) or 80712-C (for fiberboard backing), appeared as late as spring 1994 in the "Rand McNally Gift Atlas," the last catalog to be found in the Rand McNally Company Records at the Newberry (Rand McNally 1994: Wing, Series 4, Box 6, folder 65). Today, Rand McNally's bestselling "Classic Edition World Wall Map" is centered on *Africa*. Not only are the continents presented whole, but the map's Gall stereographic projection also minimizes distortion and shows them "truer to their relative size" (Rand McNally Store [Online]).

As for the *Cosmopolitan World Atlas*, once "touted as the most expensive atlas in history" (Schulten 2001, 229) after its initial publication had been delayed ten years because of World War II, it too underwent several revisions, including one in 1962, and continued to be published until 1996.

The 1957 National Geographic World Map, in turn, was so successful that it was reprinted in 1962 and 1963 (Buxbaum 1971, 256), even after the National Geographic Society put out a smaller 19 by 25 inch (48.5 x 63.5 cm) world map in November 1960 as part of its Atlas Series (1958-1968; Buxbaum 1971, 259, and also 234, 257-266). In February 1965, a different world map appeared. Measuring 29 1/2 by 49 1/2 inches (75 x 126 cm), it updated and replaced the 1957 map. Taking a cue from its rival, Rand

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*"Today, not only are the National Geographic Society and its ever-popular magazine still going strong, but the Online Store also advertises a world map that, on first glance, looks remarkably similar in design to its fifty-year-old incarnation."*

*"Meanwhile, Oden's poems—'A Private Letter to Brazil' and 'The Map'—were reprinted in several anthologies between 1963 and 1974, the nineteenth printing of the revised American Negro Poetry anthology having been reissued as recently as 1996."*

McNally, the National Geographic Society offered an enlarged 47 by 68 inch (119.5 x 172.5 cm) version of its 1965 map—just a bit smaller than the "giant" Cosmopolitan World Map that had been available for the past six years. Another update came in December 1970 when a world map, backed by a "Pollution Painting," was issued as part of the Wall Map Series (Buxbaum 1971, 268). Today, not only are the National Geographic Society and its ever-popular magazine still going strong, but the Online Store also advertises a world map that, on first glance, looks remarkably similar in design to its fifty-year-old incarnation (National Geographic Online Store 2008).

Meanwhile, Oden's poems—"A Private Letter to Brazil" and "The Map"—were reprinted in several anthologies between 1963 and 1974, the nineteenth printing of the revised *American Negro Poetry* anthology having been reissued as recently as 1996. But neither in her 1952 debut, *The Naked Frame*, nor in her three subsequent collections has Oden showcased her thoughts on Africa, or on maps. By the 1960s, too many other poets had begun focusing on Africa; and Oden, unlike many contemporary black poets, never felt comfortable being a "crusader" (Oden, telephone conversation with author, August 9, 1995) or writing "off-the-skin" (Oden 1978a, 8). Oden never visited Africa or South America; half a century after she wrote her map poems, the online "Map of Freedom" shows most of South America in green—the color of freedom—but most of Africa in the yellow of "partially free" or the glaring purple of "not free" (Freedomhouse.org, 2007). Nor did Oden correspond with Bishop after 1956, although she met her mentor briefly some fifteen years later (Oden, telephone conversation with author, August 9, 1995). Nominated for a Pulitzer Prize in Poetry (Galbus 2006), Oden's 1978 collection *Resurrections* dealt instead with the unsolved double-murder, in their Washington, D.C. home, of her eldest sister, a physician, and her eighty-seven-year-old mother (Oden 1978a, 26; Kessler 1980). Her 1980 volume *The Tie that Binds* also focused on family.

Then came twenty-three years of silence until *Appearances* surfaced, full of love poems and Oden's unabashed joy at rediscovering her poetic voice at the age of eighty. This article celebrates Gloria Oden's "return" and offers tribute to a generous, private woman who once trained as a lawyer, then went on to become a poet, an editor for scientific institutes and publishers, a professor of English and creative writing, an excavator of early African-American lives, a former Vice President of the Poetry Society of America, the surviving voice of a proud American family, and a superb reader of maps.

#### NOTES

1. Elizabeth Bishop's "The Map" (copyright 1979, 1983 by Alice Helen Methfessel; reprinted by permission of Farrar, Straus and Giroux, LLC) originally appeared in Winslow 1935 (78-79), a collection introduced by Marianne Moore. "The Map" later appeared in Bishop 1946, 1; Bishop 1955, 3; Bishop 1969, 3; and the definitive Bishop 1983, 3. Bishop's poem and commentary are also online at <http://www.geography.wisc.edu/histcart/broadsht/brdsht5.html>.

2. In a telephone conversation on May 17, 2001, Mark Strand told me that he had composed "The Map" in 1960.

3. J[ay] Saunders Redding—the esteemed African-American writer, professor, and literary critic who also helped promote Oden's early career—provided much of the detail in this paragraph (see Oden 1978a, 9-21). However, in regard to Oden's composition of her poems, owing Bishop's *North*

& *South*, and recollection of Bishop's communication with Moore—these details come from telephone conversations I had with Oden on August 9, 1995, and September 14, 2007, or from an email from her on March 3, 2008.

4. The same year "A Private Letter to Brazil" appeared in print, Oden's poem "With Love to Miss Marianne Moore" was published in *The Muse* (Autumn 1959). Shortly before her residency at Yaddo, Oden met Moore at a writer's conference and began corresponding with her. Moore had written her only map poem, "Sea Unicorns and Land Unicorns," in 1924—a decade before Bishop composed "The Map" (see Haft 2003, 28-64, 77-80).

5. "A Private Letter to Brazil," copyright Gloria Oden, reprinted by permission of Gloria Oden. The poem was originally published in *The Galley Sail Review* (Oden 1959, 7). With minor changes, the poem reappeared in several anthologies, including Bontemps (1963 and 1974, 158-159), Hayden (1967, 185), Hughes and Bontemps (1970, 383-384), and Raff (1973, 32). Our text derives from Hughes 1964 (91). With Oden's consent, however, I have modified the 1964 text by removing the capital "f" in "Farthest," the initial word of line 16, and by changing "meets" to "meet" in line 19 to preserve the rhyme scheme and the agreement between verb and dual subject. (Portions of my critique on Oden's "A Private Letter to Brazil" appear in Haft 2007.)

6. "... As When Emotion Too Far Exceeds its Cause" first appeared in *The Canadian Forum* (Oden 1959, 13), and was reprinted—with Bishop's name now inserted after the title to identify the quotation's source—in Bontemps (1963 and 1974, 160-161), Hayden (1967, 183-184), and Bell (1972, 96-97). The poem concerns flight—physical, emotional, and meta-physical. In it, Oden focuses on birds and angels, who trust their wings, so we're told, though Oden suspects that only air supports them. She ends by describing a dead bird, who "in love's celestial venturing / . . . once trusted air / that plunged me down. / Yes, I!")

7. All the National Geographic Society maps discussed in this paper may be viewed online (see Maps.com. 2008).

8. The legend offers the following symbols: tan arrows for prevailing winds, red arrows for warm currents, blue arrows for cold currents. Black numbers indicate elevations in feet; blue numbers, "depth curves and soundings in fathoms." Oden uses "feet" instead of "fathoms" to satisfy meter as well as both internal and external rhyme.

9. "The Map," copyright Gloria Oden, reprinted by permission of Gloria Oden. The poem subsequently appeared in Hughes and Bontemps (1970, 385-387), Bell (1972, 97-99), and Harlan (1973, 132-134). With Oden's consent, "covenant" has been changed to "covenant," at line 53; and a comma has been inserted after "let's say," at line 56.

10. During our telephone conversation on August 9, 1995, Oden revealed that a small map of Madagascar also had graced the walls of her apartment. While a graduate student at New York University, she had purchased the map after discovering that in the eighteenth century the island was the original home of Phillis Wheatley, the first known African-American poet. Oden's Madagascar map has long since disappeared, along with the National Geographic and Rand McNally world maps.

11. Researching this paper has revealed at least one clue to the opaque code NYC901: namely, that “90” means “world map.” Beginning in December 1937-1938, the earliest mention of codes in any of the Rand McNally catalogs housed at the Newberry, several world maps—no matter how centered or on what projection—display “90” in their code. (See, for instance, the list “Maps of the World” on page 21 of “Rand McNally Maps, Atlases, Globes, Guides” [Wing, Series 4, Box 5, folder 50]; for this catalog’s probable date, see Figure 5, below.) The rest is speculation. “NYC” obviously means something different from the lonely “N” that identifies Rand McNally roadmaps made in 1932. (For roadmap codes, see Koenker 2002a.) Instead, “NYC” probably indicates the New York City office, which had been open since around 1933; and, more specifically, the “drafting rooms in Lower Manhattan” (McNally 1956, 19) that may have played a prominent role in the map’s creation and/or production. Finally, “1” could refer to “the year the base map was drafted” (Koenker 2002b) since “1941” is the latest date that appears on the *Cosmopolitan World Map* owned by the author. On that (perhaps earliest) edition of the map, “1941” can be found in areas most recently occupied during the war; for example, under the black capitals of “Italian West Africa,” the typographer has written—in a difficult-to-read red—“occupied by the British, 1941.”

12. Rand McNally 1942, 34, through Rand McNally 1962, 37 (Wing, Series 4, Box 4, folder 47, through Box 5, folder 53). The *Catalog of Copyright Entries* lists July 16, 1942, as the copyright date of the “Rand McNally *Cosmopolitan World on Mercator’s Projection*” (F17511), the 713<sup>th</sup> map entry listed since January 1, 1942 (Library of Congress 1942).

13. All three Rand McNally wall maps at the New York Public Library are the same size and have the same code as the Newberry’s. One is identical to it, though not cloth-mounted and somewhat deeper in color, having perhaps been exposed less to light. In terms of Africa’s political divisions, the other two resemble one another *and* the double-page map in the 1958 *Cosmopolitan World Atlas*. Moreover, the date “Sept. 1958” is handwritten across the legend on one of these two: namely, the map made by Rand McNally for the American Foreign Insurance Association and, hence, the only one of the three not titled “Rand McNally *Cosmopolitan World on Mercator’s Projection*” (New York Public Library, Lionel Pincus and Princess Firyal Map Division: World Backlog Catalog—Uncatalogued Maps, B-260).

14. Dating these catalogs is tricky. Catalog 520 has no copyright date or datable code; however, an approximate year is offered by the handwritten “sent 1946” on the front cover of the Newberry’s copy (Wing, Series 4, Box 4, folder 49). Although Catalog 553 also has no copyright date or datable code, it is followed by similar catalogs that do (e.g., Cat.554, 1954; Cat.555, 1955; Cat.557, 1957 (Wing, Series 4, Box 5, folder 52). The earliest educational catalog featuring the *Cosmopolitan World Map* is Catalog 508, “Rand McNally School Maps, Globes & Atlases.” On page 13, “NYC901A” is offered as an available map measuring 48 x 63 inches (122 x 160 cm), the largest map with this code prior to 1959. Catalog 508 could date anywhere from 1945 to 1948, since Catalog 503 was printed in 1942, and a letter in Catalog 505 indicates that its listed prices would change effective August 1, 1943 (Wing, Series 4, Box 4, folder 47).

15. See, for instance, Lobban 1997 (32) for the 1884-1885 map made in Leipzig and “exemplifying the cartography of Africa following the Berlin Congress.”

My research gained enormously from Gloria Oden’s memory, enthusiasm, and generosity. I am also hugely indebted to the staff of the Newberry Library, in particular, to Patrick Morris and John Powell for the hours they devoted to this project. To those in the New York Public Library’s Schomburg Center for Research in Black Culture as well as the Humanities and Social Sciences Library, especially Alice Hudson, Nancy Kandoian, and Matt Knutzen from the Lionel Pincus and Princess Firyal Map Division. To Hunter College’s Norman Clarius, magician of interlibrary loan; Jennifer Jaiswal, Steve Giovino, and Shad Ali, computer wizards of the Technology Resource Center; and the Thomas Hunter Honors students in my “Maps and Twentieth-Century Literature” seminar at Hunter College (Fall 2006). To Matthew H. Edney, Director of the History of Cartography Project at University of Wisconsin-Madison, who not only invited me to submit the History of Cartography broadsheet for 2007, but also helped track down the 1957 National Geographic Society world map. And to Fritz Kessler and Jim Anderson, Editor and Associate Editor (respectively) of *Cartographic Perspectives*, and the three reviewers whose suggestions for expanding the scope of this work I hope to take up in my book. In addition, a Fall 2006 Presidential Travel Award from Hunter College of the City University of New York helped fund the presentation of an early version of this paper to the North American Cartographic Information Society (see Haft 2006). Hunter College also provided the venue for my presentation to the Society of Woman Geographers on March 20, 2008, and granted the sabbatical leave in which to begin my research.

This paper is dedicated to Gloria Oden—with admiration and affection.

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## Trends in Internet and Ubiquitous Cartography

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The widespread distribution of maps through the Internet is a direct result of the introduction of the World Wide Web in the early 1990s. The mobile Web, enabled through cell phones, is now creating an even more ubiquitous map form. These methods of map distribution facilitate greater access to spatial information, increased levels of interactivity with maps, real-time locational information, and greater integration of multimedia content through pictures, sound, and video. While normally not networked, GPS navigation devices have also changed the map-use landscape. Examined here are the current trends in online- and cell-phone-delivered maps.

### INTRODUCTION

A remarkable transition has taken place in cartography since the introduction of the Mosaic World Wide Web browser in 1993. No longer tied to paper, millions of maps are now distributed through computer networks. These maps appear almost instantly on computer monitors or on the tiny screens of cell phones. In some cases, the spatial information is no longer disseminated in graphic form but as computer-generated verbal instructions. Site-specific delivery of spatial information has fostered a new area of development called location-based services (LBS).

The growth of LBS has been particularly dramatic in recent years with the introduction of new devices, such as Apple's iPhone, that incorporate positioning by GPS and cell phone tower triangulation. It is estimated that 43 million people worldwide used location-based services on cell phones in 2008, almost triple the number from 2007. It is projected that the LBS market will mushroom from \$1.3 billion in 2008 to \$8.1 billion by 2011 (Nakashima 2008).

The availability of user-defined maps anywhere at anytime has fostered the new concept of a "ubiquitous cartography." The Commission on Ubiquitous Mapping of the International Cartographic Association sees this form of cartography as an extension of ubiquitous computing, which presupposes a society in which individuals carry small, networked computers that may be augmented by local transmitters, such as radio-frequency identification (RFID), that will communicate site specific information. The new "wireless Internet" or "mobile Web" is driving most of the growth in Internet mapping. The focus here is on developments within North America of both wired and wireless Internet mapping. We begin with Internet use in general.

*"The availability of user-defined maps anywhere at anytime has fostered the new concept of a "ubiquitous cartography"."*

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## GROWTH IN INTERNET USE

As of 2008, approximately 21 percent of people in the World are users of the Internet on a regular basis. The percentage for the US is 71 percent (Internet World Stats 2008). The majority of new users to the Internet are through mobile devices – not “wired” users from traditional laptops or desktops. As a result, most of the growth in Internet usage is coming from the mobile Web.

Home broadband connection to the Internet has hit a plateau. Currently, about 22 percent of the US population is connected to the Internet at home through broadband, either through a cable modem or DSL. Home broadband connection rates are higher in most of the countries of Europe, as well as the Bahamas, Canada, South Korea and Hong Kong (Internet World Stats 2008). Rates in some of these countries reach into the mid-30s.

Another way to examine the growth of the Internet within a country is to look at options for free wireless connection (wi-fi). Free wi-fi varies by geography and institution. Wireless access at libraries is now common in the US. In a strange twist, most lower-end hotels in the US now offer free wireless while more expensive hotels still charge for use. Independent coffee shops also offer free access while major chains do not. Smaller airports have free access while larger airports charge for access. Notable exceptions include Las Vegas, Denver, Kansas City and Pittsburgh. To help pay for the service at these airports, customers are shown ads before they are able to log-on, or ads are shown on the side during the entire session (Stellin 2008). The Denver airport reported a sharp increase in Internet usage after it implemented free service. The company, FreeFi Networks, reports that the Denver airport has become the world’s largest free Wi-Fi airport and is exceeding the revenue of the previous paid Wi-Fi service (Business Wire 2008).

## INTERNET MAP USE

With the increased use of GPS navigation devices and the mobile Web, one might expect that online mapping sites would begin to show a decline in use (Mindlin 2008). This does not seem to be the case. The distribution of maps through the Internet is still increasing. The year 2007 saw a 10 percent overall rise in the four major online mapping sites, although some of this traffic is coming from Web-enabled mobile devices such as Apple’s iPhone that is closely tied to Google Maps.

### Online Street Mapping

While there are many aspects to Internet map use, most attention is directed toward the intense competition between the four major online mapping sites: MapQuest, Google Map, Yahoo Maps, and MSN Live Search. MapQuest, the leading online street map provider since 1996, still dominates with over 50 percent of all online map requests (see Figure 1). Yahoo Maps began 2007 in second place with about 20 percent but dropped to 13 percent by the end of the year. Google Maps saw a sharp increase during the year at the expense of both MapQuest and Yahoo Maps. Google Maps started the year at about 10 percent and increased to over 22 percent of all online street map requests. Use of MSN Live Search remained flat at only 4 percent (Hopkins 2008).

Use of MapQuest seems to have hit a plateau in mid-2007 and is now declining. The dominance of the Google search engine seems to be affecting MapQuest use. In a change that occurred in March 2007, Google now

*“Home broadband connection to the Internet has hit a plateau. Currently, about 22 percent of the US population is connected to the Internet at home through broadband, either through a cable modem or DSL.”*

*“While there are many aspects to Internet map use, most attention is directed toward the intense competition between the four major online mapping sites: MapQuest, Google Map, Yahoo Maps, and MSN Live Search.”*

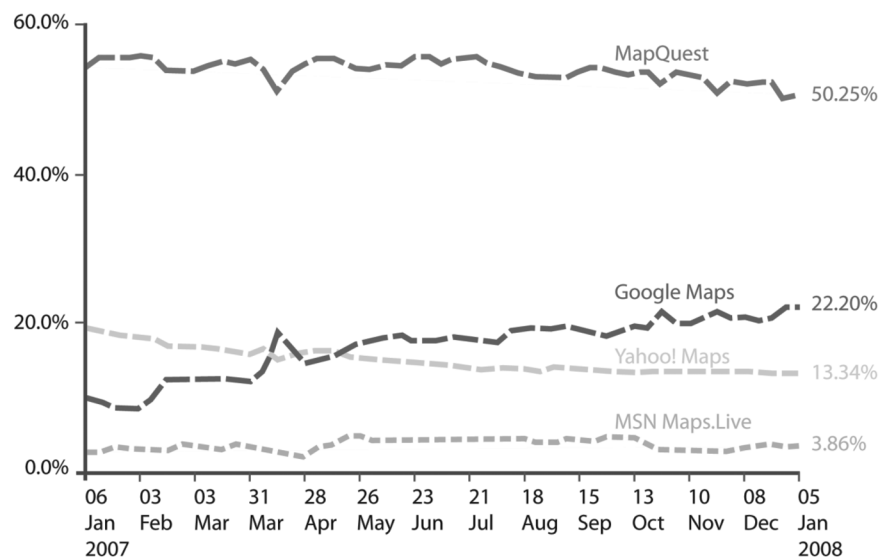


Figure 1. Visits to the four major online mapping sites – MapQuest, Google Maps, Yahoo Maps, and MSN Maps.live – during 2007. Use of Google Maps is increasing at the expense of MapQuest and Yahoo Maps. [http://Weblogs.hitwise.com/us-heather-hopkins/2008/01/google\\_maps\\_making\\_inroads\\_aga.html](http://Weblogs.hitwise.com/us-heather-hopkins/2008/01/google_maps_making_inroads_aga.html). (see page 79 for color version)

*“Another important aspect of these mapping sites is how many requests for maps are based on paid listings, the only way for these sites to generate income.”*

sends more users to its own mapping site than to MapQuest (Hopkins 2008). Even with this decline, searches that include MapQuest outnumber Google Maps by a factor of 10.

