

When I was in junior high we had a long lunch period, and since everyone was too grown up at that age to really play or enjoy themselves, after the eating was over, we all just posted up outside the school and waited for the bell to ring us back to class. In the first few days of seventh grade, we sorted ourselves on the asphalt hardtop, and that arrangement, once set, hardly changed in three years. From nearest the cafeteria door to farthest, the order I remember is:

- ultra-coolest kids (mostly from the Heights, which was the wealthier part of town)
- the generically preppy kids
- the college radio REM/Cure people (this was pre-indie rock)
- the skaters
- the heshers (what we called the metalhead stoner types, and anyone else for whom glue was more than just an adhesive)
- me and my friends
- A BIG BROWN DUMPSTER
- exchange students and kids with learning disabilities

Obviously, this alignment was more than just random. The dumpster, god bless it, created a natural gathering point for the untouchables, and from there the +/- polarity of the student molecule took over. Given that at one end of the line my people were playing pencil-pop and debating the merits of Teenage Mutant Ninja Turtles, The Role Playing Game Not The TV Show Because The TV Show Is For Kids, everyone else fell into place by fundamental force.

One of the beautiful things about digital data, besides its sheer volume, is that, like the back lot at Pulaski Heights Junior High, it has both physical and social dimensions. A piece of paper has two axes, space-time four. String theory predicts that our physical existence requires somewhere between ten and twenty-six dimensions. Our emotional universe surely has that many and more. And in

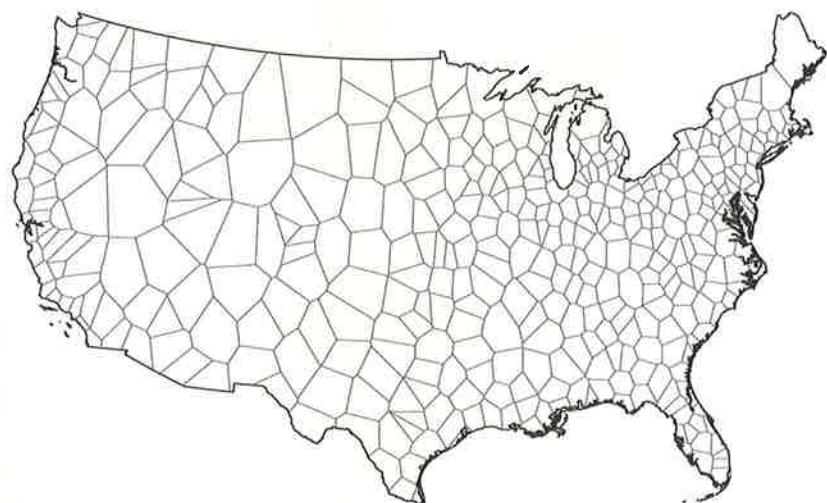
combining these spaces—our interior landscape with our external world—we can portray existence with a new depth.

The way we've looked at people and interaction so far—connections, profile text, ratings, and so on—has mostly ignored physical place, but websites and smartphones are of course gathering ample location data. Tweets are geotagged with latitude and longitude; Facebook asks for your hometown, your college town, your current home; many apps know the very building you're standing in. Here we're going to layer identity, emotion, behavior, and belief over our physical spaces and see what new understandings emerge. We'll look at how location shapes a person, and how people have laid new borders over our old earth.

The boundaries of many communities were created by fiat or accident—or both. The United States and the USSR split Korea on the 38th parallel because that line stood out on a map in an officer's *National Geographic*. Earlier that same month, Germany was divided into zones of occupation that reflected, more than anything else, whose troops were standing where at the time. Many of our own American states were created by royal charter or act of Congress, their borders drawn by people who would never see the land in person. Absentee mapmaking was and still is a much more pernicious problem in Africa, the Indian subcontinent, the Middle East—and everywhere else the tread of Empire has stamped the soil. Only very occasionally have maps been drawn to reflect "the will of the people," and even in those cases, as we've seen in Israel, which began its modern history as, officially, the British Mandate for Palestine, the question naturally becomes: which people, whose will.

