

THE WARBLER

AN EDUCATIONAL WEEKLY



Dear Student, Artist, Thinker,

This week's issue looks at one of the most widespread tools we use to understand the world around us: the map. The most familiar maps provide a bird's eye view of the earth below: mountains, rivers, highways, cities, and coastlines, and whether they are drawn with incredible detail or simple symbols, maps show us more than we could ever see at ground level.

Throughout human history, cartographers (the professional title for map-makers) worked alongside explorers to create better and better maps of the known world. Well before NASA could just use satellites to take photographs, cartographers like Al-Idrisi and Gerardus Mercator developed surprisingly accurate maps 500 years ago! These helped travelers and merchants find their way and know down to the day, hour, or minute how long it would take to arrive at their destination.

But the thing about cartography is that there is always something beyond the edges of the map, and the unknown calls to us. Not satisfied with the Earth, astronomers decided to work on mapping the stars, planets, and universe. Meteorologists focused on mapping weather patterns and climate change, and biologists from around the world worked on the Human Genome Project, which resulted in a genetic map of the human being.

With maps, one thing always (and literally) leads to another. There will always be the next mystery to uncover, a new question that our current understanding can't answer. It's a big world out there. But a good map will help you from getting lost, even if it's one you have to draw yourself.

Kyes Stevens and the APAEP Team



“Maps are a way of organizing wonder.”

PETER STEINHART // American naturalist and writer

WORDS INSIDE

FROM “FROM PTOLEMY”...

primordial | existing at or from the beginning of time; primeval; basic and fundamental; in the earliest stage of development.

fiefdom | an estate of land, especially one held on condition of feudal service; a person's sphere of operation or control.

gentry | people of good social position, specifically (in the UK) the class of people next below the nobility in position and birth; US people of a specified class or group

depredations | acts of attacking or plundering (stealing goods, typically using force and in a time of disorder)

colonialism | the policy or practice of acquiring full or partial political control over another country, occupying it with settlers, and exploiting it economically.

redlining | refuse (a loan or insurance) to someone because they live in an area deemed to be a poor financial risk; cancel a project



ANTHROPOLOGY

440 Years Old and Filled with Footprints, These Aren't Your Everyday Maps

BY WADE GOODWYN | *National Public Radio* | August 23, 2019

At the Blanton Museum of Art in Austin, Texas, 19 maps, nearly 440 years old, are on display — and they look spectacular. “Works on paper are delicate so we’re only allowed to put them on display for nine months out of 10 years,” says Blanton Museum communications director Carlotta Stankiewicz.

The *Mapping Memory* exhibition contains work by indigenous mapmakers from the late 1500s. The maps demonstrate a very different sense of space than maps drawn by Europeans. They’re not drawn to scale; instead, they’re deeply utilitarian.

A map of Culhuacán, for example, shows rivers running straight, with tiny arrows in the middle, indicating which way they flow. The pathways curve like snakes, with footprints or hoofprints indicating whether the paths can be walked or ridden.

“This was the first museum in the country to have a dedicated curator to Latin American art,” says Simone Wicha, director of the Blanton Museum of Art. The University of Texas at Austin has one of the earliest and largest collections of Mexican and Latin American art and documents in the world — more than 300,000 pieces — which it began acquiring in earnest in 1921. “The interest in Latin America was longstanding because Texas history is Mexican history and vice versa,” Wicha says.

In 1577, King Philip II of Spain wanted to know who exactly he was ruling and where in his vast kingdom they were. His viceroy in what was then called New Spain had little idea, so he asked the indigenous groups in what is now Mexico, to draw the maps — which are now on view.

The star of the show is a large, colorful map of the city of Teozacoalco. It’s a globe of rivers and pathways, Spanish Catholic churches and forests. On the left side is a listing of the indigenous dynastic rulers. This map is an announcement of place and people, the makers perhaps harboring a sense of foreboding that the document they were drawing would long outlive the memory of their people.