Another important aspect of these mapping sites is how many requests for maps are based on paid listings, the only way for these sites to generate income. About 19 percent of map requests for Google Maps are based on sponsored links. Sponsored links to MapQuest account for only 10 percent of the total. This means that Google has the potential to generate more income than MapQuest through its online maps.

While MapQuest dominates online mapping with nearly half of all maps produced (Hopkins 2008), many wonder why MapQuest has not lost more ground to Google. The answer may be in the brand name. MapQuest has been around much longer and the name is firmly engrained in people’s minds. When most people in the US think about acquiring an online map, they think about MapQuest.

### Integration with GPS-enabled devices

A cross-over development between online mapping and mobile mapping are services that download map searches to a GPS device. A Google Map search can be downloaded to a Garmin or TomTom device, as shown in Figure 2. The results of a MapQuest search can be sent to OnStar (a subscription service provided for some General Motors cars) or a cell phone, as shown in Figure 3.

*“A cross-over development between online mapping and mobile mapping are services that download map searches to a GPS device.”*

### Open Source Maps

The OpenStreetMap (OSM) project seeks to create a road map of the world that anyone can use without having to pay license fees to cartography firms or government agencies. Essentially a wiki (a Web site whose contents are editable by its viewers) for mapping, the site relies on thousands of amateur mappers and their GPS devices. Coordinates are recorded by

Figure 2. Google Map option to send the results of an online map search to a GPS device. (see page 79 for color version)

Figure 3. MapQuest output options include OnStar, a service of General Motors, and a cell phone. (see page 80 for color version)

the devices, either through driving, cycling or walking, and then uploaded to the central OSM Web site.

The project is especially useful in those countries that limit the distribution of spatial data. In contrast to commercial mapping sites, OSM also allows users to add and update map content. Another example of the social networking aspect of the new Web 2.0, the project attempts to democratize the Web by keeping map users involved in the map input and map update processes.

The project has proven especially useful in some countries. The OSM map of Baghdad, made by users tracing streets on air photos, is the most accurate map available online of the Iraqi capital (Rocha 2007). Most developed countries have contributed their maps to the project. Other countries, however, are barely represented on the site.

### Map sharing on commercial sites

In a partial response to the open source movement in online mapping, MapQuest has announced it will let users correct its maps if they see a mistake (Rocha 2007). This has yet to be implemented as of mid-2008.

*“The OSM map of Baghdad, made by users tracing streets on air photos, is the most accurate map available online of the Iraqi capital.”*

*“After signing-on with a Google account, users can draw, label, describe and moderate map content, including borders, regions, roads, railways, waterways, and points of interest.”*

*“With maps, the user-community will be those people who have a vested interest in a particular area. Aside from densely populated parts of the world, the user-community for any one spot will be relatively small.”*

A five-year agreement signed June 30, 2008 between Dutch mapmaker Tele Atlas and Google will direct user updates from the Google Map site back to Tele Atlas, the provider of map data to Google. To this point, Google has simply used Tele Atlas data. With this agreement, Google users will be able to update the Tele Atlas database with new or updated information (Zeman 2008).

Google’s Map Maker, written by Google programmers in India, was introduced in June 2008. It allows users to “contribute, share, and edit map information for certain regions around the world” (Google 2008). After signing-on with a Google account, users can draw, label, describe and moderate map content, including borders, regions, roads, railways, waterways, and points of interest. Becoming a “citizen cartographer,” in the eyes of Google, will help improve the quality of maps and local information—and everyone is invited to join. Initially, the product is only available in specific countries as shown in Figure 4.

Working with Google Map Maker is relatively simple. To investigate the editing and moderation processes, the Star Cinema movie theater was arbitrarily added on the outskirts of Multan, Pakistan (see Figure 5). The location was chosen randomly. A few days later, an unknown moderator accepted the change. The fictitious site can be found in Google Map Maker by searching “Star Cinema, Multan, Pakistan.”

Any sort of online map update will be problematic. If users can add new roads, they will also presumably be able to modify existing roads—perhaps even delete them. Experience from Wikipedia has shown that accuracy is based on the size of the user-community. For any topic in Wikipedia, there may be millions of people who look at the page, and many thousands that will take the time to fix any errors. With maps, the user-community will be those people who have a vested interest in a particular area. Aside from densely populated parts of the world, the user-community for any one spot will be relatively small. This means that changes can be made and few will care. It is possible that users would be able to alert a company like Tele Atlas of an error, and then air photos could be used to verify the change. But, the number of such errors reported would likely exceed the ability of Tele Atlas to respond to each.

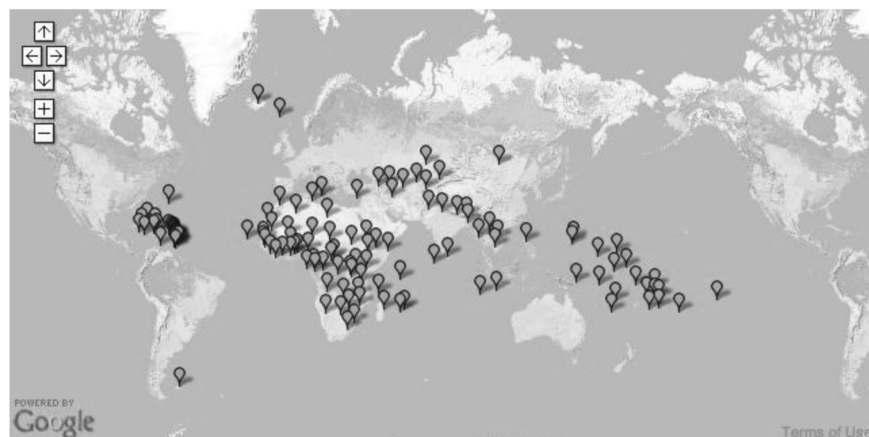


Figure 4. Countries served by Google Map Maker are mostly in the Caribbean, Africa, Asia, and the Pacific. (see page 80 for color version)



Figure 5. The Star Cinema movie theater was added to a Google Map Maker map of Multan, Pakistan. There is no movie theater at this location. (see page 81 for color version)

### Rooftop advertising

Another approach to manipulating the underlying online map database is through the satellite imagery and aerial photography that is associated with online maps. Signs have started to appear on rooftops to take advantage of the free form of advertising, and businesses are now making sure that people can find where they are (Wilson 2008). Many of these messages are near airports and were originally designed to be visible from airplanes. Now, the signs are showing up everywhere, and companies specialize in making them. The term “Spamming Google Maps” has been used to refer to the new phenomena. Calls for more frequent updates to the imagery are also an indication that problems with online imagery are noticed by the public.

### Google Map Search Trends

One way of assessing online map trends is to examine changes in what is being searched through Google, the major search engine that accounts for nearly 70 percent of all Internet searches. For example, searches for the word “map” has declined steadily since 2005 (see Figure 6). This may indicate that people are no longer searching for static maps but are increasingly using interactive services. This is verified by similar declines in searches for terms like “Africa Map” and “Europe Map” (see Figure 7).

### MOBILE PHONE USE

The first mobile phone network was started in Sweden and Norway in 1981. As of November 2007, worldwide mobile telephone subscriptions surpassed 50 percent of the world’s population with 3.3 billion users (Virki 2008). Of these, approximately 2.6 billion are using GSM (Global System for Mobile communications). The number of users has expanded rapidly in the more rural areas of China and India as the price of cell phone ownership has fallen (Virki 2007).

*“This may indicate that people are no longer searching for static maps but are increasingly using interactive services.”*

Google Volume Search for "map" from 2004-2008

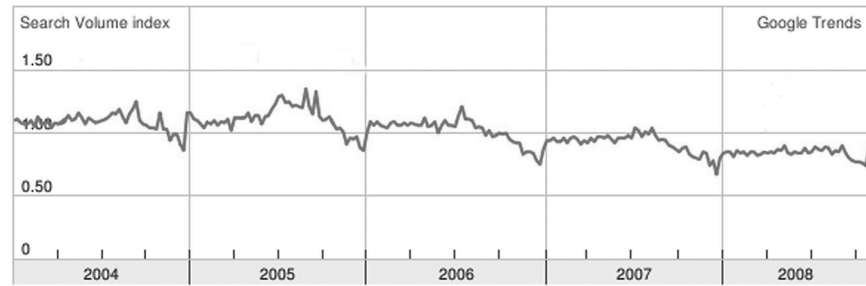
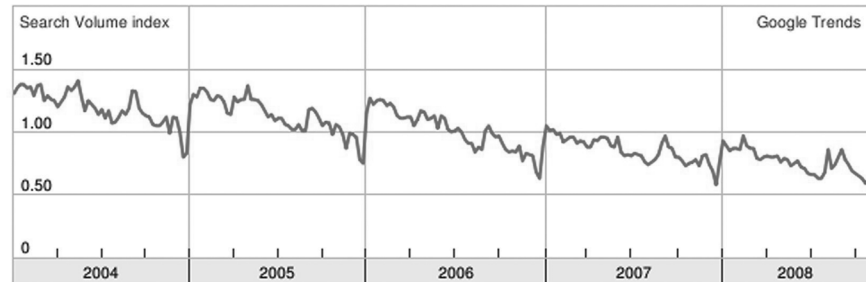


Figure 6. The Google search trend for the word "map" from 2004 to mid-2008. Google Trends scales the term entered so that its average search volume is 1.00 in the chosen time period. In this example for the word "map", 1.00 is the average search volume of "map" from 2004 to present. We can see a high point in 2005 with the line over 1.30, indicating that search traffic in 2004 is approximately 1.3 times the average for all years showing a general decline in the search for the word "map". Increased use of interactive mapping sites seems to be leading to a decline in the search for static maps. (see page 81 for color version)

Google Search Volume for "Europe Map" from 2004-2008



Google Volume Search for "Africa Map" from 2004-2008

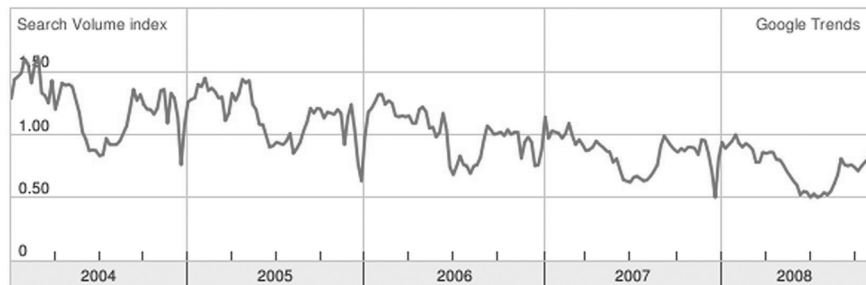


Figure 7. Google search trends for "Africa map" and "Europe map" also shows a similar decline since 2004. The search for "Europe Map" also shows a cyclical cycle with a low point before the end of each year, a reflection perhaps of school and holiday schedules. (see page 82 for color version)

Four major cell phone providers dominate wireless communications in the United States. As of mid-2008, these are AT&T (formerly Cingular Wireless) with 63 million customers, Verizon Wireless with 60.7 million, Sprint Nextel with 53.6 million, and T-Mobile with 26 million. The total for these four companies is 203.3 million, about two-thirds of the US population.

### Mobile phone navigators

Navigation devices are mainly dependent on a GPS receiver although it is possible to determine the general position of a mobile phone by triangulating from nearby cell towers or wi-fi hot spots. Most cell phones lack spatial locator abilities. Of the over 3.3 billion cell phones in use, only 175 million have GPS (Bray 2008). While the US Federal Communications Agency has a mostly maintained a *laissez-faire* relationship to cell phone industry, it did mandate automatic location identification (ALI) on cell phones to make sure that emergency workers could find cell phone callers. Wireless carriers were required to have 95 percent ALI-capable handsets among their subscriber bases by Dec. 31, 2005. Sprint/Nextel, Alltel, and U.S. Cellular are facing federally-imposed fines for failing to meet this requirement. The ALI requirement is the main impetus for the growth of GPS-enabled cell phones, at least in the US (GPS World 2007).

At first, GPS-enabled cell phones would only activate with a call to the police. There was no way for the consumer to use the GPS capability. This has changed and most mobile phone companies in the US now offer some type of navigation service based on GPS-enabled devices. For example, Verizon's VZ NAVIGATOR, a \$10 a month service begun in November of 2005, through startup Networks in Motion, displays a small map and provides spoken directions through a natural sounding human voice (Bray 2008). The timing of the directions is sufficiently accurate so drivers can use it as a turn-by-turn navigator. The service quickly recalculates a route if you go off-track (Wilstrom 2007). The current location of the user is determined through a combination of embedded GPS and cell phone tower triangulation. The service also shows you the location of the nearest bank, hotel, or movie theater—and provides the appropriate phone number. It lacks a pedestrian mode so that it may lead you on a way that is best for cars but not best for walking. This is particularly a problem in cities with one-way streets.

Version 4 of VZ NAVIGATOR was released allowing customers in 75 US cities to access information about traffic incidents on major roadways, obtain traffic updates and find detours around traffic congestion and accidents. The new version of the VZ Navigator location-based service (LBS) application offers a 3D perspective view of maps, a movie and events finder, weather reports and forecasts and gas prices at nearby gas stations. The traffic tracking center monitors conditions continually along the user's routes, providing proactive alerts on conditions ahead and offering detour options, while maps are displayed to enhance use (Verizonwireless.com).

Networks in Motion also offers a service through the American Automobile Association (AAA) for Verizon, Sprint and Alltel phones. Essentially the same as VZ Navigator, the AAA version can guide you to businesses that offer discounts to AAA members. It also integrates with AAA roadside assistance if your car breaks down (Bray 2008).

Ulocate (uLocate) Communications has developed over 70 applications for phone-based GPS. One is called GasBuddy that directs you from your current location to the nearest gas station with the lowest price. Other so-called "widgets" list local entertainments events, an airport finder, a flight-time updater (Yu 2008). The ShopLocal widget shows currently available products and where to buy them in the local area. Other widgets are more esoteric. One shows the opposite side of the earth from where you are currently located (Bray 2008).

The market research firm, Metrics, reported that 30 million dedicated navigation devices were sold last year, outpacing navigation-enabled

*"Most cell phones lack spatial locator abilities. Of the over 3.3 billion cell phones in use, only 175 million have GPS."*

*"The traffic tracking center monitors conditions continually along the user's routes, providing proactive alerts on conditions ahead and offering detour options, while maps are displayed to enhance use."*

*“They expect, however, that in the coming years, “navigation-enabled mobile phones will be used for auto navigation, pedestrian navigation and many other types of location-based services”.”*

*“Nielsen views this as critical mass and a sign that the mobile Web is about to take-off as a new form of information delivery in the US.”*

mobile-phone sales by 50 percent (RCR Wireless). About 10 million GPS devices were sold in North America in 2007, vs. 2.5 million in 2006, and the industry expected sales of 20 million during 2008 (Yu 2008).

They expect, however, that in the coming years, “navigation-enabled mobile phones will be used for auto navigation, pedestrian navigation and many other types of location-based services” (RCR Wireless). This shift poses a major threat to companies like Garmin and TomTom that currently dominate the market for standalone devices. This helps explain why Navteq, a provider of digital mapping databases and on the verge of being acquired by TomTom for \$4.25 billion, was instead acquired by telecommunications giant Nokia for \$8.1 billion in mid-2008 (RCR Wireless).

### **The Mobile Web**

Many cell phones have the capability of accessing the World Wide Web. In terms of Web usage, a study by Nielsen/Netratings has shown that there are 40 million mobile subscribers to the Internet in 2008, roughly 15 percent of the active mobile user population (Knight 2008). The UK at 14 percent and Italy at 11 percent were close competitors. Nielsen views this as critical mass and a sign that the mobile Web is about to take-off as a new form of information delivery in the US.

The Nielsen report also states that about 14 percent of mobile Web users access the Internet through an unlimited access plan. These access plans seem to be associated with areas that have Third-Generation (3G) service. This would mean that 86 percent of users access the mobile Web on a pay-by-usage system which tends to limit use (Knight 2008). The unlimited plans can be very expensive. The cheapest AT&T monthly plan for the iPhone is \$70, \$40 for voice and \$30 for data. The plan includes 450 minutes of call time and unlimited use of the mobile Web. Unlimited plans from Verizon cost between \$99 to \$139. The plan includes unlimited domestic roaming, unlimited Internet access, unlimited messaging, V Cast Video, VZ Navigator and e-mail.

Mobile Web usage is very similar to the normal use of the World Wide Web. The leading destinations for mobile Web users are Yahoo Mail (14 million users), Google Search (9 million users) and Weather Channel (8.6 million users) (Knight 2008).

### **3G Network**

The main complaint about the mobile Internet is the speed of access. Third Generation (3G) is a faster mobile communication network that can have speeds comparable to a cable Internet connection. Data communications speeds are up to 14.4Mbit/s on the downlink and 5.8Mbit/s on the uplink. This network was available in Japan by 2001 and South Korea in 2002. The largest 3G network in the US is based on the slower Code Division Multiple Access (CDMA) standard implemented by Verizon. CDMA has a speed comparable to a dial-up connection. Figure 8 depicts the 3G network coverage in the US for AT&T, widely regarded as having the fastest 3G service. As of 2008, about 28 percent of cell phones in the US are 3G-capable. In Europe, about 25 percent of cell phones can use 3G (Knight 2008).

### **iPhone**

Introduced in 2007, Apple’s iPhone has had a major influence on the number of people that access the mobile Web. The well-thought out interface



Figure 8. AT&T G3 coverage areas correspond with the larger cities. Many states are without coverage. (Source: <http://www.wireless.att.com/coverageviewer/>) (see page 82 for color version)

made it much easier to use the Internet through a mobile device. Within a year, 6 million iPhones were in use and 10 million of the devices were expected to be sold during 2008 (Kellner 2008). Initially priced at \$599 and \$499 for the 8GB and 4GB models, the 3G iPhone model introduced in mid-2008 was reduced to only \$200. AT&T, the exclusive provider, subsidizes Apple by \$350 per device and re-coups this cost through monthly fees.

The iPhone opened the mobile Web for millions of users. More than 80 percent of iPhone owners use the mobile Internet, in contrast to only 32 percent for other “smart phone” users. ComScore M:Metrics, has found that even on slower mobile networks, the iPhone has increased mobile Internet consumption by a factor of 13 times in the category of social networking. E-mail is another popular feature, with nearly 70 percent of iPhone users sending and receiving e-mail with the device, compared to just 26 percent among other smartphones users and 7.6 percent of the cell phone market overall (MediaMetrix 2008).

#### Internet in cars

Another aspect of the mobile Web is providing access to the Internet within cars. UConnect and Chrysler have announced that they will bring Internet connectivity to Chrysler cars in 2009. The wireless router and cell-based Web connection will work with wi-fi enabled computers (computers not needing an Ethernet cable for networking purposes), the iPhone, and other portable devices. The option will add approximately \$500 to the price of the vehicle plus a \$29 monthly subscription fee (Woodyard 2008).