For websites, political and natural borders are just another set of data points to consider. When information—fluid, unbounded, abstract—is your currency, the physical world with its many arbitrary limits is most often a nuisance. At OkCupid, rivers are an endless irritant to the distance-matching algorithms. Queens is both a half mile and a world away from Manhattan. Try explaining that to a computer. The problem is that when a person is online, he or she is both of the world and removed from it. But that duality also means we can remix our physical spaces along new lines, ones perhaps more meaningful than those drawn by plate tectonics or the dictates of some piece of parchment.

Here you see a plot of how Craigslist carves up the country—each region in the map is the territory served by a separate classified list. One mapmaker called it the "United States of Craigslist" but "united" feels to me like the wrong word—this is a partition, and, within the whole, each little zone is its own petty kingdom. It's a Holy Roman Empire of old furniture.



Once we begin to graft content to the spaces, the map becomes more interesting. Below is Craigslist's empire again, but overlaid with the most popular locations listed on the site's many "Missed Connections" board, where a lonelyheart might post something like:

Both of us boarded the uptown Q at 34th. You were wearing a peacoat and your eyes had that Audrey Hepburn twinkle. We locked stares a few times; if you read this email me.

That's the Manhattanite's version, at least. Portlandia most often makes eyes on the bus. California flirts by the elliptical machines. But for much of the rest of the country, the venue of longing is Walmart.

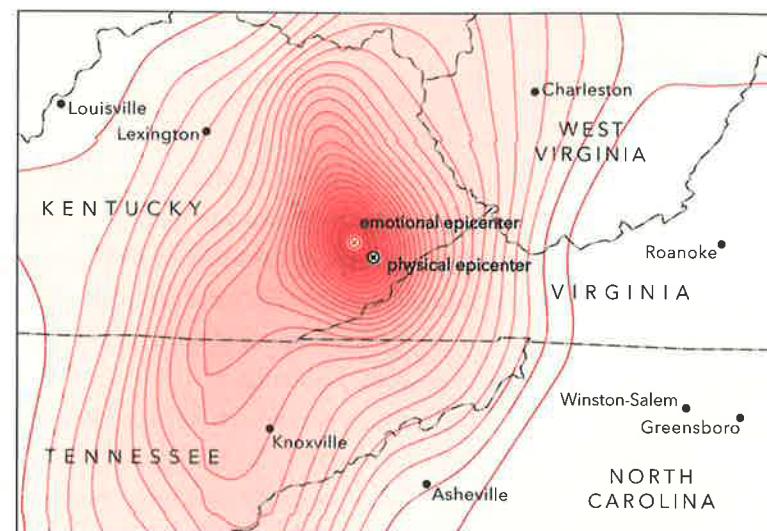


Now we're getting to a place that a traditional cartographer can't take us, that no satellite can pick up. The above is a simple and goofy page from a new kind of atlas: behavioral and physical terrain as one.

In the above examples, Craigslist defined its borders *a priori*, by picking the markets they wanted to serve. Most websites collect location data rather than project it, and from these we can create a truly alternate map of the world, actually move the borders and contours to fit the human landscape. Years ago, an enterprising hacker scraped data from Facebook and plotted the shared connections of the 210 million profiles he'd gathered. From the data he saw, he divided America into whimsical states defined by friendship rather than politics. There were seven of them—Pacifica (the Pacific Northwest), Socalistan (California), Mormonia, the Nomadic West, Greater Texas (which included Arkansas, Oklahoma, and Louisiana), Dixie in the Southeast, and then, in a bright green swath stretching from Minnesota down through Ohio and over to the Atlantic covering all of New England, Stayathomia. My kind of country.