Throughout the colonial period and particularly in the late 1500s, “the indigenous ways were very much alive,” says Rosario Granados who curated this exhibition. She believes it’s important to stress that “the conquest didn’t mean a complete destruction of that splendor.”

Granados says the maps are a remarkable blend of indigenous and Spanish culture at a moment when

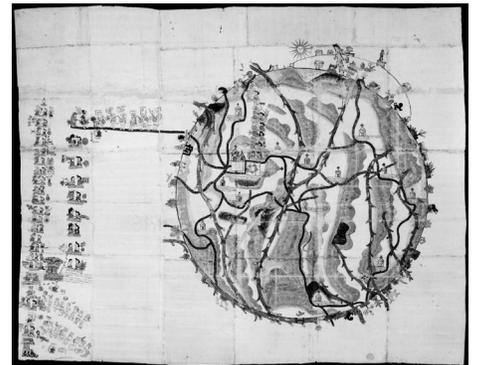
Spain ruled but hadn’t yet eradicated the region. So while there are paths, rivers, mountains and forests, there are also the square grids of Spanish towns with Catholic churches displayed prominently at the center of large plazas.

Many of the maps have a depiction of the sun on each side, orienting the traveler with the fireball arcing east to west. Granados says the indigenous maps and the Spanish maps exhibited here carry the strong imprint of each other’s cultures, 80 years after Hernán Cortés first waded ashore in 1519, 500 years ago, this past March.

“The question of how a handful of men conquered both the Aztec and the Inca has been always surprising,” Granados says. “And I think we really need to consider that question and reframe it in many different ways.”

While the answer to that question may be guns, germs and steel, Granados says that for generations, the Spanish and indigenous cultures existed together, first side by side and later, one inside the other. She says the maps demonstrate that the indigenous groups that lived in Mexico were more than just fodder for genocide.

Granados says, “It was a time of destruction, there is no doubt. But after that, something else happened. And it’s the hybridization that happened afterward that for me is very important.” The collision of values and peoples slowly but inevitably gave birth to a distinctive New World culture — one that would branch off and become separate from its Spanish and indigenous roots. It’s a process that continues to this day. Maps show us not only what is where and how to get there, but also who we were — and perhaps, who we’re going to be. ●



(top): This 1579 watercolor and ink map of Meztitlán was made by indigenous peoples to help Spanish invaders map occupied lands.

(bottom): The figures on the left of this 1580 watercolor map of Teozacoalco represent 10 generations of local rulers, including a series of footprints to indicate a marriage alliance with a neighboring town.

Image Source: Blanton Museum of Art

🗨 Edited for clarity.

BIOGRAPHY

Making a Mark on the Ocean Floor

BY DANIELLE HALL | *Smithsonian Institute* | July 2016

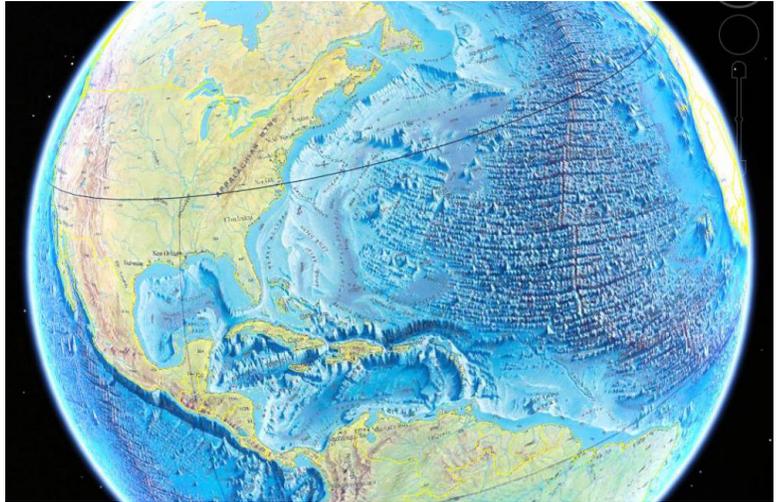
Until recently, oceanography was a field dominated by men. A seafaring career, oceanography was still influenced by the superstitions of ship life: a woman on board was considered to bring bad luck. It may come as a surprise then, that one of the most influential oceanographic cartographers of the 20th century was a woman, and she achieved such status without even stepping foot on a boat.