#### MAPS AND CELL PHONES

Maps on cell phones have been limited by extremely small screen sizes—a 160x120 pixel display is typical. But, the small display does not seem to deter map users. By 2006 it was reported that MapQuest was among the top mobile Web destinations for U.S. subscribers drawing more than 3 million visitors in June of that year. At that time, MapQuest had more visitors than CNN, AOL, and weather and search offerings from Yahoo (Gibbs 2006).

The iPhone, introduced in 2007, has one of the largest current mobile phone displays but is still only 480 x 320 pixels, although it has a very high-resolution screen at 163 points per inch. Most desktops and laptops are around 100 points per inch but depict a much higher number of pixels. Figure 9 shows the screen resolution for all browsers accessing the Uni-

*“The iPhone opened the mobile Web for millions of users.”*

*“Maps on cell phones have been limited by extremely small screen sizes—a 160x120 pixel display is typical.”*

Screen Resolution	Visits
1. ■ 1024x768	39.77%
2. ■ 1280x800	21.05%
3. ■ 1280x1024	15.20%
4. ■ 1440x900	9.36%
5. ■ 800x600	3.51%
6. ■ 1680x1050	2.34%
7. ■ 1920x1200	2.34%
8. ■ 1280x768	1.75%
9. ■ 1400x1050	1.17%
10. ■ 1600x1200	1.17%
11. ■ 1152x720	0.58%
12. ■ 1152x864	0.58%
13. ■ 1344x840	0.58%
14. ■ 1366x768	0.58%

Figure 9. Screen resolutions for browsers accessing the University of Nebraska at Omaha Cartography and Geographic Information Systems Laboratory server for mid-July 2008. (see page 83 for color version)

versity of Nebraska at Omaha Cartography and Geographic Information Systems Laboratory for mid-July 2008. Nearly 40 percent use a screen resolution of 1024x768. Another 20 percent have a widescreen resolution of 1280x800. Just over 15 percent have a screen resolution of 1280x1024. These screen dimensions are typical of current computer users.

### Google Maps for cell phones

Google Maps, introduced in 2005, was a late entry into online mapping but the company has been very successful at transitioning its maps to mobile phones. Google Maps for Mobile 2.0 was released in November of 2007. It introduced a “my location” feature that utilizes the GPS location of the mobile device, if it is available. This information is augmented by software determining the nearest cell phone towers. The software then looks up the location of the tower from a database. The software plots a blue circle around the estimated range of the cell site based on the transmitter’s rated power, among other variables (see Figure 10). The estimate is refined by triangulating the cell phone signal strength of surrounding towers.

### iPhone maps

From the beginning, Google Maps was closely integrated with Apple’s iPhone. Maps can be easily displayed and zoomed-in or out by touching the screen with two-finger control called MultiTouch. The 3G model incorporates both wi-fi and cell phone triangulation in addition to GPS, and displays the current position of the user with varying degrees of blue to indicate accuracy of the position.

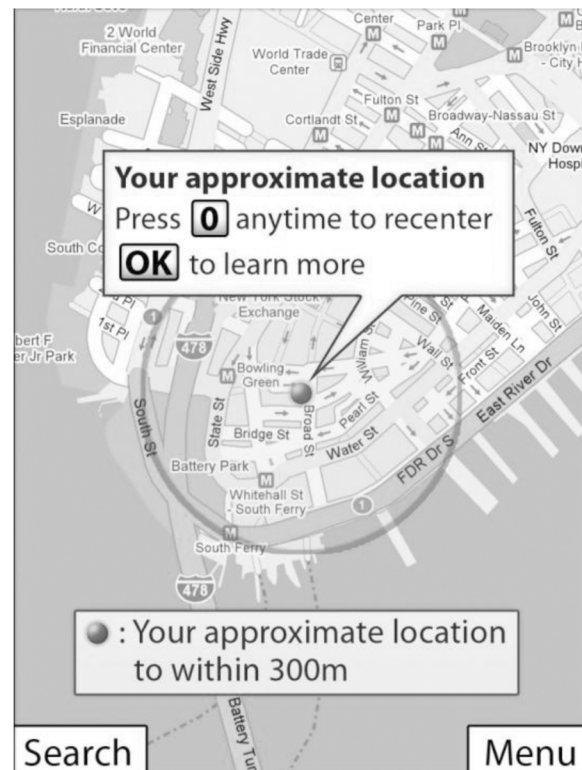


Figure 10. Google Maps for Mobile showing current estimated position based on surrounding cell phone towers. (see page 83 for color version)

A variety of spatially-aware applications have been developed for the iPhone 3G that are available for download through Apple's iPhone App-Store. In one called Loopt, the current location of friends can be placed on a map. A message can even be broadcast by a user that is displayed on the map as a virtual sign. The technology could also be used to locate a child with a cell phone.

Pelago's Whrrl shows users "cool places" that friends have visited and recommended. The application can filter recommendations by user. A user can look for a bar and browse to see if any friend has recommended it (Yu 2008). Spatially-aware advertisements are also a possibility. A coupon could be delivered to entice a potential customer to a nearby store, restaurant or movie theater.

Other spatially-enabled applications include Wikitude that can provide a Wikipedia description of nearby points of interest. SynchroSpot can automatically bring up a shopping list as you walk into a supermarket. Traffic alerts and updated weather conditions are the most popular real-time tools for travelers (Yu 2008). Google Maps also recently launched a feature that provides public transportation options to your destination.

### Locational Privacy

The sensitive issue of who can track whom via GPS devices—and for what purposes—is still being worked out (Yu 2008). The International Association for the Wireless Telecommunications Industry (CTIA) has issued guidelines for location-based services that stress consumer notice and consent, and data security. The main problem is that there is no oversight on whether these guidelines are being followed. Technically, if your cell phone is on, someone can find you.

The term locational privacy is used to refer to the concept that a person's location should not be made available without consent. There seems to be generational element to this concern. It has been noted that younger people are less-concerned about being tracked while the older generation sees this as an invasion of privacy.

Methods of tracking are not limited to cell phones. Using an EZ-Pass system for tolls on highways means that someone can find out where you are driving, and when. There is also a concern that automated methods to track road usage will be a threat to our locational privacy. Some proposed systems require a GPS transmitter in every car to assess charges based on the car's recorded path (Blumberg & Chase 2005).

### CONCLUSION

The world of maps is clearly changing. The Internet has certainly expanded the distribution of maps, whether to computers or cell phones. The expansion of the mobile Web means that people will have access to all Internet maps via small mobile devices.

When it comes to navigation, spatial information is often conveyed to the user without the use of a map. The user simply follows the directions of a friendly computer-generated voice as it guides the user from place-to-place. While a map is often displayed, the user has little time to examine it. The danger, of course, is that people will not create a mental map of their surroundings, thus always having a sense of being lost. This does not seem to be a major concern for most people and they seem to eventually develop a mental map by navigating through an area multiple times.

The coming years will likely see a continued expansion of the mobile Internet. New types of user input – including voice and gestures – will

*"The term locational privacy is used to refer to the concept that a person's location should not be made available without consent."*

*"The expansion of the mobile Web means that people will have access to all Internet maps via small mobile devices."*

be introduced and will cross-over to laptop and desktop devices. For example, Apple's MultiTouch system developed for the iPhone and iPod touch screen has migrated to Apple's laptop touchpad. Other innovative methods of user input for mobile devices will certainly be developed. The way we use maps and computers in the future may well be based on how we use mobile devices.

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## Reviews

### **Cartographies of Travel and Navigation**

Edited by James R. Akerman

Chicago: University of Chicago Press, 2006

372 pp., \$55.00

ISBN: 9780226010748

*Reviewed by Nat Case*

*Hedberg Maps, Inc.*

As the introduction to this book notes, there has been little significant work done on the history of mapping for travel and navigation beyond the extensive studies of early maritime charts. This collection of six essays is an excellent first step to remedy that gap. Many of us work with street and road maps, and a few of us work with other transportation map forms; it's a field that, with the rise of online and GPS navigational tools, seems to be in ever-increasing flux. This book both gives useful historical background and in a curious way points to ways of rethinking the field outside of strictly cartographic terms. I recommend it highly.

The volume is based on the 1996 Kenneth Nebenzahl lectures at the Newberry Library in Chicago, with the addition of a new article on in-car navigation systems. The Nebenzahl Lectures, according to the Newberry Web site, are "dedicated to exploring promising new themes and lines of research in the study of the science, art, and culture of mapmaking. . . . Previous lecture series have ranged from groundbreaking (as with the 1980 series "Art and Cartography") to the useful if unstartling (for example, the early "British Cartography of Eighteenth Century North America.\*)" This volume tends toward the former.

This book begins with an excellent introduction by the editor, James Akerman of the Newberry Library. It really could serve as a book review in itself, giving scholarly context for the volume and noting themes that run across the essays. In particular, he notes (1) the distinction between route-specific (often non-graphic) itineraries and network maps, and (2) the evolution of maps, not as a primary means of en-route navigation, but as a tool for promotion and pre-travel route *planning*.

Catherine Delano Smith, in the second article, discusses the origins of the modern road network map in medieval and early-modern European itineraries. These were largely textual until the late eighteenth century and did not evolve into visual tools for independent way finding until the nineteenth century. This came as a revelation to me; an almost map-free travel

network is hard to imagine today, but Smith makes it clear that the use of maps as a basic tool for land travel is a modern development.

The third article, by Andrew S. Cook, concerns British maritime charts and, in particular, the origins of the Hydrographic Office and Admiralty chart system in the work of Alexander Dalrymple. Dalrymple's life's work involved compiling and cataloging what had previously been a scattershot system of private chart-making. Dalrymple's work formed the basis for the later consolidation of charting as a governmental function. Cook provides an interesting look at a mapping program organized by personal passion rather than bureaucratic momentum and again offers a useful perspective to those of us who grew up with standardized base mapping as the norm.

The next article, by Jerry Musich, concerns the evolution of the American railroad map. His discussion focuses not on plans for train operators, but on maps promoting railroads to investors and passengers and on maps, often included in timetables, to help passengers and ticket agents plan itineraries. In the early tendency of route maps to "straighten" and simplify their lines, we can see the graphic basis for the modern mass-transit cartogram, not with the goal of achieving graphic elegance, but to make long transcontinental journeys appear more direct. While passengers certainly used the maps to see where to change trains and thus "navigate" the wider system, the article makes clear that, unlike other map types discussed in the book, these maps are essentially promotional tools which did not need to be spatially accurate. That insight is an interesting one in the context of the succeeding article.

James Akerman explores the origins of the American road map in the fifth article. Akerman discusses early bicycle maps, route-books, and route-blazing programs. The picture that emerges is of an inconsistent, often improvised prelude to the familiar oil-company maps that became the standard after 1945. In discussing the post-war era, maps as promotional tools come to the fore, and the author brings together outright promotional brochures, state highway maps, and the promotional nature of oil-company maps to describe the constellation of entities selling "the drive" to Americans.

The sixth article, by Ralph E. Ehrenberg, deals with the development of the aeronautical chart, mainly in America. Yet again, we see *ad hoc* development, largely by the pilots themselves. As with automobile

road maps, the earliest aeronautical charts were linear point-to-point directions, perhaps surprising given the “wide open skies” that air travel supposedly offered. It is also interesting to note what a closed circle the development of air chart standards occurred within: there was neither a wider general public to be appealed to, nor an established class of mapmakers to contend with; in many cases the chart-makers were pilots serving other pilots. Chart styles were created by air-related agencies and with direct feedback from the pilots themselves.

Robert L. French closes the book with a discussion of the surprisingly long history of machine-based automotive way finding. Odometer-based navigational tools have been around almost since the invention of the car. It is interesting to note how even today very little of in-car navigation is based on GPS-based location on a network map but is instead based on linear routes: distance traveled, compass orientation, and direction turned. For those of us facing a world of NAVTEK, Google, and Garmin, this article is a reminder that navigation is about tracing a line and that for most purposes a network map is merely a back-drop upon which to trace that line.

The book acknowledges itself to be a first step toward understanding the cartography of travel and, indeed, it points to a vast amount of potential research. The texts suggested some potential directions to me:

**Cross-cultural comparison:** Each article (with the exception of the last) discusses the evolution of map cultures in isolation from one another, with either a European or an American perspective. I would love to know how long-distance itineraries were transmitted outside of Europe before the modern era, how European road maps ended up looking so distinctly different from American ones, and how the mapping of railroads evolved internationally. Clearly, this is beyond the scope of a one-volume project across transportation types; perhaps a next step would be focused studies on the varied international mappings of single transportation modes.

**More discussion of the evolution of these maps as a graphic form and a business:** Akerman’s study of road maps begins with a discussion of physical and graphic forms but turns to a discussion of maps as promotion. This leaves open further discussion on the sizable contemporary industry of non-promotional way finding in the form of for-sale road and street maps and atlases. Though I’m not sure there’s enough consistent graphic development to form a cohesive design narrative once road maps reached maturity in the 1950’s, there is certainly a story to be told in the dominance and then retreat of oil-company maps, the rise of for-sale mapping (much of it by the same “big three” mapmakers who dominated the oil-company era), and the shift to digital production and now digi-

tal presentation.

**Look at related modes of presentation:** It is curious that Baedeker is hardly, if at all, mentioned in a book on maps for travel. The focus in the volume is on stand-alone map forms for travel, rather than on maps in general for *travelers*, but a look at maps as elements of guidebooks, brochures, and public displays would, I suspect, offer a useful context for much of the discussion. Travel is, after all, as much about orientation and discovery at the stops along the way as it is about the point-to-point journey.

**Finding alternate ontologies to the history of cartography:** It is clear in much of the book’s material that other forms of communication were and are going on behind and between map communications, yet, with the articles usually focused on cartography alone, treating other types of communication as is invisible. Musich and Akerman each spend much of their respective articles looking at maps as parts of broader programs of promotion, and in Akerman’s case, the discussion includes route-blazing as part of the early development of the national road system and road mapping. Still, I wanted to know not just what maps were evolving out of, but where they fit *after* their maturity in a larger context of communication for way finding. How, in a more general sense, does the mode of explorative travel (movement into the unknown with the aid of native local knowledge) evolve into independent movement over a mapped landscape?

Smith’s article on itineraries provides a good model for this discussion, in that it is not about a kind of map, but about a general purpose (long-distance land navigation) and the forms of communication that were put to that purpose. She considers not just maps, but written itineraries, on-the-road local directions, and routes learned by traveling with an old hand. She quite naturally must do this because there are many parts of her narrative where there *was* no mapping involved in route-planning. The result is a very useful sense of how people knew where to go in early-modern Europe, especially Britain. In our modern world, where it is possible to obtain road maps of nearly anywhere, we are not forced to discuss non-map modes of communication. Yet, it may make the most sense in coming to terms with how we communicate about travel cartographically to look beyond the “power of maps” at the network of signage, written and oral directions, local experience and exploration, maps, and electronic location systems within which we all operate.

Without this book I don’t think I would have realized so clearly the limitations of a cartographic approach. If that sounds like faint praise, it is not meant to be. The book was an enjoyable read and very well written, and it truly does offer up a comprehensive look at the subject areas each article covers, especially

in terms of early developments of mature forms. My question is whether it makes sense to pursue this frame of reference further or to alter that frame as the work is carried further.

**Geocoding Health Data: The Use of Geographic Codes in Cancer Prevention and Control, Research, and Practice**

Edited by Gerard Rushton, Marc P. Armstrong, Josephine Gittler, Barry R. Greene, Claire E. Pavlik, Michele M. West, Dale L. Zimmerman  
Boca Raton, FL: CRC Press, 2008. vii, 248 pp, maps, figures, author index, subject index  
\$99.95. Hardcover  
ISBN 978-0-84938-419-6

*Reviewed by Russell S. Kirby  
University of South Florida*

Geographic information systems (GIS) have come into increasing use in health and social services research and practice. The process of geocoding to transform addresses into mappable information is an essential function, whether associated with health events or documentation of services. In this monograph, Gerard Rushton and his colleagues, most of whom have affiliations with the University of Iowa or state and federal agencies, provide a comprehensive overview of this process. In a series of thirteen chapters, theoretical and methodological considerations are discussed in detail, including analytical applications, methods for preserving privacy, and statistical approaches for analyzing geocoded health data. Each chapter begins with a structured outline, includes figures and tables to illustrate key concepts, and concludes with a series of references to materials cited in the text.

The book begins with a brief introduction in which the rationale for spatial analysis of health data and the purpose and structure of the monograph are explicated. Armstrong and Tiwari then provide a comprehensive and straightforward overview of the methods and materials used to geocode health records. In addition to defining key concepts, some commonly used geographic databases available for batch and interactive processing are described. The chapter concludes with a detailed discussion of the various types of geocoding errors that might occur and potential solutions to each type of problem. This chapter and Chapter 5 on "The Science and Art of Geocoding" are by themselves worth the price of the book to instructors teaching introductory geographical information systems (GIS) courses. The book also includes a chapter reviewing current geocoding practices in cancer registries. The

North American Association of Central Cancer Registries (NAACCR) has been exemplary in its development of data collection and management standards specifically for cancer registries but with broad applicability to all types of health data, and some of these efforts are highlighted together with references to key resources.

The uses and challenges in using data aggregated by zip codes are reviewed by Beyer, Schultz, and Rushton. This chapter focuses not only on challenges in obtaining appropriate demographic denominator data (especially zip codes in relation to Zip Code Tabulation Areas (ZCTAs)), but on choropleth vs. isopleth mapping and the use of post office locations compared to geometric and geographic centroids for analyses involving generation of spatial surfaces through interpolation.

Protecting privacy and confidentiality is a major concern for managers of potentially geocode-able health databases. "Reverse engineering" could potentially identify an individual or family and reveal personal health or demographic information from geocoded location data. Accordingly, the editors chose to include two chapters pertaining to this important subject. Methods for applying geographical masks are described and evaluated by Zimmerman, Armstrong, and Rushton in the first of these chapters, and this is followed by a chapter in which Chen, Rushton, and Smith describe the methodology involved in applying one of these methods.

The book also contains several chapters exploring disease mapping methods and spatial analysis techniques. These include chapters by Rushton and colleagues demonstrating the use of spatial filters to explore scale effects and patterns generated by individual records compared to spatially aggregated data, by Waller reviewing methods for spatial analysis of point location and areal count data, and by Zimmerman on methods for analysis of incompletely and incorrectly geocoded health data. Another chapter by Armstrong, Greene, and Rushton briefly reviews methods for estimating distances and measuring geographic accessibility.

The monograph concludes with an appendix listing citations to statutes and regulations governing the cancer registries in each U.S. state, followed by author and subject indexes. The text is well illustrated with figures, diagrams, maps, and screenshots from relevant software applications, and aerial photographs to illustrate common problems in geocoding, with tables included where appropriate.

The editors and authors are to be commended for covering almost all of the basic issues in geocoding health data and using the results for spatial epidemiology, public health, and health services research. However, this text consists of only 248 pages with a

few pages of introductory material, and some topics are given briefer treatment than might have been desired. For example, the chapter on generating spatial continuous disease maps is followed by a three-page appendix describing the DMAP IV software. This is useful, but alternative methods are not described, nor does the appendix include a URL for readers wishing to explore this approach with their own data. A section providing guidance on how to report the results of geocoding in reports and scientific publications based on geocoded health data would enhance the text. On balance, however, this monograph does an excellent job of describing and elaborating the significant issues and methods involved in geocoding health records and analyzing and presenting results based on these data.