Since then, smartphones, each one with a tiny GPS pinging, have revolutionized cartography. Matthew Zook, a geographer at the University of Kentucky, has partnered with data scientists there to create what they call the DOLLY Project (Digital OnLine Life and You)—it's a searchable repository of every geotagged tweet since December 2011, meaning Zook and his team have compiled billions

of interrelated sentiments, each with a latitude and longitude attached. DOLLY is an incredibly versatile resource, the output of which is only now being explored. For Zook, it's already had a few highly personal applications. In February 2012, his office in Lexington was shaken by an earthquake, and he turned to the database to see the psychological aftershocks. The map below shows the density of reaction on Twitter, plotted over the physical epicenter of the fault. Here we see contours of surprise laid over the shifting earth:



Zook discovered that the quake's emotional epicenter was just northwest of the seismic one, in Hazard, Kentucky, and as simple as it sounds, this kind of finding is truly new. The Craigslist maps, for example, could've been made in the 1970s—after all, the idea for the website's "Missed Connections" section was lifted from newspapers. So before the Internet, if you'd really wanted to, you could've clipped a month's worth of listings from the main daily in, say, each of the country's top 100 cities, logged the data, and gotten very close to what we saw a few pages ago. Even the Facebook/Stayathomia redefinition was theoretically possible decades ago, provided a research team had the resources to interview millions of people in their homes and track down their stated connections.

But Zook's map shows people's instantaneous reaction to an event that lasted a split second. Surveying Kentuckians later, even with infinite effort, he couldn't have generated a true report—not only do emotions change in the remembering, but media coverage and talk about the quake would've hopelessly polluted the data. People with smartphones don't make seismographs obsolete but Zook's plot reflects the "impact" of the earthquake in a much more direct way than the old Richter scale. Knowing nothing else about a quake, if it were your job to distribute aid to victims, the contours of the Twitter reaction would be a far better guide than the traditional shockwaves around an epicenter model.*

Even though each one is transitory, tweets collected together can capture more than ephemera. A demonstration of DOLLY's power on YouTube shows it tracking the Dutch holiday of Sint Maarten, a sort of Germanic Halloween where children go door to door singing for candy. In the data, you see people celebrating not only in the major population centers of the northern Netherlands, as you'd expect, but also in Western Belgium—the tweets reconnect old Holland to Flanders, its cultural cousin. Thus we watch an animated visualization of GPS-enabled data points, and see shadows of the Habsburgs.

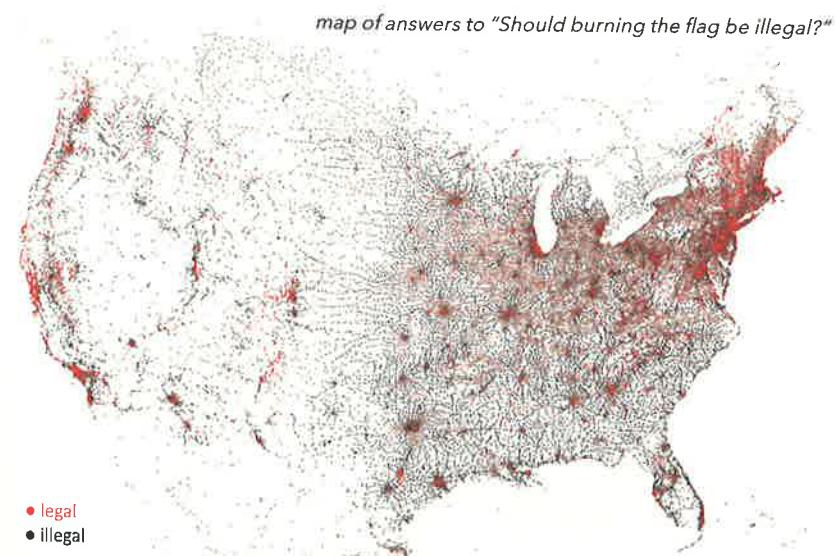
Given the power of what we can already see through software like DOLLY, the lack of longitudinal data is especially painful. On today's research corpus, time often feels like a phantom limb. Twitter currently gives us so much of that multidimensional promise: we have every emotion, we have every spot on the globe, but we still have only a few years to work with. In Europe, where the combination of geography, culture, and language has been so volatile over the centuries, imagine being able to track the Alsace-Lorraine as it changed hands—German, French, German, French—each government imposing its culture on the people, as if the region were a house taking on coats of paint. Or imagine the Caribbean basin in the late fifteenth century and being able to watch first the soldiers, then their religion, then their language overwhelm the land, Arawak to

* Two months later Zook measured a convulsion of another kind: the Kentucky Wildcats won the NCAA championship and the students got wasted and burned shit like the future leaders they no doubt are. #LexingtonPoliceScanner began trending as a hashtag based mostly on this tweet from @TKoppe22: "Uh We have a partially nude male with a propane tank #LexingtonPoliceScanner." Zook tracked that tag to show how formerly local nonsense can now reverberate worldwide. The highbrow/lowlbrow schizophrenia of Twitter never stops amazing me. It's the Chris Farley of technologies.