Marie Tharp produced one of the world's first comprehensive maps of the ocean floor. She and research partner Bruce Heezen transformed a once barren and flat landscape into a dynamic three-dimensional space with mountains, valleys and trenches. The maps she produced in the 1950s would spark a debate and later the discovery of the Mid-Atlantic Ridge, one of the key clues supporting the theory of continental drift. Today, Google Ocean features Tharp's hand-drawn work, which reveals the once hidden ocean floor to a generation of web users.

Oceanic cartographer was not a conventional career for a woman in the 1950s. However, as a child, Tharp was exposed to mapping and conducted field work with her father, a surveyor for the US Department of Agriculture. "I guess I had map-making in my blood, though I hadn't planned to follow in my father's footsteps," she wrote in her memoir, *Connect the Dots: Mapping the Seafloor and Discovering the Mid-ocean Ridge*.

Her passion for knowledge led her to Ohio University where she earned a degree in English and music. By the time of her graduation, the US was in the middle of World War II, and the nation was in desperate need of educated workers to fill the void left by men heading to battle. An opportunity opened at the University of Michigan for female students in the geology department, and Tharp became one of the master's programs first "Geology Petroleum Girls." Finding work within the petroleum industry unfulfilling, she earned a third degree in 1948 from Tulsa University in mathematics. Upon graduation she landed a position at the Lamont Geological Laboratory of Columbia University where she would conduct her most influential work.

Tharp became an interpreter and artist, analyzing SONAR pings from vessels crisscrossing the ocean and then scribing the data on canvas by hand. As she meticulously crunched and plotted data sent from ships in the open sea, an unknown world unfolded before her eyes. Continental shelves dipped to deep abyssal plains that were interspersed with canyons, mountain ranges and seamounts. One feature, a deep, continuous trench splitting a mountain range along the entire Atlantic Ocean, seemed too important to dismiss. After extensive



thought and recalculation Tharp proposed to Heezen, her superior, that they were looking at a rift valley—an area where the earth's crust splits and magma rises to form a new crust. But the idea of continental drift was so controversial within the scientific community that Heezen dismissed Tharp's hypothesis as "girl talk"—and then made her re-do all the charts.

It wasn't until Heezen himself discovered clustered seismic activity along Tharp's ridge that he began to agree with her rift valley hypothesis. After public announcement of the Columbia lab's discovery in 1957, a doubtful Jacques Cousteau, the famous ocean explorer, set out to disprove the unimaginable idea using one of his deep sea submersibles. Upon his arrival at the bottom of the ocean, Cousteau was dumbfounded—Tharp's rift valley was exactly where she mapped it to be.

With Tharp's ocean floor maps in hand, scientists during the 1960s formulated a revolutionary theory, what is now the accepted idea of plate tectonics. It wasn't until recently, however, that Tharp earned due credit for her work. In 1997, twenty years after the publication of her ocean map by the U.S. Office of Naval Research, she received honors from the Library of Congress, with her maps displayed in the 100th-anniversary Geography and Map Division celebration beside journal entries by Lewis and Clark.

Despite the public doubt, hardship, and obstacles that characterized much of her career, Tharp remained dedicated to her work, believing her maps would do the talking for her. "I was so busy making maps I let them argue. I figured I'd show them a picture of where the rift valley was and where it pulled apart," she once wrote. "There's truth to the old cliché that a picture is worth a thousand words and that seeing is believing." ●

A map of the mid Atlantic Ridge by Marie Tharp

Marie Tharp Historical Map Google Earth



WHAT HAS CITIES, BUT NO HOUSES; FORESTS, BUT NO TREES; AND WATER, BUT NO FISH?