Some may wonder what relevance this book holds for their own work, given its explicit focus on geocoding of cancer data. The answer lies in its formal title, *Geocoding Health Data*. This monograph is broadly applicable to all research involving health data, whether administrative (e.g., vital statistics, communicable diseases, disease registries, etc.) or clinical in nature. The methods, techniques, challenges, and solutions described apply equally to all public health and clinical data sources, and other social services data as well, for that matter. Given this broad applicability, GIS instructors and students will find this book a useful tool for teaching and reference purposes. *Geocoding Health Data* will prove to be an invaluable resource for all epidemiologists and medical geographers interested in unlocking the potential of their data sources for mapping and spatial analysis.

**Mapping Manifest Destiny: Chicago and the American West: Exhibition at the Newberry Library  
November 3, 2007 – February 16, 2008**

Curated by Michael P. Conzen and Diane Dillon

Published in 2007 by Newberry Library  
Chicago, Illinois

119 pages, with color reproductions of historic maps throughout

\$27.95 softcover

ISBN 978-0-911028-81-2

*Reviewed by Mary L. Johnson, Technical Writer, Remington & Vernick Engineers, Haddonfield, New Jersey  
[www.rve.com](http://www.rve.com)*

The Newberry Library in Chicago maintains a large collection of historical maps. As part of the annual Festival of Maps, one hundred of these maps were organized into an exhibition called *Mapping Manifest*

*Destiny: Chicago and the American West*, which was on display at the Newberry Library from November 2007 through February 2008. Michael P. Conzen and Diane Dillon were co-curators of the exhibition as well as co-authors of this, its companion book.

*Mapping Manifest Destiny: Chicago and the American West* reminds us that the centers of mapmaking in the United States were originally the larger East Coast cities such as Philadelphia, New York, and Boston. But as our nation expanded westward, so did map production. Chicago became the national leader in the mass production and marketing of many important maps following the Civil War and remained so through much of the twentieth century.

This book explores both public and private mapping sectors, reasoning that maps produced by public entities are generally created to advance the nation's interests overall, whereas maps produced by the private sector are more likely to assist with business or educational pursuits. The public sector is presented in the first two sections of the book, and the private sector is presented in the last two sections of the book. As map producer, the city of Chicago remains the common thread that binds public and private sectors together.

Section One, *Maps for Empire*, begins with the earliest mapping examples of the American West, which were created to encourage or document exploration. Maps were used to establish boundaries and lay claim to North American land by European powers during the fifteenth and sixteenth centuries in the same way they would later be used by Americans during the westward expansion.

*A Renaissance Sailor's View of the Americas* is the first map shown in Section One. This map was originally drawn in 1529 and demonstrates that "west" was a concept that evolved over time. The eastern seaboard of North America is mapped in striking detail, but the western expanse of land is left largely uncharted. The uncharted space is beautifully decorated with compass roses, trees, and animals, and almost begs to be further explored.

Two historic maps and a painting of a New Mexican pueblo provide a glimpse of the Native American influence on westward expansion. Native Americans were a vital source of geographic data for European explorers and settlers for many years. Unfortunately, much of this knowledge was ultimately used to subjugate the Native Americans, as further illustrated in Section Two.

Spanish, French, British, and Russian territories are also depicted. Unlike their west European counterparts, Russian explorers charted the North Pacific from west to east, and their interest in the land was driven more by fur trading than a desire for permanent colonies.

A series of small map details from 1688 through 1851 traces the growth of Chicago “from a mere spot on a map of a barely understood continent to a city with its own identity and sense of purpose.” Chicago served as a major transportation hub for water and rail networks during this timeframe, which ultimately led to its establishment as a center for the cartographic publishing industry.

Section Two, Mapping to Serve the New Nation, documents the various aspects of exploration and discovery that defined the American West:

To justify the government’s appropriation of Western lands, politicians and the press asserted that the extension of the United States across the continent fulfilled a divine mandate. In documenting the North American interior through to the Pacific coast, state-sponsored maps boldly visualized this idea of Manifest Destiny. Maps showing areas west of the nation’s official boundaries graphically emphasized the continuity between the states and territories, showing the two as parts of a larger whole.

Part of creating this larger whole involved the displacement of Native Americans from their ancestral homelands: first, to lands west of the Mississippi, and ultimately to isolated, ever-shrinking reservations. The Nez Percé War of 1877 resulted when white settlers flooded into Oregon and the Pacific Northwest and struggled for rights to the land. Treaties were made and broken as gold was discovered on Native American land, and four white ranchers were ultimately killed as a symbol of discontent. As a result of these killings, the Nez Percé began a 1,300-mile retreat toward the non-treaty lands of Canada, with 500 soldiers in fierce pursuit. A map charts this poignant journey, which finally ended only forty miles south of the Canadian border when Chief Joseph surrendered with his now-famous words, “I will fight no more forever.”

Chicago continued to grow during this tumultuous period, and this growth was documented on maps. The city’s legal boundaries first appeared on a map in 1830, and detailed surveys of Chicago’s harbor, undertaken to facilitate improvements to navigation, were completed in 1858. The United States Geological Survey prepared a quadrangle map of Chicago in 1902 that highlights its growth from a small riverfront settlement in the early 1800s to a thriving city encompassing 190 square miles.

Section Three, Mapping for Enlightenment, is the first of two sections comprised of private sector maps. Even those who were not able to move westward during the nineteenth century were often curious about what the region was like. Maps and atlases alternately depicted the American West as a land of barbarian natives or a land rich in promise. Schools used maps to teach students the geography of the West. Other maps were used to entice or guide settlers looking for a new

life on the frontier.

One of my favorite maps in this section seems a precursor to today’s unfavorable sentiments toward oil companies. *Map Showing How the People’s Land has Been Squandered Upon Corporations* demonstrates a similar distrust and resentment of railroad corporations in the late nineteenth century. The cartographer attempts to demonstrate that the United States government has provided millions of acres of prime land to railroad companies, in addition to federal grants to underwrite the construction of railroad lines connecting East and West. The railroads are accused of selecting the easiest routes across lands that could be better employed in farming, rather than taking mountainous or otherwise less favorable terrain to achieve the same goals. Worse yet, the railroads are accused of failing to construct the tracks they had taken the land and money for in the first place, and it was speculated that the railroads were secretly planning to sell their prime acreage to farmers at a price far greater than the Homestead Act would have allowed.

Chicago produced some beautiful atlases during the nineteenth century that featured detailed landscape engravings as well as maps. Subscribers to these atlases could pay to have their own portraits, biographies, homes, farms, and businesses included in the appropriate county volume. Color lithographs were also included in some of the most ambitious publications. Profits on these atlases soared.

Section Four, Maps for Business, explores the use of maps to enhance business interests, as well as the development of cartography as a major industry in Chicago.

The proliferation of railroads following the Civil War played a major role in the development of the American West. Railroad companies used maps to promote the areas they served and to chart the new lines that would further increase their assets. Chicago was right in the center of this activity in every sense of the word, serving as a railway hub between East and West as well as the leading publisher of railroad cartography by 1875.

Real estate, both belonging to and made accessible by railroads, was another important source of cartographic revenue. The railroads generally owned the land extending twenty miles on either side of the tracks for the entire length of the line. They parceled it out to settlers through company-owned land departments and kept track of their holdings and divestitures through detailed real estate maps.

Part of the great influx of settlers to the American West involved the discovery of gold and silver. Maps guided prospective miners to mineral deposits, marked claims, and even showed rudimentary layouts of mining shafts and tunnels. Railroads also used maps during this period to encourage miners to buy

tickets on specific rail lines. Some railroad maps were even purposely manipulated to make the routes to the mineral fields look shorter or closer in proximity than they actually were in order to gain passengers.

Railroads also made tourism possible on a much grander scale than previously imagined. Yellowstone National Park was presented to the public in an imaginative 1884 mapping brochure called *Alice's Adventures in New Wonderland*, which shows the Lewis Carroll heroine enjoying the park's natural splendor. Another tourist publication of the period compared the Colorado Rockies with the Swiss Alps.

The final entry in *Mapping Manifest Destiny: Chicago and the American West* describes the establishment and rise of Rand McNally, a name now synonymous with private sector mapping products. William H. Rand and Andrew McNally came to Chicago in the 1850s. They began as printers and stationers before moving into map publishing in the 1870s. They devised a unique system of mass production and a signature cartographic style that met a wide variety of consumer needs. Their maps were low in cost, simple in scope and carefully targeted to specific business audiences.

I found *Mapping Manifest Destiny: Chicago and the American West* an absolute delight to read. Each of the four main sections of the book is further broken down into related categories, and each category includes several illustrative maps. The chronological approach to each section, as well as to the book overall, provided a natural flow that thoroughly enhanced my enjoyment of its contents. The maps and compendium are skillfully arranged with minimal sequential overlap so that the reader is never compelled to go back and forth between sections in order to compare public and private sector approaches or subject matter within the same time period. The quality of the map reproductions is excellent throughout, as is the overall design and layout of each page, category, and section through the dispersion of color. It is simultaneously an informative and eye-pleasing book.

I would highly recommend this book to anyone with an interest in cartography, railroads, Chicago, the American West, history, or exploration. My favorite aspect of the book is that it presents the American West not as the legendary home of cowboys, Indians, gunfighters, and outlaws that we've seen romanticized in the movies and television series of the past few decades, but as it really was, through the eyes and art of the cartographers who actually experienced it firsthand. *Mapping Manifest Destiny: Chicago and the American West* takes the reader on an enlightening journey through time and place, with ample stopovers along the way for discovery, reflection, or simply enjoying the scenery.

### **Our Dumb World: The Onion's Atlas of The Planet Earth**

Scott Dickers, editor-in-chief.

New York City, Little, Brown and Co., 2007.

245 pp., maps with fictitious sites, graphs with incorrect statistics, and altered photos.

\$27.99. Hardbound

ISBN-10: 0316018422

*Review by Daniel G. Cole*

*Smithsonian Institution, Washington, DC*

I must preface this review with the admission that I have often felt that most cartographers, including myself, take our work far too seriously. This volume puts that notion to rest, starting with the cover where the reader is informed of the dubious enticements to be found within: 1) fewer clouds on maps; 2) better-veiled xenophobia; 3) curvier latitude lines; 4) Bono-awareness rating for each nation; 5) long-standing border disputes resolved; 6) collectible flexi-disc with "The Smooth Sounds of Cartography"; 7) 30% more Asia; and 8) a free globe inside.

With that to greet the reader, we discover, upon opening the atlas, that no credit is given to anyone claiming to be a cartographer or even a mapmaker. The staff compiling this volume includes editors, designers, writers, photographers, and graphic artists. This group of wise guys has put together a book that tries to make fun of every state, country, race, ethnic group, national leader, cultural practice, sex, religion, activist group, animal, and landform. They have also designed the maps to help the reader misunderstand our world by playing on stereotypes and warping any facts to suit their sense of humor.

That aside, the first six pages cover topics often seen at the beginning of "normal" atlases: an introduction, a section on "How To Use This Atlas," and a brief section on the principles and history of cartography. The introduction includes what appears to be an antique map allegedly produced in 1621 and titled "Il Nostro Mondo Stupido," reputedly still in use by the Bush administration. The how-to section does its best to insult the reader's intelligence while advising that the atlas should be put back on the bookstore's bookshelf. Included in this section is the sage advice to use scissors on the atlas pages to resolve border disputes. The cartography section then informs the reader how boring our discipline is while providing an eclectic sample of thematic world maps, including distribution of wealth and Bono-awareness, the results of the Davidson family Risk night, a map to Erica's party, and continental drift. This last topic humorously depicts the rest of the world drifting away from the U.S. by 2015, which counters the similar image distributed by the AAG with the message, "We are not alone."

The body of the atlas is divided into continental sections, plus the Middle East. Strangely, the poles and Greenland are also treated separately but not noted in the table of contents. Related to this oversight, the country index at the back of the book lists the North and South poles with all of the countries, but fails to list Antarctica. Each section starts with a view from space of a "cloudless" satellite composite of the featured continent. Every country is presented with a map filled with points of satirical silliness, a flag accompanied by an off-the-wall comment, altered photos of people and places, and Facts and History sections filled with enough politically incorrect pseudo-facts to keep the reader confused. Before continuing, I must note that the number of four-letter words and sexual graphics used in this atlas will offend some people, and its humor is certainly not appropriate for young children.

As can be expected with a book published in the United States, the North America section is divided into regions of the U.S., followed by the other North American countries. Our country is described as "the land of opportunism at any cost—even life and liberty," and "In America, any millionaire can, through hard work and determination, exploit others to become a billionaire" (9). The American history time-line includes comments such as "[in] 1951, hysteria over communism spreads across nation. President Truman outlaws sharing", and then in "1967, The 'Summer of Love' is followed by the 'Autumn of Chlamydia'" (12).

Most of the maps that appear here and elsewhere in the book appear to be reproductions of isometric elevation maps with greens for lowlands through buffs to grayish-white for high altitudes, but no legends are indicative of that gradient. On closer inspection, the color gradients are not consistent between maps; for example, countries in the Saharan region all have only yellow and buff gradients. Regarding the legends, those that have map keys provide absurd categories, for instance, a seven-class map key for the U.S. is concerned with television viewing. The projections and scales used in this atlas are all unidentified and can only be guessed since no graticules are used, much less ones displaying "curvier latitude lines."

The northeastern region features New York, a state that's clearly an afterthought to New York City since Albany is "constantly nervous that [its] capital status will be revoked" (13). The South includes a variety of references to racism, country hicks, cigarettes, booze, and a reminder not to confuse the state of Georgia with the country of the same name. The Midwest, a.k.a. "America's Pit Stop," exists for folks on their way to and from places. The West region spotlights such states as Nevada, where everyone is a loser; Colorado, where altitude sickness prevails; and Montana, which serves as a national Wildman refuge. The Pacific

Coast states prevented America from expanding farther, while the extra states of Alaska, Hawaii, and Minnesota seem to exist to be exploited, viewed from a hotel room, and for no particular reason, respectively.

Other countries are treated equally well. Within Canada is identified the location in Quebec where a "French Canadian is ignoring a woman screaming for help in English" (24). Two important places to visit/avoid in Mexico include the strategic guacamole reserve in the south and a huge diarrhea slick off the west coast. As a banana republic, Guatemala's map key is divided into Dole, Del Monte, and Chiquita regions. Jamaica's tourist spots feature a national monument to the roach clip along with an archeological site where prehistoric traces of THC can be found.

South America presents such countries as Argentina, which boasts no fewer than six sites associated with elderly Nazis. The archipelago in southern Chile has an island-making factory. Venezuela's map key is coded to five different types of coup, while Peru has a mountain named after former president Fujimori where \$57,483,221 was embezzled. Suriname, we are told, is a country not worth bothering with.

African countries are treated to up-beat comments on colonialism, wars, racial and ethnic violence, corruption, AIDS, poverty, and starvation. These topics don't always work as subjects of humor. Nonetheless, the reader is presented with countries like Madagascar, a country supposedly ruled by lemurs, and Equatorial Guinea, which has to compete with Ecuador for equatorial tourism. Toponyms are addressed with the historical citation that "[In] 1964, Zanzibar joins Tanganyika to form the United Republic of Tanzania, a name created by a team of Madison Avenue advertising consultants to capture both the 'jungle exotica' and 'spicy zing' of the region" (77). This is contrasted with the Central African Republic, a nation so generically named to avoid the expense of branding.

The Middle East brings the reader such countries as Saudi Arabia, where "All Is Forbidden" (117); Yemen, which conducts terrorism's grunt work; United Arab Emirates, literally mapped so that its covered in gold; Iraq, which has been going downhill since ancient Mesopotamia; and Israel, "The Empty Promised Land" (129) with a map key indicating nothing but sacred sites. The bright spot of this region is Jordan, if only because its people are lucky enough to be ruled by the beautiful, charming, and awesome Queen Rania. Given that the Middle East is rarely geographically defined the same in any two atlases, Turkey plans to get "Totally Out of This Atlas Section as Soon as The EU Accepts Them" (133).

The Europe section, composed of countries large and small, has plenty of facts, anecdotes, and made-up information to keep the reader entertained for hours. For instance, Wales is noted as "the birthplace of the

Welsh language – the oldest, longest, and least-pronounceable language in the world” (139); Andorra is known as “The outlet mall of Europe” (147); Germany has “People you can set your watch to” (156); and Ukraine is identified as “The Bridebasket of Europe” (181). Subregions within the European countries include the Argyle Region of Scotland, a Rouge Light District of France, a Deneutralized Zone of Switzerland, and an Avant-Garde Region in the Czech Republic.

Asia contains such outsourcing powerhouses as China and India. China’s noted sites encompass locations where “employees [are] working 146 hour shift[s],” and a “city [is] reducing environmental problems by eliminating [the] environment” (190). Speaking of China, Tibet is dealt with separately in this volume, which will probably cause an official Chinese boycott of the atlas, thus increasing sales. In India, “Seeking answers to life’s most difficult questions, Westerners pray to Khandarohi, the Hindu God of Tech Support” (199). The nearby country of Myanmar’s borders are surrounded by countries looking the other way or pretending not to notice any human rights violations. Other countries in Asia are treated with disdain, i.e., Afghanistan as “Allah’s Cat Box” (203) and Cambodia, “Where the Streets are Paved with Skulls” (218).

The last few pages of the atlas cover what’s left of the planet, outside of the oceans. Oceania is depicted as essentially Australia, New Zealand, and just a bunch of other islands. Another reason that this book is not advisable for young children is that the authors ruin things for kids by pointing out that Santa is not at the North Pole. A map of the South Pole makes fun of the bogus claims by various countries over its territory. The book ends with a cartographic joke about Greenland as “The Largest Land Mass on Earth” (239). I suppose someone had to eventually poke fun at our profession regarding the old carto-controversy/conspiracy surrounding the Mercator projection.

Final criticisms include: Five countries are condemned to maps that fall across the crease of the book: US, Mexico, Saudi Arabia, Italy, and Russia. Projections and scales are obviously variable but unknown. Allegedly, some countries may have paid the atlas producers to make them look bigger than their neighbors. Granted, some of the humor is adolescent, the language and graphics are often rougher than many readers would like, and the topics for some countries tend to be somewhat one-dimensional; but, overall, the atlas succeeds in making a hilarious presentation of our planet, forcing us to laugh at ourselves.

## Cartographic Collections

### M&GIC: The Map & Geospatial Information Collection of Cornell University Library

**Robert Kibbee**

*Map and Geospatial Information Librarian  
Map and Geospatial Information Collection,  
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#### A Brief History

Cornell's first map librarian, Barbara Berthelsen, was hired in 1949, with her duties split between reference and map librarianship. Prior to that the duties we now associate with the map librarian were assigned to library staff on an *ad hoc* basis. The collection was small and consisted mostly of donated maps or maps contained in professorial book collections, most notably the maps from the library of Andrew Dickson White, Cornell's first president. There was one noteworthy map purchase: The Jared Sparks Map Collection was purchased in 1872, although this acquisition, too, was a part of the larger purchase of the Sparks library. The Sparks maps are manuscript maps from the Revolutionary War period and include maps by Capitaine du Chesnoy, Lafayette's aide, and one sketch of fortifications by George Washington.<sup>1</sup> A noteworthy early donation was that of Charles W. Wason, a Cornell alumnus and businessman, whose 9,000-item book collection formed the basis of Cornell's East Asia collection and contained many maps of China and Japan from the turn of the century and earlier.