Aztec. To see the ebb and fracture of a culture over decades is what DOLLY was built for. All it needs now is the decades themselves.*

Geocultural insights can be found in other sources, too, and though in most of them you lose the immediacy of Twitter, you get a different kind of depth in its place. When websites pose questions directly to their users, we have a chance not only to refine borders but to show they don't really exist as normally conceived.

Below are one million answers to "Should burning the flag be illegal?" collected by OkCupid. Here my mapping software drew no political or natural boundaries, it just organized belief according to latitude and longitude. This is truly a nation defined by its principles, or, as you can see, *two nations*: Urban and Rural. You can even see where one encroaches on the other: the rural communities up the Hudson River and in Northern California's wine country, built up with Big City money, have Big City opinions as well.



Similarly, and in support of the earlier Google Trends finding that homosexuality is universal, we see that same-sex searches have no borders, no state, no coun-

* I realize an added condition is that the affected people use Twitter, and that in the context of pre-Columbian Mesoamerica that's an absurd expectation. However, as I've said before, the service is much more pervasive and more democratic than most people think, and if anything similar to the Spanish Conquest were to happen today, you most certainly would see the reverberations on Twitter.

try. Below is a plot of gay porn downloads, by IP address, taken from the largest torrent network, Pirate Bay. This map, too, is without any pre-drawn guides, and as opposed to the OkCupid plot above, its theme is solidarity: from Edmonton and Calgary down to Monterrey and Chihuahua, this is just where people live.



There are as many ways to draw maps as there are sources of data. We've been slowly working our way up off the page, building a psychological dimension—how we feel about the flag, porn—on top of our maps. But it's possible to go the other way: data can tie abstractions back down to earth. Take cleanliness, again via OkCupid. This is how often people say they shower:



On the one hand, the broad trend merely reflects the weather: where it's hot, people shower more. But down in the details there are a pair of good stories. In Jersey's lightness, you can read the gym/tan/laundry grooming obsession of Pauly D and the Situation—Jersey is much more fastidious than the surrounding states. And in Vermont you find the opposite philosophy: the crunchiness is more than just a stereotype. Vermont's the most unwashed state overall, and truly an outlier compared to its immediate neighbors. According to Google the state animal is the Morgan Horse. It should be a white guy with dreads.

Politics, weather, Walmart, and certainly earthquakes all have a strong connection to the physical world, but in some of our data we can begin to see an exclusively inner geography. Take lust, which in theory, should have no state. But here we see it does, and a surprising one:



This pattern comes up again and again on OkCupid—the north central and west of the country is more sexually open, more sexually adventurous, and more sexually aggressive. Up the Pacific Coast you'd perhaps expect such unconventional attitudes, but for many of these red-meat states, it goes against type. Politically, OkCupid's users in, say, the Dakotas are as conservative as their reputation. Their profile text isn't much different from anyone else's. For all other indicators, the states should not be dark, but in the data we see a mysterious sexual intensification. This unexpected pattern reveals a further power in Internet data; we can now discover communities that *transcend* geography, rather than reflect it.

This data above does *not* prove that the Mountain Time Zone is one big high-plains makeout party. In fact, the explanation is rather banal: if you are looking for people to have sex with in a place like Pierre, South Dakota, your local options are limited. So you try a dating site to find what you want. It's simple selection bias in our data, but there's meaning there: where people can't find satisfaction in person, they create alternative digital communities. On a dating site, that means communities with similar sexual interests. On other sites with more diverse aims, where the users aren't just there to flirt in groups of two (and occasionally three), you get something richer.