Riddles.com

Edited for space.

MATHEMATICS

Sudoku

#31 PUZZLE NO. 2959119

			9					
1			5				4	
	6	8	1			2		
5	3	1		7				
6					1	7		
		7			3			2
			4		8		6	9
		2						5
		6		1				

©Sudoku.cool

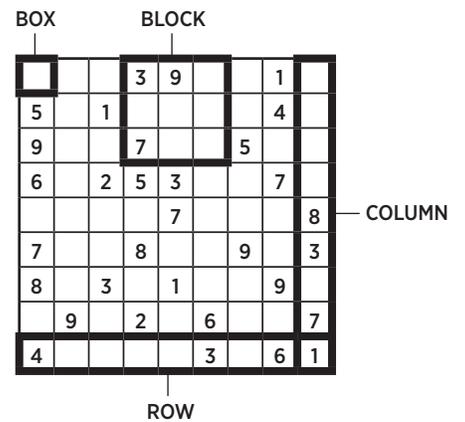
#32 PUZZLE NO. 8270740

							8	
			9	4	5		7	
5		1			8			3
	8				3	4		
			5				2	
7							5	8
	6			5			1	
			8		7			
	3				1			4

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SUDOKU HOW-TO GUIDE

1. Each block, row, and column must contain the numbers 1-9.
2. Sudoku is a game of logic and reasoning, so you should not need to guess.
3. Don't repeat numbers within each block, row, or column.
4. Use the process of elimination to figure out the correct placement of numbers in each box.
5. The answers appear on the last page of this newsletter.



What the example will look like solved

2	4	8	3	9	5	7	1	6
5	7	1	6	2	8	3	4	9
9	3	6	7	4	1	5	8	2
6	8	2	5	3	9	1	7	4
3	5	9	1	7	4	6	2	8
7	1	4	8	6	2	9	5	3
8	6	3	4	1	7	2	9	5
1	9	5	2	8	6	4	3	7
4	2	7	9	5	3	8	6	1



“A map says to you: Read me carefully, follow me closely, doubt me not ... I am the earth in the palm of your hand.”

BERYL MARKHAM // English-born Kenyan aviator // first person to fly solo, non-stop across the Atlantic

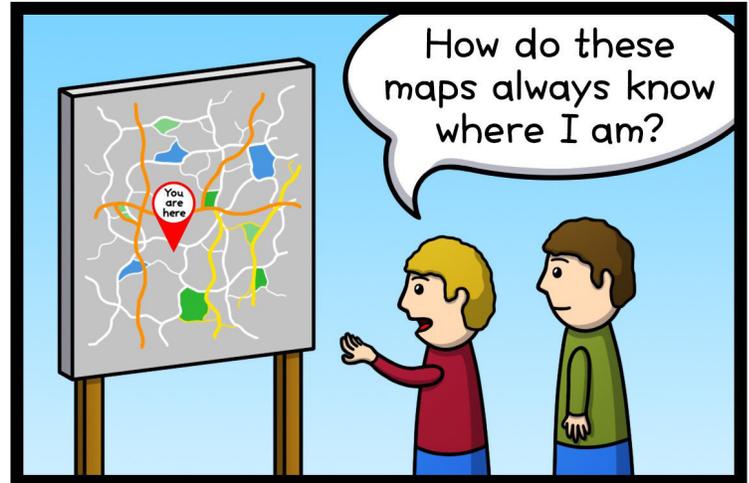
DID YOU KNOW?

Cartography is the study of maps and map making. Someone who makes maps is called a cartographer.

Modern mapmakers often incorporate **fake towns** into their maps, known as “paper towns.” If they come across another map with the same fake town, they know it is a copy!