Cornell seems from the beginning to have participated in whatever government depository programs were available, so there is now a strong collection of US topographic maps and survey maps. The influx of maps from the Army Map Service after WWII provided the impetus for establishing a separate map collection at Cornell and hiring Berthelsen. When the map collection was moved from the old University Library, where crowded conditions had made it almost unusable, to its present home in John M. Olin Library in 1962, it was contained in 169 five-drawer cases. Depository collections continued to be the main agent of growth right up to the present. There were some interesting donations. One, for example, was from Arthur J. McNair, a professor of civil engineering, who consulted for Amtrak in the late 1960s. He donated a unique set of 750 "valuation" or "track and right

of way" maps of the Northeast Rail Corridor, most at a scale of 1:1200. Another noteworthy donor was Professor John M. Echols, for whom the Southeast Asia collection is named.

Berthelsen retired in 1991 after 42 years of service. Her imprint is on every aspect of the collection. She was followed by Susan Greaves, from Dalhousie University in Halifax, Nova Scotia. Susan presided over a major redesign and expansion of the collection space, reorganized many of the acquisitions procedures, and moved the responsibility for cataloging into Library Technical Services. The result has been a much more accessible collection both intellectually and physically. Greaves also brought the collection into the digital age, developing its initial Web presence and serving digital mapping data from the Map Collection's home page. In 2005 Greaves moved to Queens University in Kingston, Ontario, in her native Canada.

A history of the collection would be incomplete without mentioning the contribution of Professor John W. Reps, now emeritus professor of city and regional planning, and author of *The Making of Urban America: A History of City Planning in the United States* and *Bird's Eye Views: Historic Lithographs of North American Cities*, among other books. Professor Reps has been an ardent supporter of the collection since his arrival as an assistant professor at Cornell in 1952. He has made or organized many donations of cartographic material to the collection and to Rare Books and Manuscripts. As the founder of Historic Urban Plans, Professor Reps published over 500 facsimiles of urban plans, maps, and views, which have filled critical gaps for many map libraries here and abroad.

The collection thus has benefited from exceptional continuity in both leadership and location during a time when map collections have gone through astounding changes in every aspect of acquisition, technical processing, services, and maintenance.

#### Cartographic Resources on Campus

The collection in Map & Geospatial Information Collection (M&GIC) consists of 280,000 to 300,000 map sheets filed in drawers, several thousand atlases, a small collection of globes, and a growing collection of digital mapping. Cartographic reference materials are housed in the Map Room. Two computers running current versions of ArcGIS are available in the Map Room, and more are available in the computer laboratories on campus and at Mann Library.

M&GIC doesn't have a monopoly on cartographic resources. The Division of Rare and Manuscript Collections has a number of important holdings in addition to the Sparks maps already mentioned, for example, a 1492 *Cosmographia* and some volumes of the Blaeu *Atlas Maior*. Many rare maps have not yet been entered in the online catalog. Similarly, the University Archives have important local manuscript maps and campus maps, but, as with rare materials, intellectual access to the archival collections can be difficult and depends on the depth of the collection level description. A substantial number of area atlases are held in the Kroch Library Asia Collection stacks and reading room. The Department of Geology maintained a separate, uncataloged map collection until 2002. Their maps were transferred to M&GIC and are still being incorporated into the collection.

There are several large microform sets including the Library of Congress's *Land Ownership Atlases* and *Ward Maps*, but also more unusual holdings such as *Karte des Deutschen Reiches* from pre-WWII Germany in 4100 fiche and a half dozen reels of early and otherwise inaccessible Vietnamese maps from 1400-1900. Many thematic atlases, such as historical or linguistic atlases, are kept in the open stacks or in reference collections.

Mann Library, the library for agriculture and life sciences, has retained a small collection of reference maps and some atlases. Most of their collection was transferred to M&GIC in the early 1980s. Mann Librarians and staff, however, provide important support for GIS and digital mapping at Cornell. This support includes maintaining CUGIR, The Cornell University Geospatial Information Repository at <http://cugir.mannlib.cornell.edu/>, GIS workshops, and research consultations.

Some maps, such as the McNair donation noted above, are housed off-site at the Library Annex, and more transfers from the working collection on campus to the Annex are being planned.

### Intellectual Access

Cornell is fortunate to have catalog access to most of its cartographic resources. The online catalog provides a single point of intellectual access to the materials housed in the many different locations we have noted, and the library is committed to increasing intellectual access to all its materials. For example, a very skilled batch record loading unit in Library Technical Services is adding analyzed records to the USGS Geologic Series as the maps themselves are moved to offsite storage. This unit also loaded the David Rumsey Historical Map Collection item records into the online catalog, thereby extending the reach of Cornell's map collection across the Internet. One powerful result is that records for individually analyzed maps from historic

atlases in the Rumsey Collection are now returned by searching that geography in the catalog. For example, a keyword search for "Tompkins County" and "maps" will return, among map records, the record for the Rumsey Collection map of Tompkins County from the Burr Atlas of 1829, with a link to the image itself.

Another approach to access is an experimental geographic interface to the map collection at <http://128.253.77.249/>. The interface is admittedly sub-beta. The system as designed requires manual record enhancement, which has slowed progress, but the approach shows potential. It was designed using the Google Maps API (in a very early instance) and Manifold by students in a graduate-level computer science class.

### Collection Development

Geography departments are often the driving force for collection building in academic map libraries, but Cornell has never had a geography department. Perhaps because of this the collection has become quite eclectic. There is the solid base of depository mapping, which has been augmented over the years by explicit efforts to develop a core collection. Beyond that, map collecting strategies have been devised on the fly to respond to the instructional and research needs of the university, the motto of which is its founder's hope that "I would found an institution where any person can find instruction in any study" (Ezra Cornell, 1868).

The collection is used most heavily by the architecture, city and regional planning, and landscape architecture students and faculty, followed closely by historians and researchers working in area studies, such as East Asia studies, Southeast Asia studies and European studies. The map librarian works closely with the bibliographers and selectors in these areas to ensure research needs are being met.

The collection is also used by the general Cornell community and researchers from Ithaca and Tompkins County. The availability of some subscription-based online resources such as the *Digital Sanborn Fire Insurance Maps*, the *Readex U.S. Congressional Serial Set* and *AncestryLibrary.com*, which now provides access to scans of the Library of Congress's microfiche set of landownership atlases, brings a steady stream of visitors from off campus.

In addition to the depository program and donations, M&GIC has an allocated budget and a small income from endowments for purchasing materials. The added expense of digital mapping is now a stress on those allocated funds. However, additional funds have been made available for large purchases, for example, a recent purchase of Thai maps and digital data, and, earlier, GfK Macon's *Digital Maps for GIS* coverage for Europe.

The challenge for continued growth of the collection is to increase the funds available from endowments. Cornell is just embarking on a massive fundraising campaign, and, while the library is an important part of that effort, direct help for the Map Collection is well down on the list of library priorities. Finding a way to engage with prospective donors is critical. The first step in engagement is to develop a public relations program that educates the library community and the academic community about the map collection resources and services but also goes beyond that to reach potential donors.

### Public Relations

One strategy for increasing M&GIC's visibility both within the library and to the university community has been a series of exhibits in display cases outside the Map Room in a fairly high traffic area. Several map exhibits have focused on the Cornell New Student Reading Project, in which all incoming Cornell students are required to read a book chosen by the Provost. Each year a new book is chosen. Some notable examples have been *Things Fall Apart* by Chinua Achebe, *Kafka's The Trial* (we didn't attempt that one), *Fitzgerald's The Great Gatsby*, and most recently, *The Pickup* by Nadine Gordimer and *Lincoln at Gettysburg* by Garry Wills. The project is an event for the entire community. In that spirit we duplicated our map exhibit for *The Pickup* in the Tompkins County Public Library.<sup>2</sup>

Other displays have been coordinated with major exhibits given by the Division of Rare and Manuscript Collections. Its most recent, *Lafayette in Two Worlds*, provided a perfect opportunity. We chose maps illustrating Lafayette's triumphal tour of the United States in 1824-25, and this exhibit was very successful. Our most recent collaboration was on Wine and Grapes. (Cornell has an extensive archive of wine-related materials). Our exhibit was called "Cartobibulosity" and seems to have been a great hit. An exhibit on Darwin is in the planning stages.

Far and away our most successful exhibit has been a display by an art class of "Maps to Get Lost By." This assignment resulted in a dozen or so maps featuring various strategies of misdirection. The maps were featured both in the print version of the *Cornell Chronicle* and the *Cornell Chronicle Online*<sup>3</sup> and piqued alumni interest.

The unmet challenge has been to transform the physical exhibits to online exhibits. The time, energy, and expertise required to bring an exhibit online has proved elusive but is clearly critical to engaging a larger public.

Our very active Library Communications Department has been instrumental to the success of our

public relations effort. They have insured that exhibits get on university events calendars and in the student newspaper, the *Cornell Daily Sun*, and have worked on placing images from the exhibits in as many campus venues as possible.

### The Local Community

M&GIC is fortunate to be situated in an area where the local government departments have impressive cartographic knowledge and GIS skills. The City of Ithaca and Tompkins County partner to produce an excellent Web site, Tompkins County GIS at <http://www.co.tompkins.ny.us/gis/>. GIS users and experts from Cornell join with the local government experts to stage annual GIS Day events. The two groups have also formed a GIS interest group, SynerGIS, which has been a very effective for networking. Ithaca and Tompkins County are frequent areas of study for Cornell students, so M&GIC attempts to collect as much local cartography as possible while the students still besiege the City Clerk for more.

### Administrative Context

The library doesn't have a standalone government documents department of the sort that forms an umbrella administrative grouping for many academic map collections. M&GIC for the past several years has been a department within the Preservation, Conservation and Maintenance (PCM) Division, which would seem at first glance an odd pairing.

Working within PCM, however, has proved beneficial. The division head provided strong support and brought a lot of ingenuity to bear on problems of staffing, space, and resource allocation. She also included the map collection in several successful conservation grants. Immediate access to conservation expertise guaranteed the ongoing physical health of the collection. The conservators have worked with M&GIC staff to develop exhibition guidelines and have provided much-appreciated help in actually mounting the exhibits.

A very recent reorganization returns the collection to public services on the rationale that there is a large public services component to the map collection. We're looking forward to the synergies this reorganization will develop.

### Staffing

M&GIC has been staffed by one full-time map librarian, one half-time map assistant and two map assistants who come in for two hours a day. This configuration will change in the reorganization. The "paraprofessional" staff is the backbone of the department. The

half-time assistant does most of the technical processing—checking in maps or creating preliminary records for the catalogers. He also fields many of the reference questions. One assistant comes from the conservation laboratory and provides help in maintaining the collection, along with many other duties. For example, she just completed a multiyear project to re-fold the entire USGS topo quad collection—over 1,100 folders.

The other part-time assistant is the head of Media Services, which is contiguous to the Map Room. He has helped organize shifts of large parts of collection and is currently working on a project to move 10,000 USGS maps stored in vertical files to an offsite storage facility. He also populates our experimental interface with data. Having even part-time staff available for projects and to cover reference duties has had a positive impact on service and has given the map librarian a great deal of flexibility in scheduling classes, tours, and research consultations.

Cataloging of maps is done by Library Technical Services. Four catalogers do map cataloging on a quota basis as a part of their other cataloging responsibilities. Currently they create about forty original records a month. The collection is almost completely cataloged, although backlogs remain, particularly records for the Geology Department maps.

Three talented student assistants work 10-12 hours a week, helping with general housekeeping, ongoing projects, and reference work. The nature of student assistantship is evolving, and we increasingly depend on them for GIS help, map design, and scanning/plotting of maps.

### **The Physical Space**

The collection is in a single room of about 4700 square feet, located on the lower level of Olin Library, the central library building. The space in one large room has allowed us to stack cases four high (20 drawers total) around the periphery—these are mostly the USGS Topo Quads—and keep the cases in the center of the room two high. That gives us a lot of consulting space, even though all available space seems to be covered by mid-semester. The space is adequate, but there is a challenge in balancing onsite and off-site storage, particularly with easy online access to USGS and NOAA products. As an increasingly large percentage of the collection moves to off-site storage in the near to mid future, we will need to solve the attendant problems of discovery and retrieval.

The collection is open from 9:00-5:00 on weekdays and 1:00-5:00 on Saturdays. Maps do not circulate, nor do atlases and books in the map collection. There are photocopy services available nearby, and patrons are allowed to take materials there for copying. The

Photocopy Center is able to scan/photocopy material 36" wide in black and white. Two 14"x 21" color scanners are available in the Map Room itself, along with a small black-and-white photocopier. Since these are the only large-format scanners available at this end of an extended campus, they are heavily used by students and faculty scanning non-cartographic materials. The map librarian, on a case-by-case basis, offers very large format color scanning on a case-by-case basis by in a nearby facility. Forty-two inch color plotters have been available at the somewhat distant Mann Library and in the Architecture Department's Computer Lab a short walk away. M&GIC has just acquired a plotter of its own, and negotiations have begun on acquiring a 54" color scanner. Establishing the appropriate level of scanning and plotting equipment in the Map Room itself in this environment has proved challenging, and acquiring it even more so. It would be fair to say that we have not yet arrived at the optimal mix of service and technology.

### **Reference and Instruction Services**

The entire staff provides in-person reference service, with referrals to the map librarian encouraged at any sign of difficulty. The map librarian also provides phone and e-mail reference service. The challenge in reference is to provide a reasonably consistent service when our service providers spend only a limited amount of time in the collection itself and have many other duties while here. This leaves them with little time for learning such a diverse collection, not to mention online resources and digital mapping. We meet this challenge with ongoing training and by encouraging everyone to share answers and experience.

Another parallel approach is to encourage self-help by developing more information tools for patrons seeking cartographic information. The increase in resources online makes this absolutely essential. Tools range from instruction sessions for academic classes to efforts such as the geographic interface mentioned above. The Web page, <http://www.library.cornell.edu/olinuris/ref/maps/map.htm>, acts as a portal to cartographic information, with some local emphasis. More could also be done online in the way of guides to specific products or categories of material. The material that has been developed is being integrated into a library-wide guide delivery system, which is hoped to expose more researchers to the possibilities of using cartographic material.

### **Putting the Collection Online**

The single biggest challenge facing M&GIC right now is how to deliver more of its resources online. The difficulties are physical, administrative, logistical, and

conceptual Serious planning for this effort has just begun, helped by the articles that have appeared here in *Cartographic Perspectives* and other journals and in discussion lists and conference papers. In the meantime, while we plan, whenever we scan a map for any purpose, we add it to our collection of scanned images for some future online access.

### Networks

M&GIC is an active, dynamic collection that supports a wide range of academic research needs. It continues a long tradition of stewardship and service. There are challenges, but if there is a single thread running through this description it's that by building networks to a wide range of communities an academic map collection can meet those challenges successfully. The building of networks is never done, of course. Map librarians can't help but feel the ground is constantly

shifting under them and that they live in a time of abrupt and occasionally frightening transition, but in reviewing the history of the collection for this article it became clear that M&GIC has been in transition for sixty years and stands at the present in good shape and ready for sixty more.

<sup>1</sup>Berthelsen, Barbara, "The Sparks Map Collection," *Special Libraries*, vol. 69, no. 4, April, 1978. p164-68.

<sup>2</sup>Kibbee, Robert J., "Meandering Maps: Getting Lost in Paper Worlds", *Cornell Chronicle Online*, Feb 1, 2007. [http://www.news.cornell.edu/stories/Feb07/maps\\_exhibit.html](http://www.news.cornell.edu/stories/Feb07/maps_exhibit.html)

<sup>3</sup>"Let us go to another country: An exhibit of maps related to *The Pickup* by Nadine Gordimer" Tompkins County Public Library Website, Sept. 12, 2007. <http://www.tcpl.org/pickup/maps.html>

## Mapping: Methods & Tips

### Historical Mapping Using Google Earth

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#### Introduction

Maps capture information about land, culture, politics, and people that often cannot be found in other sources. Once printed, the information gains a historical significance, as it records geographical information of a specific place at a specific time. Historical maps provide essential information for scholars studying political, physical, and land use changes over time. Much of the information learned about the past will also influence studies, findings, and changes for the future. Analyzing change requires accurate comparisons of maps, a challenge when working with the static confines of print. More and more researchers are turning to geographical information system (GIS) technology to digitize maps for computational analysis, georeferencing tools, 3-D modeling, and to combine the maps with other spatial data sources.

Historical mapping within a GIS has been used to explain past and present phenomena, to predict changes as well as to make changes to our landscape. Scholars have studied historical maps and documents with the aid of GIS technology, gaining information on tree invasion (Mast, Veblen, and Hodgson 1997), property identification (Leppin et al. 2000), agricultural land use (Domaas 2007), railroad networks (Siebert 2004), accuracy of historical maps (Pearson 2005), and much more. Using historical maps within a GIS to trace land use practices can be an effective and efficient method of analyzing and visualizing historical land use patterns.

Historical GIS, although not a new field, is certainly becoming very popular and attracting individuals who are not geography, history, or GIS professionals. With access to historical maps and GIS software on the Internet, historical mapping is intriguing both the young and old and, with such ease of access, is interesting them in their local and world history. Whether their interest is in military mapping, historical demograph-

ics, distribution of diseases, or genealogy, the tools are available for them to access.

#### Historical GIS Online

There are many historical databases and interactive mapping sites available on the Internet. The National Historical Geographic Information System (NHGIS) is an example of a data provider as well as an online map viewer that provides aggregate census data and boundary files for the U.S. between 1790 and 2000. Users may download the data to use with their own GIS software programs, or they may use the Social Explorer, an interactive mapping program that allows users to visualize demographic data in map form. Another popular example is Great Britain Historical Geographical Information System, a GIS collection of information about Britain's localities as they have changed over time. The source of information is from census reports, historical gazetteers, travellers' tales, and historical maps (GBHGIS 2008). Users can map population, mortality rate, housing, industry, and more for the period 1801-2001.

There are many more examples of historical GIS projects on the Internet. Lancaster University hosts an excellent collection of historical GIS project links collected by Ian Gregory and Paul Ell. See the Historical GIS Research Network at <http://www.hgis.org.uk/resources.htm>.

In the last few years, there has been a tremendous increase of map services and free geographic viewers. These developments have increased usability and accessibility, especially because most Internet users do not have the GIS expertise required to work with historical datasets off-line. Mapping historical data has become a less technologically imposing process thanks, in part, to Google Earth. For instance, Google Earth has included David Rumsey's collection of over 120 historical maps in its program (Rumsey 2008). Many organizations, in lieu of creating their own viewers, are offering Google-Earth-supported Keyhole Markup Language (KML) files for download. Users download the KML files from the Internet and view them in Google Earth, using it as their own customizable interactive mapping program. Examples of some of the KML files available for download will be discussed in the next sections.

## Historical Mapping in Google Earth

### David Rumsey Historical Map Collection

One of the more recent additions to Google Earth 4.3 is David Rumsey's Historical Map Collection. David Rumsey has a personal collection of over 150,000 historical maps, many available from his Web site, <http://www.davidrumsey.com/>. Google Earth has incorporated a sampling of over 120 of his maps, representing time periods between 1680 and 1930 and covering geographical locations across the world. All the map images available from Google Earth have been georeferenced to align them correctly to the earth's surface. Google Earth users can, therefore, view a modern image of an area on the globe and superimpose the historical map to go back in time for that exact geographical location. Users can trace differences in the landscape and see for themselves whether much change has occurred in the last 80 or 300 years.