Reddit is the fulfillment of that earliest ambition of the Internet—to bring far-flung people together to talk, debate, share, spread news, and laugh. To collapse space and create personal closeness. It's one of the most popular sites on the web,* and it rightly calls itself "The Front Page of the Internet"—a lot of the ridiculous viral stuff you see on the big aggregator sites originates there. There's a video trending on the *Huffington Post* as I write this—no joke—with the headline: "This Deer Thought No One Was Watching It Fart, Now the Whole World Knows." I promise you, Reddit was watching it fart *first*.

The odd thing is, for all its influence, Reddit doesn't really do anything; there are no apps, no games, no profiles to speak of. Their New York office is in a co-working space and smaller than my bedroom. The site itself is just a raw list of links submitted by the users, who vote, and comment, and comment on the comments, and modify, and repost all day long, in what feels like the world's biggest group of friends sitting on the world's longest couch. Few Redditors know each other's names, let alone ever meet in person, yet their bond is no less close for being anonymous: a forty-year-old woman in the Bay Area was alone the day before Thanksgiving 2011 and posted as much. Her thread received over 500 comments in just a few hours (including, of course, many invitations to the next day's dinner) and the post quickly broadened, completely ad hoc, to connect Redditors in many other cities.

The site is self-organized into thousands of themed subreddits. Each of those is user-created and -moderated, and each has its own devoted set of post-

* In December 2013 it had 101 million unique visitors and served 5 billion pages.

ers and commenters. These are places where people have created true virtual communities from nothing but wide open space. There's *gaming*, *technology*, *music*, *nfl*, alongside a lot of home-grown topics that you'll only find on Reddit:

explainlikeimfive—an example post: "In Hinduism and Buddhism where the dead get reincarnated, how do they account for population growth?"

iama—"IamA reporter covering NJ Gov. Chris Christie. AMA! [ask me anything]"

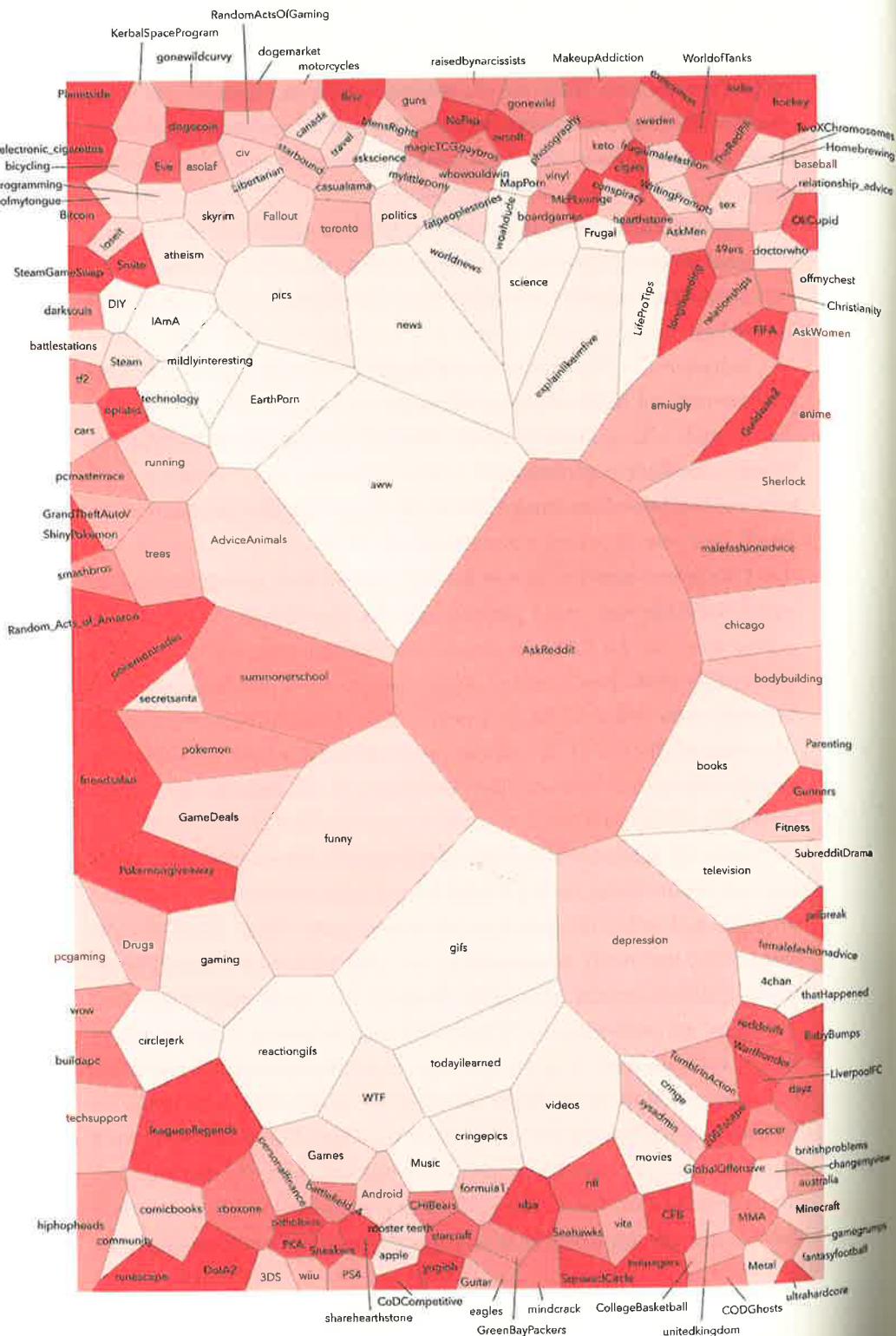
todayilearned—"TIL that the town of Boring, Oregon has 'paired up' with the town of Dull, Scotland to promote tourism in both places."