The oldest globe on record dates back to around 1,500 and is carved on the surface of an **ostrich egg**. It’s also the first time the phrase “here be dragons” appears on a map.

The first map to use the name “America” was created by the German cartographer Martin Waldseemüller in 1507. It’s also one of the most expensive maps in the world—the US Library of Congress bought it in 2003 for **\$10 million!**



quipoftheiceberg.com™

Finnegan Hein

“Even before you understand them, your brain is drawn to maps.”

KEN JENNINGS // Record-breaking Jeopardy! winner and author

Idiom

“All roads lead to Rome”

Meaning There are various ways to reach a conclusion, many ways to achieve a goal, and many routes to arrive at a decision.

Origin The proverb *all roads lead to Rome* may be derived from a phrase coined by French poet Alain de Lille in the Middle Ages in 1175: “mille vie ducunt hominem per secula Romam,” which means “a thousand roads lead a man forever toward Rome.” Ancient Rome and the Roman empire is well-known for its engineering prowess. Many ancient Roman structures are still intact, including aqueducts, public Roman baths such as the Baths of Caracalla, walls such as Hadrian’s Wall and the Antonine Wall, and Roman architecture such as palaces, temples, and coliseums where one may view Roman concrete. Portions of many Roman roads such as the Appian Way or Via Appia are still in existence. These roads provided a route for a strong Roman economy and for rapid deployment of the Roman army. Every Roman road was considered to begin at the Milliarium Aureum or Golden Milestone, installed by Emperor Caesar Augustus in the Roman Forum in the City of Rome.

Source: Grammarist.com

NORTH MAY BE AT THE TOP OF MAPS TODAY, BUT THAT WASN’T ALWAYS THE CASE. DURING THE MIDDLE AGES, **MOST WESTERN MAPS PUT EAST AT THE TOP** INSTEAD. IN LATIN, THE WORD FOR EAST IS ORIENS, SO TO HOLD THE MAP CORRECTLY, YOU HAD TO “ORIENT” IT — THAT IS, MAKE SURE EAST WAS ON TOP. THIS IS WHERE WE GET THE WORD “ORIENTATION” TODAY.



THERE ARE TWO NORTHS: **TRUE NORTH AND MAGNETIC NORTH**. TRUE NORTH IS THE DIRECTION OF THE GEOGRAPHIC NORTH POLE. MAGNETIC NORTH IS THE DIRECTION THE NORTH END OF A NEEDLE IN A COMPASS POINTS. THE MAGNETIC NORTH POLE CAN ACTUALLY MOVE UP TO 25 MILES A YEAR AND HAS EVEN BEEN KNOWN TO SWAP PLACES WITH THE MAGNETIC SOUTH POLE.



IN 44 CE, ANCIENT ROMAN THINKER PLINY THE ELDER WROTE THAT EVERY CREATURE ON LAND HAS A COUNTERPART IN THE OCEAN. BECAUSE OF THAT, **ANCIENT MAPMAKERS WOULD DRAW SEA MONSTERS** ON THEIR MAPS TO LOOK LIKE AQUATIC VERSIONS OF FAMILIAR LAND ANIMALS: SEA COWS, SEA SERPENTS, SEA PIGS, MARINE PIG-DOGS, ETC.

Source: The Map to Everywhere

ART + CULTURE

The Map

BY MARIE HOWE

The failure of love might account for most of the suffering in the world.
The girl was going over her global studies homework
in the air where she drew the map with her finger

touching the Gobi desert,
the Plateau of Tiber in front of her,

and looking through her transparent map backwards
I did suddenly see,
how her left is my right, and for a moment I understood.

DRAWING PROMPT

No writing prompt this week! Instead, consider the way maps can visually help us understand how to get from here to there. With a pen/pencil and paper, draw a map of your own, maybe one that shows familiar places (like your hometown neighborhood), or maybe something more abstract. You could map the differences between people, ideas, or histories. The goal is to help whoever follows your map have a better understanding of the world around them.