To view David Rumsey's Collection, the user must have version 4.3 of Google Earth installed.

David Rumsey's Historical Maps can be viewed in Google Earth by turning on the "Rumsey Historical Maps" button under the Gallery layer. Zooming into the virtual globe will display several historical map symbols (see Figure 1), indicating map availability. Clicking on the symbol will display a thumbnail of the map, as well as a link to David Rumsey's Web page for a very detailed description and catalog record of the map. Clicking on the thumbnail image will overlay the image in Google Earth. The image layer becomes visible in the Temporary Places area. Any layer under this area can be saved as a KML file, enabling users to export the image and either view in Google Earth again at another time, or share with others. KML files are extremely convenient to pass on to others as they are relatively small in file size and consist of just one file. Sending a historical map as a KML file to another Google Earth user doesn't require the other user to turn on all of Rumsey's historical maps. Once the KML file is saved, it becomes like an external file and is not dependent on the custom features the user selects in Google Earth. The KML file can be opened in other software programs that support this file.

### Adding Historical Images into Google Earth

Google Earth enables users to add external images into the mapping program. Supported image file formats include BMP, DDS, GIF, JPG, PGM, PNG, PPM, TGA, and TIFF. Users can add their own personal maps or air photos, or those downloaded from a Web site. Many Web sites offer images of scanned historical maps and atlases. David Rumsey's collection is available from <http://www.davidrumsey.com/>. His

collection offers thousands more than what Google Earth has included as part of their collection. Another source is a large compilation of links provided by the University of Texas Perry-Castañeda Map Collection, available from [http://www.lib.utexas.edu/maps/map\\_sites/hist\\_sites.html](http://www.lib.utexas.edu/maps/map_sites/hist_sites.html). Both sources provide world coverage of historical maps. The U.S. Government's National Oceanic and Atmospheric Administration (NOAA) is yet another site that offers thousands of downloadable maps. The maps date from 1655 to 2001, and include a large number of Civil War battlefield maps. An online catalog is available, searchable by keyword, geography, type of map, or year of map. This site is available at [http://historicalcharts.noaa.gov/historicals/historical\\_zoom.asp](http://historicalcharts.noaa.gov/historicals/historical_zoom.asp).

The benefit of using Google Earth to view imagery is that it provides tools to georeference the image. Without tagging the image with geographical coordinates, users may not know what part of the world is shown on the map. The combination of historical maps and georeferencing technology brings traditional map interpretation to a higher level. With the tools available, a user can compare the past and the present with very close precision. When the image is georeferenced, the user can overlay the historical image neatly over a modern air photo or satellite image and use modern streets, also provided in Google Earth, to help navigate around the historical image.

### Adding an Image with Known Coordinates

Before adding an image into the program, the user should be zoomed into the approximate location of the geographical extent of the image. The image is added as an Image Overlay (from the drop down menu along the top - *Add -Image Overlay*). The user is given the option to type in the name of the image, and then the user must browse to the location of the image on the desktop. See Figure 2.

If the coordinates of the four corners of the image are known, perhaps taken from a topographic map, the coordinates need to be manually added in the *Image Overlay's* Location properties. The *Image Overlay* window is always accessible by right-clicking on the image layer from the "My Places" area on the left side of the program and selecting "properties."

If the coordinates have been assigned correctly, the historical map image will be properly georeferenced and will relatively accurately drape over Google Earth's satellite image. See Figures 3 and 4.

### Adding an Image Without Known Coordinates

Geographical coordinates are not easily accessible for many images downloaded from the Internet. For users who do not need precise ground location mapped into



Figure 1. The "Rumsey Historical Maps" button appearing in Google Earth.

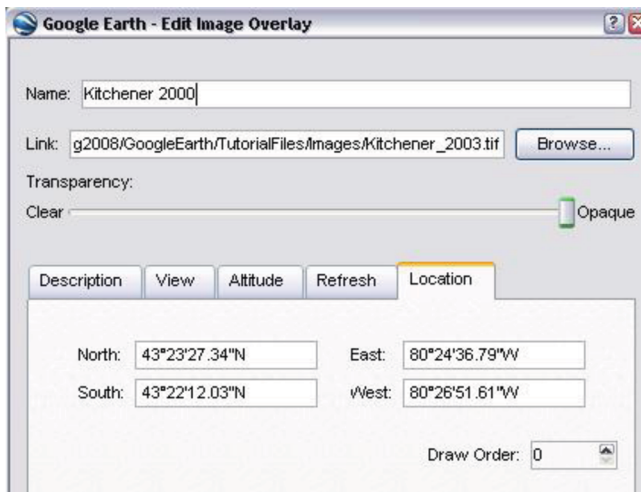


Figure 2. Google Earth's Image Overlay Interface.



Figure 3. In the foreground is a historical air photo that is superimposed over Google Earth's modern satellite imagery.

Google Earth, the image can be placed in its approximate location and then manually adjusted to match up with modern information, if necessary.

The image is added into Google Earth in the same way as described above, taking extra caution to zoom into the approximate location of the image before doing so. Instead of adding the coordinates, however, the user will adjust the image by extending or retracting it with the mouse. Whenever the Image Overlay property box is open, the image will have green markers surrounding it. See Figures 5 and 6.

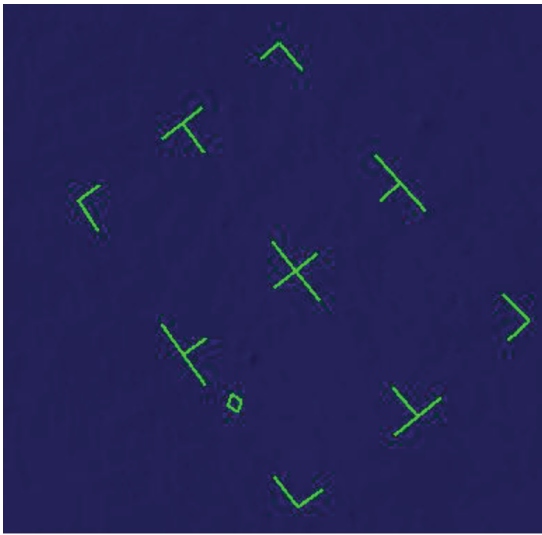


Figure 4. These are several historical images added into Google Earth. With one click, the user can remove the image, revealing landscape changes. The centre historical image had been removed.

The user may need to move the property box to the left to access the map view better. Clicking on the centre green cross will move the image entirely. Clicking on any of the edge markers will drag the image, and clicking on the diamond shape will rotate the image. The best way to georeference the historical image is to zoom into corners or road intersections and drag the corner green markers until they match up with the modern photo. The location of the image is being captured in geographical coordinates and can be saved for future use. Saving the image as a KML will prevent the user from having to adjust the image coordinates every time.

#### Adding Historical KML Files into Google Earth

What is easier than adding image files into Google Earth is adding images that are in KML format? KML files are already georeferenced and are extremely easy to work with. KML files are geospatial data formats, either raster or vector, that have been created or converted using a special program or tool. The David Rumsey example above described how a KML file can be created very quickly within the Temporary Places area of Google Earth. Some Desktop GIS programs will also offer conversion tools to create KML files from GIS vector files such as Shapefiles, or raster files such as TIFF or JPG. There are also conversion programs freely accessible on the Internet that will make conversions. This will be discussed in the next sections.



Figures 5 and 6. The location of the photo can easily be adjusted using the image location tool.

### Accessing KML Files from the Internet

Offering the public historical images in KML format is becoming a popular trend. Libraries, personal bloggers, government sources, and institutions compile collections of historical map KML files and offer them to the public for free download. A visit to the Google Earth Library blog, for example, at (<http://www.gelib.com/>), will provide one with access to historical topographic maps and aerial photography. See Figures 7 and 8. Some of the KML files available for download include a collection of over two thousand historical USGS Topographic maps, some dating back to the late 1800s, a handful of state-specific thematic maps, as well as historical air photos including coverage for Manhattan, New York, and California. Another Web site offering historical aerial photography in KML format is the University of Waterloo Map Library's Historical Air Photos Digitization Project, available at <http://www.lib.uwaterloo.ca/locations/umhd/project/index.html>. This site offers hundreds of air photo images from the 1930s and 1940s of the Kitchener-Waterloo area in Ontario, Canada.

A Web site called Google Earth Hacks, available at <http://www.gearthhacks.com/downloads/> offers a large variety of image files including over five hundred historical war-related air photos. This site also offers non-image KML files, such as historical placemarks. With over seven hundred worldwide historically significant placemarks available, users can download individual KML files to zoom in to the site of interest in Google Earth. Examples include burial sites, plane and ship wreckages, historically significant buildings, castles, forts, and more.

Numerous Internet sites offer placemarks or point files for historical places. The U.S. Holocaust Memor-

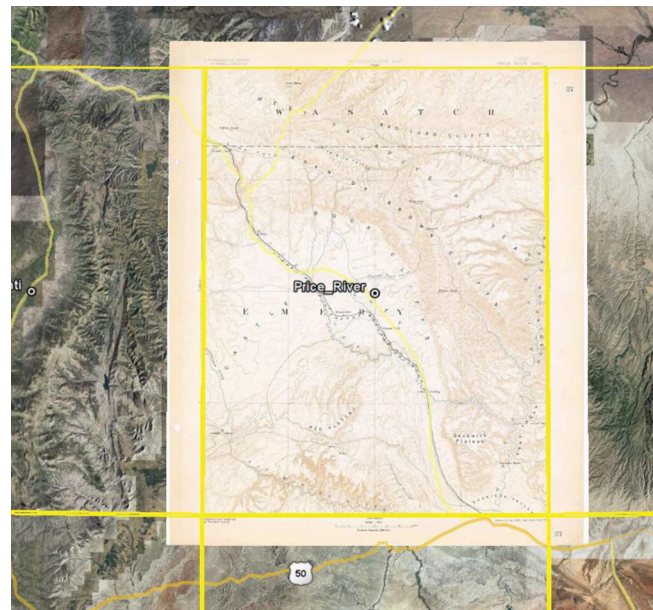


Figure 7. Peace River, Utah. Historical topographic map retrieved in KML format from Google Earth Library.

ial Museum, at <http://www.ushmm.org/maps/>, for example, offers KML files for locations of concentration camps, camp files, and links to more information. Their files also include an animated camp timeline that displays in Google Earth, showing camps throughout their years of operation. ArchaeoBlog, by James Q. Jacobs, at <http://www.jqjacobs.net/blog/index.html> offers a large number of KML files related to archaeological sites in the world. The user can choose a site of interest, download the file, and view it in Google Earth. The KML file also includes information about the archaeological site. Figure 9 shows Pueblo Bonito and placemarks of four wall corners and the center points of two great kivas.

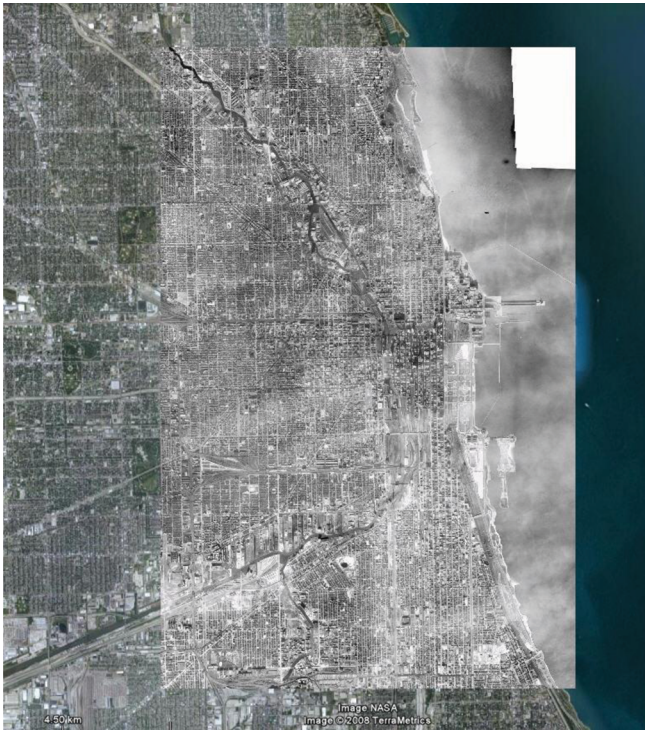


Figure 8. 1938 air photo of Chicago. Air photo retrieved in KML format from Google Earth Library.



Figure 9. Pueblo Bonito archaeological site. Labeled points are KML file overlays.

### Adding KML files into Google Earth

KML files that are accessible from the Internet can be added into Google Earth by simply clicking on the KML file and selecting the option to open in Google Earth. This will not only add the file to the Temporary Places area of the program, but it will also zoom into

the geographical extent of the file. If the KML file is downloaded to the user's local drive, it may be opened in Google Earth from the File menu (File – Open). All KML files that have been collected under Temporary Places may be saved as one KML file by right clicking on Temporary Places – Save Place As. This way, the user has only one file to work with in the future.

### Creating KML Files

The KML examples that have been shown so far have been created by individuals in several different ways. The previous sections have already illustrated how one can georeference an image in Google Earth and save the file as a KML. GIS programs such as ArcGIS will also georeference images and convert them to KML format. Other files, such as a series of placemarks, can be created in Google Earth by using the “placemark” feature. See Figure 10. When the placemark feature is selected, the user can click on a location on the globe and mark it with the placemark icon. The placemarks are added into the Temporary Places areas. The series of placemarks created can be saved as one KML file. If a user comes across an interesting site in Google Earth, he or she can add a placemark and upload the KML to a Web site to share with others.

Placemarks can also be created in Excel. This is a more efficient approach if working with a large num-



Figure 10. Google Earth's “placemark” feature.

ber of files. The Excel file must include the latitude and longitude of the places of interest. Without the geographic coordinates, the file is not spatial in any way and will not display in the correct location in Google Earth. To convert an Excel file to KML, one can use a KML generator program called Earth Point, found at <http://www.earthpoint.us/ExcelToKml.aspx>.

Earth Point is a real estate site from Idaho. The Excel-to-KML converter tool available from this site was created so that users could view real estate listings on Google Earth. It's a simple converter, supporting xls, xlsx, xlsm, xlsb (Excel), csv (comma separated values), or txt (tab delimited) files.

For users who don't have geographic coordinates for their points but do have address information, such as street name and number, a free online tool is available that allows users to input their points of interest into the database and will output a KML file of them. This tool is Batchgeocode and is available at <http://www.batchgeocode.com/>. Batchgeocode is a free online product that locates addresses and geocodes spreadsheets. Based on Yahoo! Geocoding API, it will accept any North American and European address

with a street name and number and will geocode the addresses to provide the user with its latitude and longitude in the WGS84 coordinate system. The updated spreadsheet can then be mapped using either desktop GIS software or Google Earth.

KML files can also be created from geospatial files such as Shapefiles. Any Shapefile (streets, river, buildings, vegetations, etc.) can be converted into a KML. ArcGIS 9.2 will convert one or more files into KML format. Another option is the free Shapefile-to-KML converter, Shp2kml, <http://www.zonums.com/shp2-kml.html>, which is a stand-alone product that allows for the customization of the layer—the user can specify symbols (colors, width), classification field, and labeling preferences. The Shapefile attributes are retained in the KML file as well. See figures 11 and 12. Shp2kml supports Shapefiles in Lat/Long or UTM, in points, lines, and polygons.



Figure 11. Shp2kml supports custom symbolization of attribute information.

## Conclusion

With the increase of popular online GIS tools, GIS and non-GIS users are largely utilizing the technology for research, interest, and entertainment purposes. Without easy access to or even interest in desktop GIS software, many are finding interesting and exciting GIS-related activities to do on the Web. Google Earth is one of the leaders of online mapping that enables users to view, create, publish, and share map-related information. With tens of millions of KML files available online and hosted on more than 100,000 unique domain sites, Google Earth users can virtually study and map anything on the Earth's surface. Originally interested in modern imagery, Google Earth attracted millions of Internet users to trek around the world.

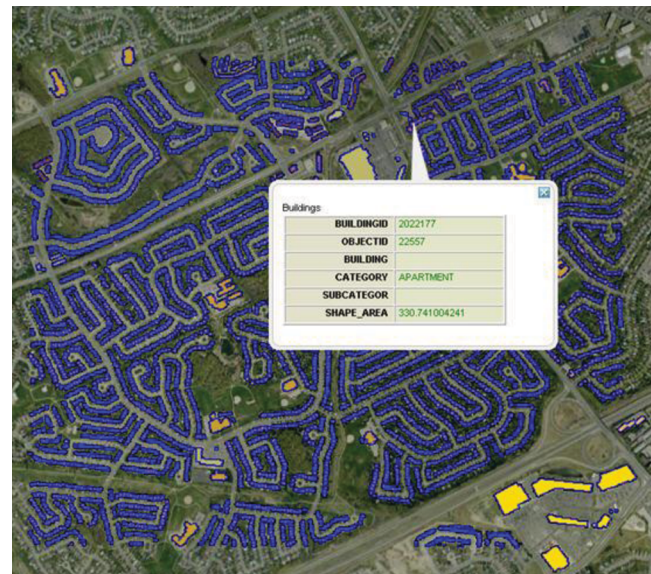


Figure 12. Once converted, the KML file can be opened in Google Earth. The attribute information is retained as well.

Now supporting users' interest in historical imagery and data, Google Earth is becoming a representation of not only the earth, but of humanity.

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## Visual Fields

### Maps, Place, and Tattoos

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Tattooing has dramatically increased in popularity over the past two decades, with more than one third of young Americans now estimated to possess at least one tattoo. Accompanying this expanded acceptability has been an expanding diversity of tattoo designs, including maps, map iconography, city skylines, landscape depictions, and other expressions of a sense of place. Examples of typical map tattoos taken from more than 600 images I have collected are shown.

Pride of place is a common motivation behind map tattoos, as evidenced by remarks given by those who obtain them. Small, simple designs cost little to acquire, making them attractive to individuals with limited income. Here, for example, is a tattoo of streets in East Harlem.

State outlines are also quick and inexpensive, with a heart or star marking the owner's hometown:

Individuals having more time and money may opt for elaborate designs, such as this skyline of Chicago:



Courtesy Rickey, from Rickey.org<sup>1</sup>



Courtesy Paul Perry



Courtesy David Allen

Among immigrants, this type of tattoo may take the form of a simple outline of their country of origin, its interior filled with the colors of that nation's flag. Proud of their non-native origins, yet longing to become American, some immigrants include maps of both their country of origin and of adoption destination. Take, for example, this Filipino-American's tattoo.



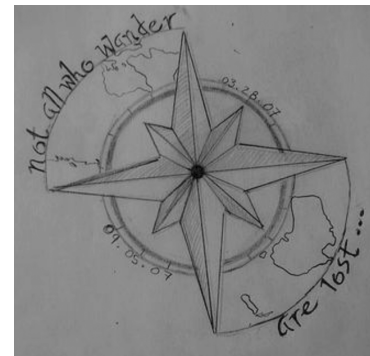
Courtesy Elmer<sup>2</sup>

While sometimes appearing by itself, Earth is usually incorporated into larger designs, such as the popular U.S. Marine Corps logo, which features a globe at its center. Marines having this type of tattoo describe acquiring them as an expression of loyalty to an organization to which they proudly belong.