askreddit—"Ex-smokers of Reddit, what ACTUALLY WORKED to get you to successfully stop smoking?"

whowouldwin—"Superman Prime vs Superman w/infinity gauntlet"

On the next page I've plotted the two hundred most popular topics, and this is something you could properly call "the United States of Reddit." It's a geography like the Craigslist division we saw before—made, in fact, by a similar algorithm—but instead of physical geography, it plots a geography of interests, of the collective Reddit psyche. And it shows distinct yet connected communities. The size of each state corresponds to the popularity of the topic, and the software put "like with like," according to cross-commenting between subreddits.

As we did before when we encountered an unfamiliar way to present verbal data, you should search out a few known terms to get a feel for how everything fits together. For me, this was easy. My favorite game, *Magic: The Gathering* (*magicTCG*), is correctly surrounded by its unfortunate natural friends *Mens-Rights*, *whowouldwin*, and *mylittlepony*. Similarly, many sports (*nfl*, *nba*, *formula1*, and so on) are grouped at the bottom. Everything *pokemon* is clustered over to the left. *Britishproblems*, along the right edge, is next to *australia* and *soccer*. It also makes sense that the most popular subreddits are in the center—that is, not too far from anything. The red tint corresponds to how tight-knit each subreddit is. It shows the degree to which the people posting post only there. The darker the red, the more isolated the thread. This whole thing is an abstraction, but it shows how people can locate themselves by what they find interesting or funny or important



rather than where they happen to sleep at night. It's a map of one particular collective consciousness.

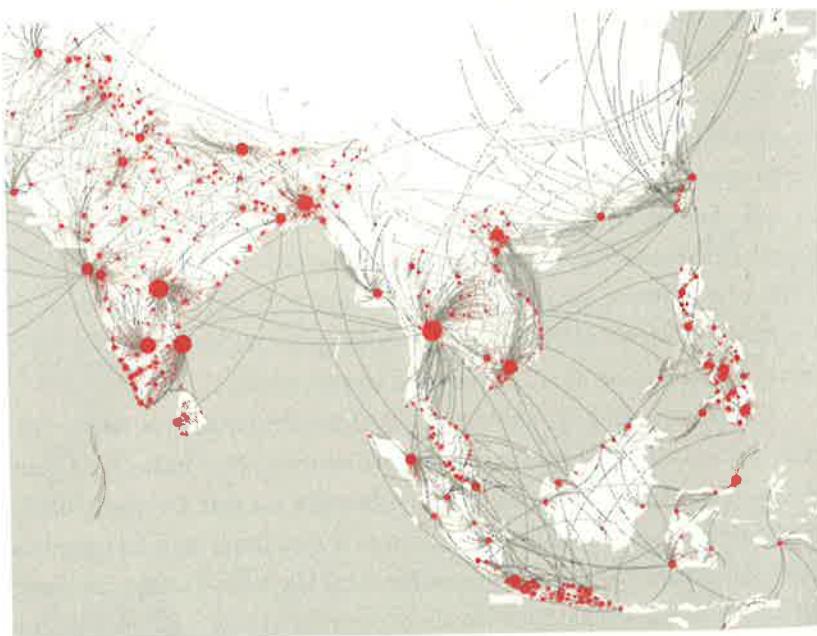
Benedict Anderson is a professor at Cornell University, and he wrote a book that sat unopened on my bookshelf a long time. I was supposed to read it for a college class and didn't, but through all my moves over the years I've carried it with me; it's been a stowaway in every U-Haul. The book's called *Imagined Communities*, and I opened it recently because the title finally seemed applicable. Anderson's main topics are nationalism and nation-building and he suggests that a nation "is imagined because the members of even the smallest nation will never know most of their fellow-members, meet them, or even hear of them, yet in the minds of each lives the image of their communion." He was writing in 1981, but he could have been talking about the Internet. I don't know if Reddit is a nation, but it's got plenty of communion. And it's interesting to see another purely digital community define its burgeoning identity. Earlier we saw the ancient rush to communal violence, as directed at Safiyah, Natasha, and Justine on Twitter. Here, on Reddit, we see a few of nationhood's better angels: belonging, sympathy, sharing.

I've lived now in Brooklyn for twelve years—*Imagined Communities* had collected quite a bit of that New York City schmutz by the time I pulled it down to read—but the first place that book ever went with me was Texas. Right after school, I had been living with a few other guys, and one of them, Andrew Bujalski, who's now a director, decided to move to Austin because he loved *Dazed and Confused* and *Slackers*. He was making a pilgrimage to find Richard Linklater. The rest of us had no plan, so we just attached ourselves to his.

Of course picking up and moving like that is the privilege of twenty-two-year-olds with nothing better to do but chase someone else's dream. We'd heard Austin was cool, so we went there. It's a lightweight example, but group movements like this, based on little more than word of mouth and hope for something better, created the world as we know it. The Great Migration—millions of African Americans leaving the Jim Crow South for cities like Detroit, Chicago, and New York in the early 1900s—was a transformative cultural shift for the country and was made of thousands of small-scale pick-up-and-move decisions. Same with the gold rush that settled California. Same with much of the European settlement that brought the Old World to this continent in the first place. Same with, I imagine, the bands of Clovis people who crossed the ice bridge 13,000 years

ago to become the very first nation on this soil. Communities move to find an environment that will sustain them and where they are safe, but also to find a physical place that reflects what they feel within.

Recently, Facebook's Data Science team took a worldwide look at modern large-scale movements—coordinated migrations, where a significant proportion of the population of one place has moved, *as a group*, somewhere else. People don't move en masse like this in the United States much anymore, but in many places, they're just beginning to. The researchers plotted coordinated movements around the globe. Here I've excerpted a small section of their map of Southeast Asia: the lines show small towns and villages relocating wholesale to urban centers. It's a static picture of a rapidly changing region. For what it's worth, this could've been England circa 1850, or the United States fifty years later.



In the broadest sense, these moves are most likely driven by economics—cities like Chicago or Bangkok promise jobs. But though the lines and dots on this map are aggregates, the migrations they reflect are all small, personal, and, no

doubt, unique to the people making them. Was it a parent who made the decision to pack up and go? Did a friend lead the way? Who did these people join in their new city? Who did they leave behind in the old? Did they bring everything? Leave everything? And I can't help but wonder, too, does everyone have a book that follows them until they read it? And, if so, what is theirs?