Courtesy Sgt. Grit

People having tattoos featuring compasses sometimes explain them as statements about the need for proper guidance in life or as symbolizing the importance of family to providing a sound sense of self: "I thought of a compass, and then of what I call a compass star—an 8 pointed nautical star. A compass, as my family has been to me" (Stephanie C).



Compass design, courtesy saskatchewanpirate

Earth also appears in tattoos depicting issues that transcend national borders.

As an individual with such a tattoo put it, "I chose it because of my love for the environment and the planet on which I live. . . . It's a part of me mentally; why not make it a part of me physically?" (Graham).



Courtesy Nick Baxter

Finally, some people acquire map tattoos simply because they find maps intrinsically beautiful.

"The actual map was interesting to me for many reasons: I was drawn to the organic lines and quality of the map itself. (Being an artist, I often find line drawings to be quite expressive despite their sparseness.) I think that maps are just beautiful by nature; it was partly an aesthetic choice to have one tattooed on my back" Gillian M.).



Courtesy Gillian MacLeod

"Regarding the map—i have always loved maps; i love looking at them and i [loved] using them—from road maps to satellite images, they all intrigue me" (hotash).



Courtesy hotash

#### Endnotes

<sup>1</sup>All bearers of a tattoo wished to remain anonymous.

<sup>2</sup>Anonymity was requested when only one contributor name is listed.

## Color Figures

# "The Map Shows Me Where It Is You Are": Gloria Oden Responds to Elizabeth Bishop Across National Geographic and Rand McNally World Maps Adele J. Haft



Figure 1. Detail of the National Geographic Society World Map (1957), Washington, D.C. The legend announces that this supplementary map was "compiled and drawn . . . for The National Geographic Magazine," while the words on the top right indicate that the map was included in the December 1957 issue (vol. CXI, No.3). "The World" appears on the Van der Grinten projection used on National Geographic world maps from 1922 to 1988 (Schulten 2001, 195); measures 28 1/2 by 42 inches (72.5 cm x 107 cm) from one edge of the paper to the other; and is scaled 1:39,283,200, one inch equaling 620 miles at the Equator. At top center-left, the map lists James M. Darley as chief cartographer. C.E. Riddiford is responsible for typography; Apphia Holdstock, for oceanography; and A. Hoen & Company (bottom left), for lithography. (The same team produced the December 1955 "Atlantic Ocean" map, which this detail of the world map closely resembles.) A notice in the lower right corner indicates that additional maps could be purchased for 75 cents, and that "a special edition . . . , enlarged to 47 x 68 [was] also available at \$3.00 a copy." Courtesy of the Robinson Map Library of the University of Wisconsin-Madison (3200 1957 .N3) and of the National Geographic Society.

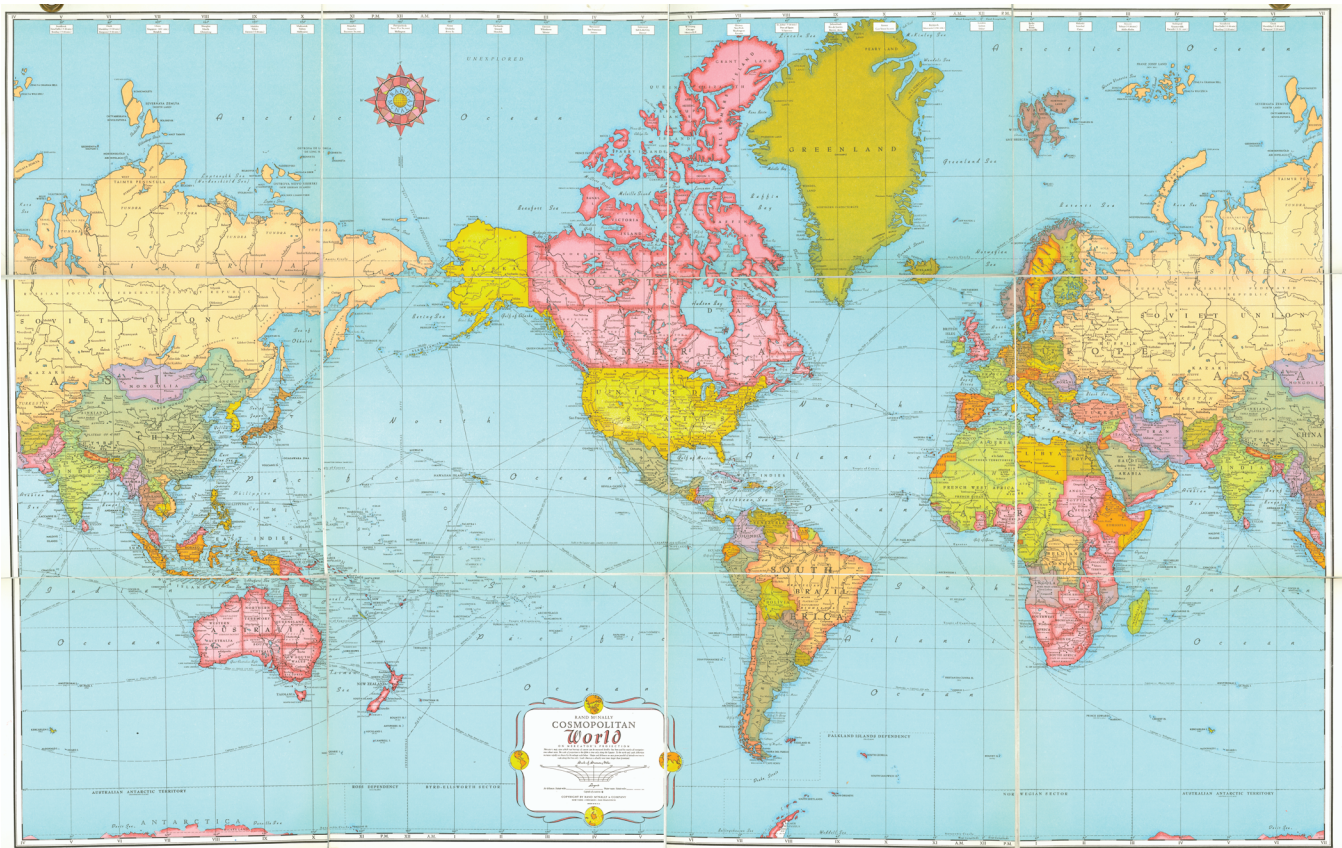


Figure 2. Rand McNally Cosmopolitan World on Mercator's Projection, [1955?], New York: Rand McNally and Company. This folded and dissected wall map measures 34 3/8 x 52 inches (87 x 132 cm) with a scale of ca. 1:37,000,000, one inch representing 583 statute miles at the Equator. Mounted on cloth, it folds into 12 parts, each part measuring approximately 13 by 11 inches (33 x 28 cm). Patrick Morris, Map Cataloger and Reference Librarian at the Newberry Library, suggests that the Newberry's copy of the Cosmopolitan World Map—given its simple black binding, cloth mounting, metal grommets, and obvious wear—may have been a traveling sample. Courtesy of the Newberry Library, Chicago (Rand McNally Collection, Map5C G3200 1955 .R3 (PrCt)), and of Rand McNally & Company.

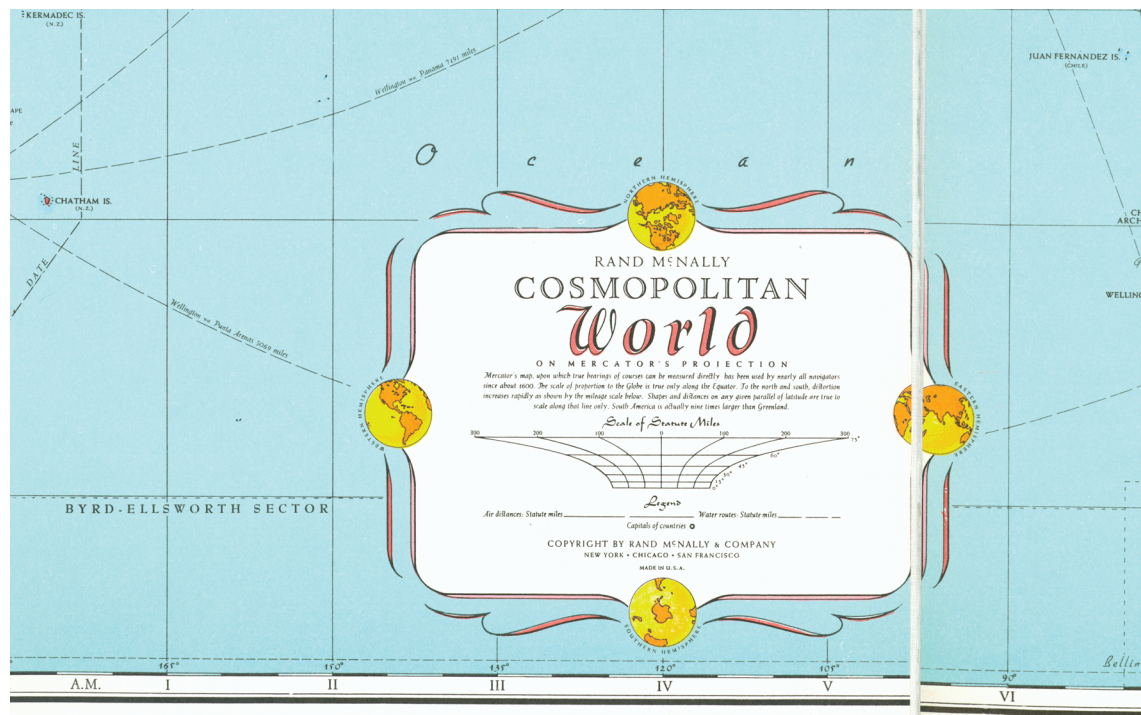


Figure 3. Legend of the Rand McNally Cosmopolitan World Map, (1955?): detail of Figure 2. Courtesy of the Newberry Library, Chicago (Rand McNally Collection, Map5C G3200 1955 .R3 (PrCt)) and of Rand McNally & Company.

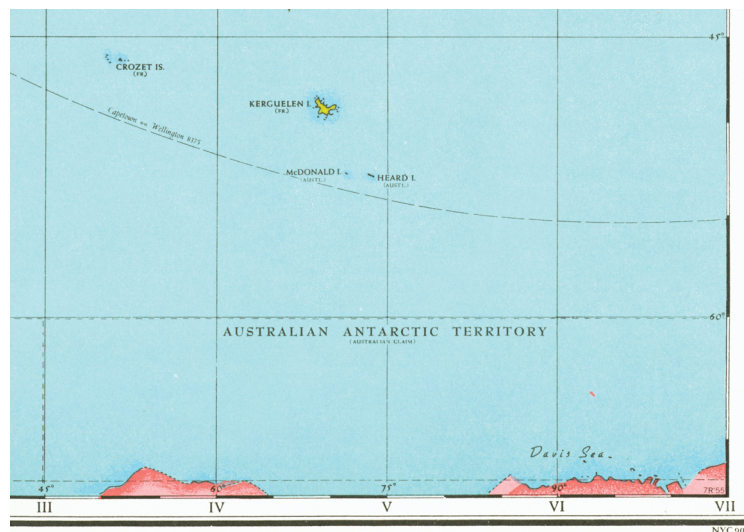


Figure 4. The code "NYC901" from the lower right corner of the Rand McNally Cosmopolitan World Map, (1955?): detail of Figure 2. Although the Rand McNally Collection has yet to yield its secret to this code, researching this paper has revealed that "90" identifies the map as a world map. (See note 11 for more on the code.) Courtesy of the Newberry Library, Chicago (Rand McNally Collection, Map5C G3200 1955 .R3 (PrCt)) and of Rand McNally & Company.

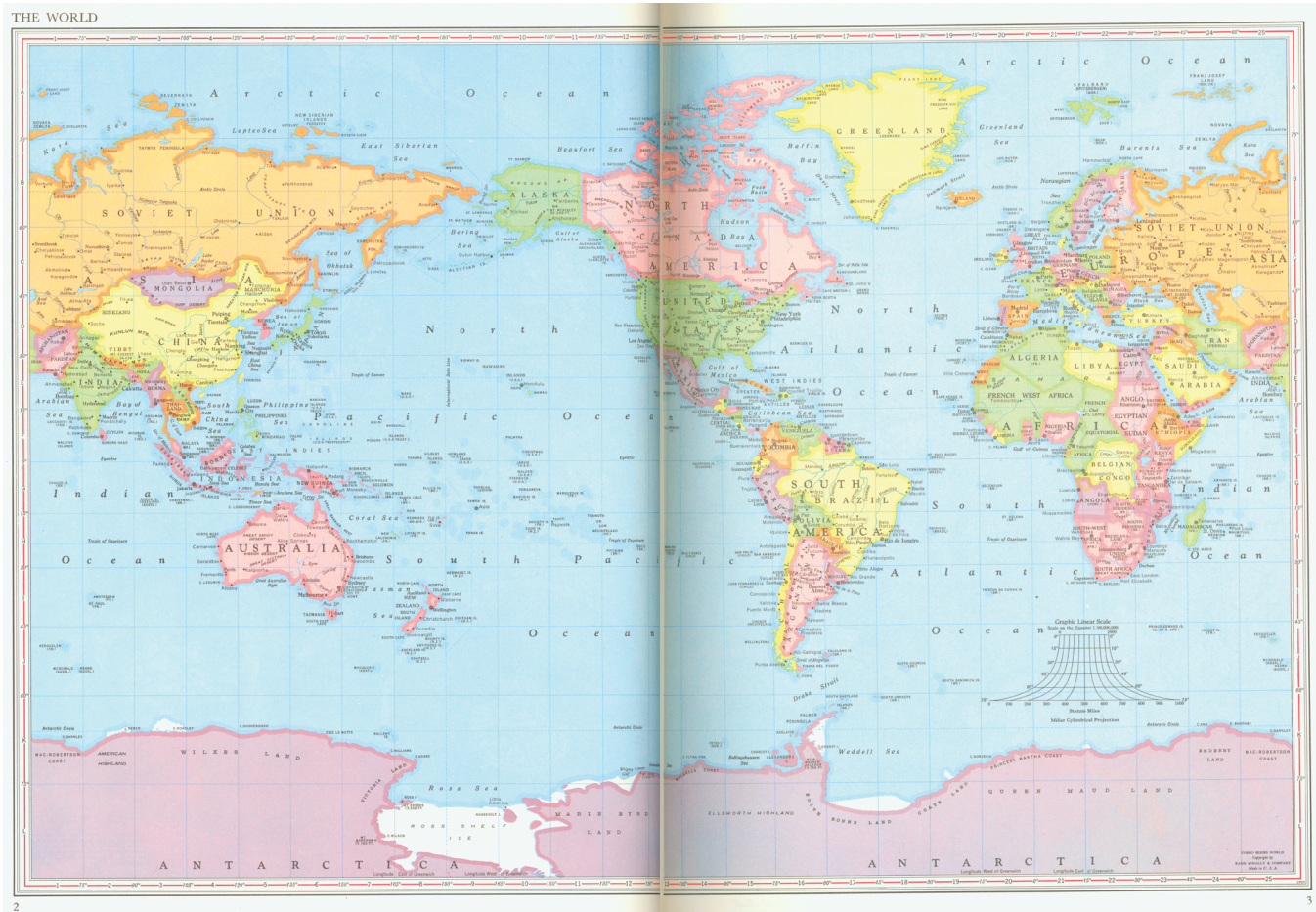


Figure 6. The "World Map" (1955). In Rand McNally's *Cosmopolitan World Atlas: Centennial Edition*, Chicago: Rand McNally, 1955, 2-3. This double page, 14 by 22 inch (35 x 55 cm), world map from the 1955 centennial edition of the atlas resembles the *Cosmopolitan World Map* pictured in Figure 2. On both, Northern Rhodesia and Southern Rhodesia sport different colors; Algeria, Tunisia, and most of Morocco are swathed in green; and the Sudan is called "Anglo-Egyptian." By the 1957 atlas, however, Rhodesia is united; Algeria, Tunisia, and Morocco appear in different colors; and "Anglo-Egyptian Sudan" has become "Sudan." Courtesy of the Newberry Library, Special Collections (folio Rand McNally Atlas .C77 1955: FMP 4857), and of Rand McNally and Company.

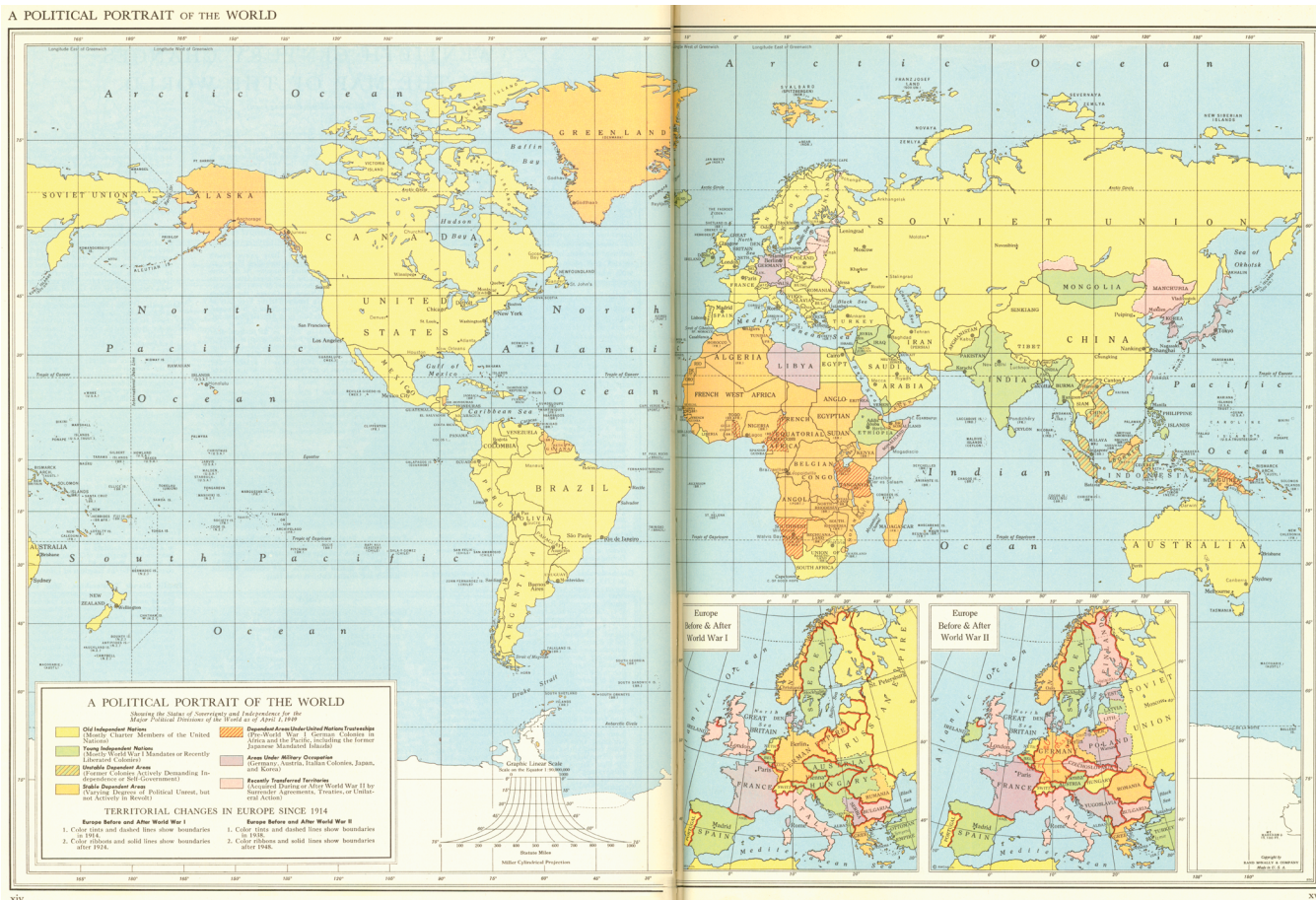


Figure 7. "A Political Portrait of the World" (1949). In Rand McNally's *Cosmopolitan World Atlas*, Chicago: Rand McNally, 1949, xiv-xv (14 x 22 inches/35.5 x 56 cm). The atlas is prescient in noting that the "Portrait" "should also serve as an historical reference map with which to measure the political changes and developments which are still to come" (xiii). In Africa, the washed-out orange shading much of the continent represents "stable dependent areas" with "varying degrees of political unrest, but not actively in revolt." Washed-out orange with red diagonal stripes indicates "dependent areas, under United Nations Trusteeships" (e.g., Togo, Cameroon, South West Africa, Tanganyika), while lavender cautions "areas under military occupation" (e.g., Libya, Somaliland, Eritrea). On the other hand, sage green signals "young independent nations—mostly World War I mandates or recently liberated colonies" (e.g., Ethiopia) and yellow celebrates "old independent nations—mostly charter members of the United Nations" (e.g., Egypt, Liberia, Union of South Africa). Courtesy of the Rand McNally Collection, Newberry Library (folio Rand McNally Atlas C77 1949 copy 1: FMP 4858), and of Rand McNally and Company.

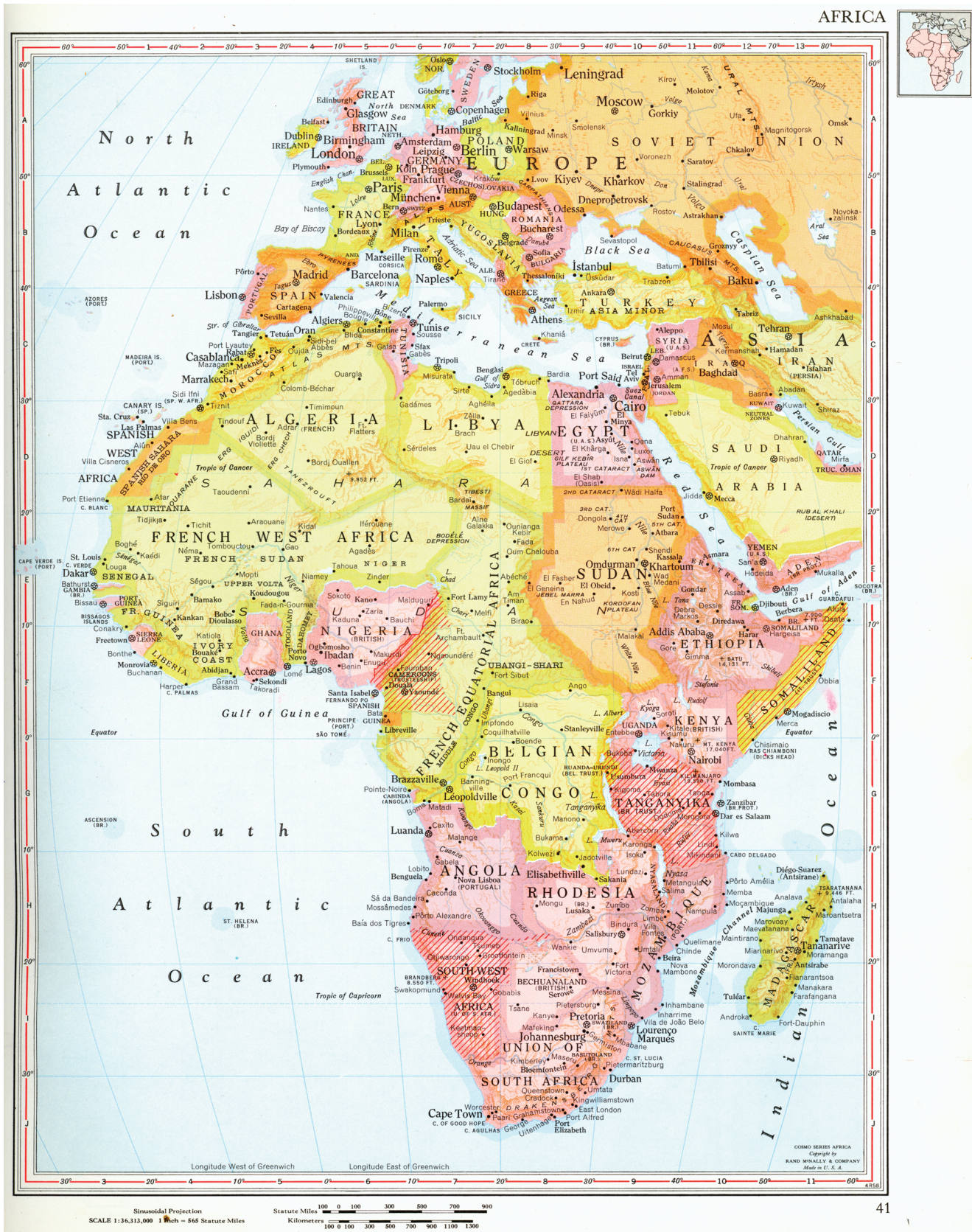


Figure 8. "Africa" (1958). In Rand McNally's *Cosmopolitan World Atlas*, Chicago: Rand McNally, 1958, 41. Measuring 14 x 11 inches (35.5 x 28 cm), this sinusoidal projection is scaled 1:36,313,000, with one inch equaling 565 miles. Courtesy of the Rand McNally Collection, Newberry Library (folio Rand McNally Atlas .C77 1958 copy 3: FMP 4859), and of Rand McNally and Company.

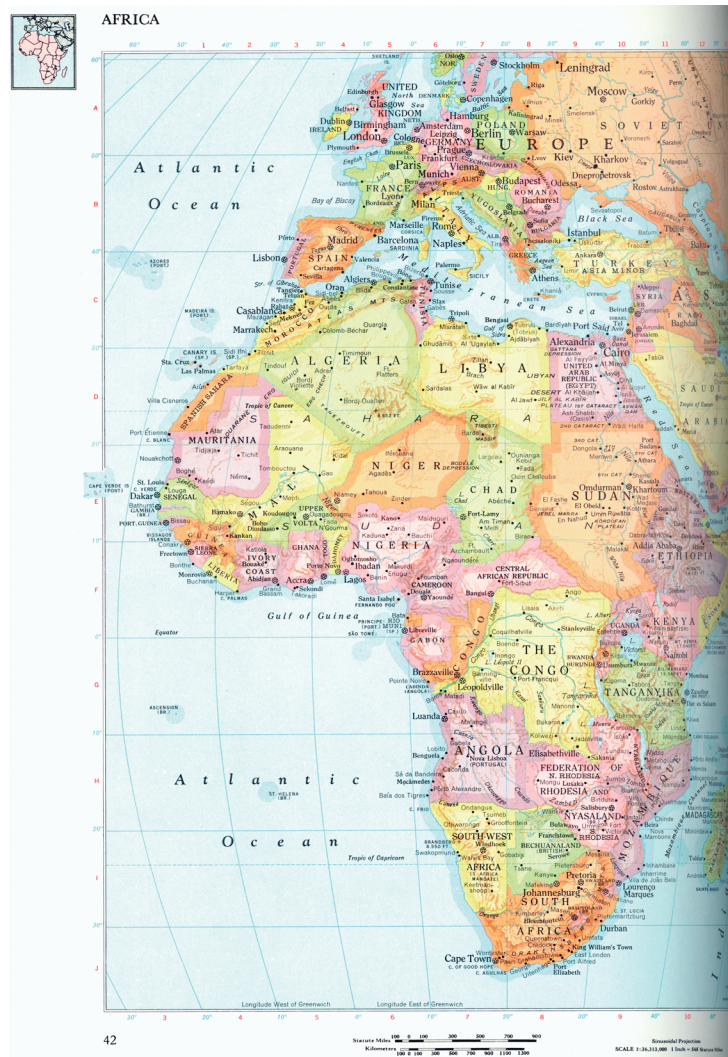


Figure 9. "Africa" (1962). In Rand McNally's *Cosmopolitan World Atlas*, Chicago: Rand McNally, 1962, 42. Measuring 14 x 11 inches (35.5 x 28 cm), this sinusoidal projection is scaled 1:36,313,000, with one inch equaling 565 miles. Courtesy of the Rand McNally Collection, Newberry Library (folio Rand McNally Atlas .C77 1962, copy 2: FMP 4860), and of Rand McNally and Company.

# Trends in Internet and Ubiquitous Cartography

## Michael P. Peterson

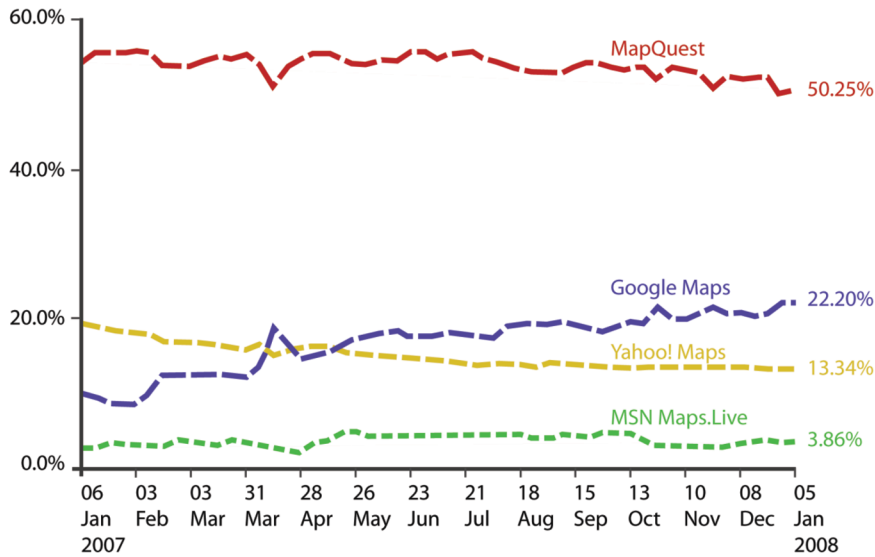


Figure 1. Visits to the four major online mapping sites – MapQuest, Google Maps, Yahoo Maps, and MSN Maps.live – during 2007. Use of Google Maps is increasing at the expense of MapQuest and Yahoo Maps. [http://Weblogs.hitwise.com/us-heather-hopkins/2008/01/google\\_maps\\_making\\_inroads\\_ag.html](http://Weblogs.hitwise.com/us-heather-hopkins/2008/01/google_maps_making_inroads_ag.html).

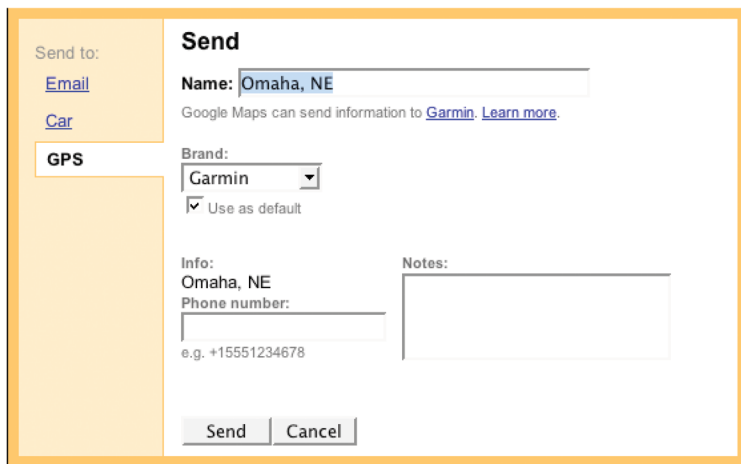


Figure 2. Google Map option to send the results of an online map search to a GPS device.

Send to OnStar eNav
Help ×

**OnStar Account Verification**

Secure connection established.

**Account Number:**   
(Required) [How do I find my OnStar Account Number?](#)

**Your Zip Code:**   
(Required)

**Remember Me:**  [What is this?](#)

Send to Cell Beta!
×

**To:**

**From:**

**Title:**   
15 character max (optional)

Add link to map and driving directions.\*

**516 S 51st St**  
Omaha, NE 68106-1304

Figure 3. MapQuest output options include OnStar, a service of General Motors, and a cell phone.



Figure 4. Countries served by Google Map Maker are mostly in the Caribbean, Africa, Asia, and the Pacific.

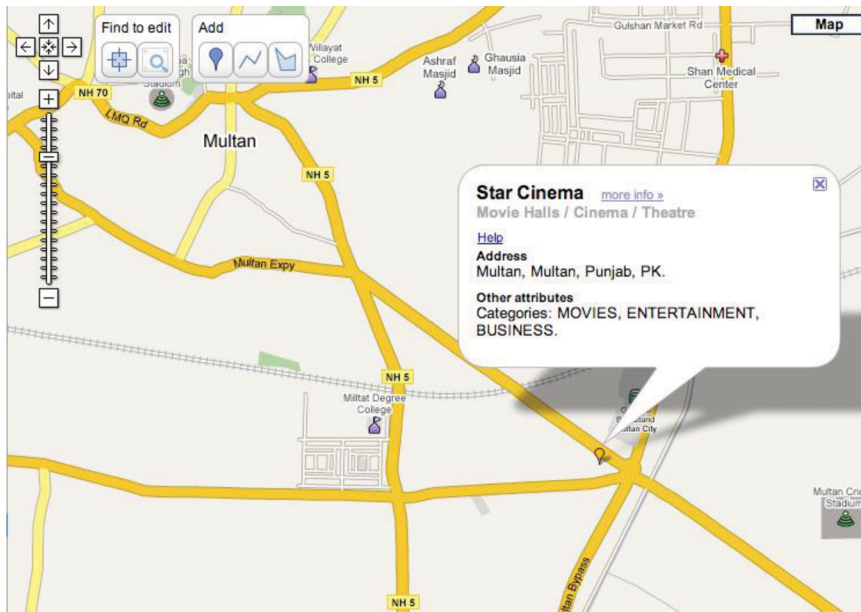


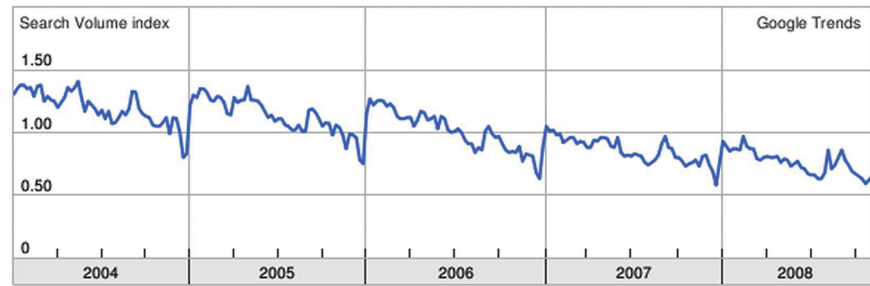
Figure 5. The Star Cinema movie theater was added to a Google Map Maker map of Multan, Pakistan. There is no movie theater at this location.

Google Volume Search for "map" from 2004-2008



Figure 6. The Google search trend for the word "map" from 2004 to mid-2008. Google Trends scales the term entered so that its average search volume is 1.00 in the chosen time period. In this example for the word "map", 1.00 is the average search volume of "map" from 2004 to present. We can see a high point in 2005 with the line over 1.30, indicating that search traffic in 2004 is approximately 1.3 times the average for all years showing a general decline in the search for the word "map". Increased use of interactive mapping sites seems to be leading to a decline in the search for static maps.

Google Search Volume for "Europe Map" from 2004-2008



Google Volume Search for "Africa Map" from 2004-2008

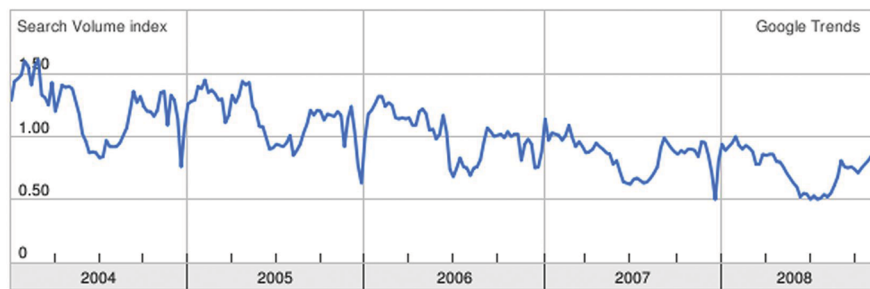


Figure 7. Google search trends for "Africa map" and "Europe map" also shows a similar decline since 2004. The search for "Europe Map" also shows a cyclical cycle with a low point before the end of each year, a reflection perhaps of school and holiday schedules.



Figure 8. AT&T G3 coverage areas correspond with the larger cities. Many states are without coverage. (Source: <http://www.wireless.att.com/coverageviewer/>)

Screen Resolution	Visits
1. <a href="#">1024x768</a>	39.77%
2. <a href="#">1280x800</a>	21.05%
3. <a href="#">1280x1024</a>	15.20%
4. <a href="#">1440x900</a>	9.36%
5. <a href="#">800x600</a>	3.51%
6. <a href="#">1680x1050</a>	2.34%
7. <a href="#">1920x1200</a>	2.34%
8. <a href="#">1280x768</a>	1.75%
9. <a href="#">1400x1050</a>	1.17%
10. <a href="#">1600x1200</a>	1.17%
11. <a href="#">1152x720</a>	0.58%
12. <a href="#">1152x864</a>	0.58%
13. <a href="#">1344x840</a>	0.58%
14. <a href="#">1366x768</a>	0.58%

Figure 9. Screen resolutions for browsers accessing the University of Nebraska at Omaha Cartography and Geographic Information Systems Laboratory server for mid-July 2008.

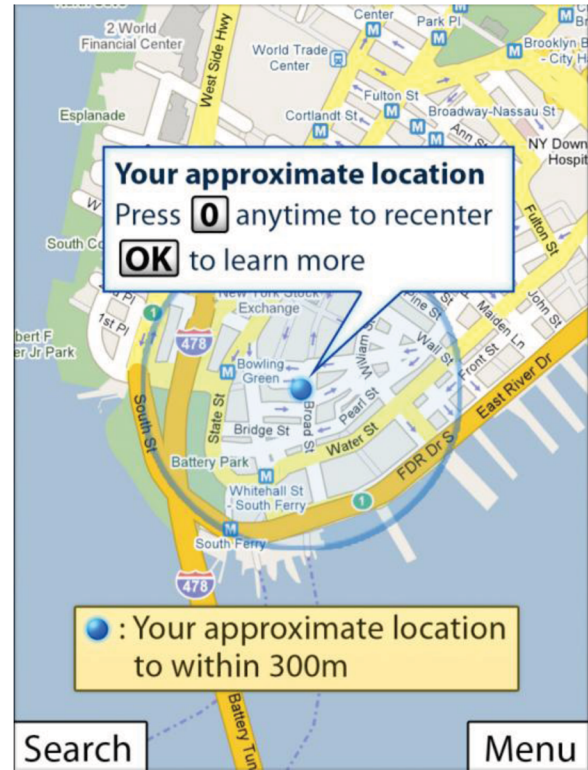


Figure 10. Google Maps for Mobile showing current estimated position based on surrounding cell phone towers.