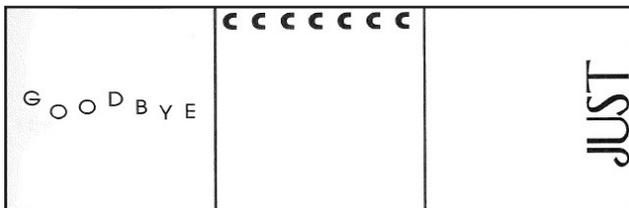
Source: *The Poetry Foundation*.

Marie Howe was born in 1950 in Rochester, New York. She worked as a newspaper reporter and teacher before receiving her MFA from Columbia University in 1983. She is the author of *Magdalene* (W. W. Norton, 2017), which was long-listed for the National Book Award; *The Kingdom of Ordinary Time* (W. W. Norton, 2009), which was a finalist for the *Los Angeles Times Book Prize*; *What the Living Do* (W. W. Norton, 1998); and *The Good Thief* (Persea Books, 1988), which was selected by Margaret Atwood for the 1987 National Poetry Series.

Word Search

G	U	N	D	E	R	S	T	O	O	D	A	T	T
U	R	O	F	I	N	G	E	R	G	C	N	O	H
L	T	G	T	D	G	P	T	L	N	W	H	N	G
T	E	O	E	O	T	E	O	A	O	W	S	R	I
L	E	B	F	S	R	D	S	G	N	V	C	R	R
D	L	I	B	R	O	R	L	T	L	R	E	T	E
R	R	E	B	I	T	O	N	R	U	L	E	F	T
R	D	B	G	T	B	E	F	N	R	D	O	A	E
I	E	P	L	A	T	E	A	U	A	P	I	V	V
S	G	E	L	I	W	O	R	L	D	A	A	E	C
F	I	A	C	C	O	U	N	T	L	U	G	N	S
L	R	T	R	A	N	S	P	A	R	E	N	T	R
B	L	S	O	I	A	D	B	S	E	E	R	E	G
E	T	A	A	B	A	C	K	W	A	R	D	S	D

- TIBER
- FINGER
- ACCOUNT
- STUDIES
- GIRL
- GOBI
- LOVE
- BACKWARDS
- UNDERSTOOD
- GLOBAL
- RIGHT
- TRANSPARENT
- LEFT
- SEE
- PLATEAU
- WORLD



WORD PLAY

A Rebus puzzle is a picture representation of a common word or phrase. How the letters/images appear within each box will give you clues to the answer! For example, if you saw the letters "LOOK ULEAP," you could guess that the phrase is "Look before you leap." *Answers are on the last page!*

GOVERNMENT

The Mapmaker's Craft | *A History of Cartography at CIA*

CIA.GOV | Nov 10, 2016

The CIA's Cartography Center provides maps, geographic analysis, and research in support of the Agency, the White House, senior policymakers, and intelligence at large. Its chief objectives are to analyze geospatial information, extract intelligence-related geodata, and present the information visually in creative and effective ways.

1940s | Map layers were drafted by hand on translucent acetate sheets mounted on large boards at larger sizes than needed for the final and printed at a reduced size. Standard symbols and labels preprinted on adhesive-backed cellophane sheets called "stick-up" were applied to maps. Cartographic support was key to the US war-planning strategy. *Cartographic production driven by:* World War II, postwar reconstruction, turmoil in the Middle East, communist expansion.

1950s | Map layers were drafted in pen and ink on vinyl sheets and type was handset using precast lead letters. Cartographers learned scribing techniques to produce high-quality line-work for maps and adapted shaded relief techniques to better depict the nature of the terrain on maps. *Cartographic production driven by:* the Cold War, the Korean war, French defeat in Vietnam, the Suez crisis, the rise of the Castro regime in Cuba.

1960s | The Director encouraged analysts to use visual arts to help explain complex problems. A large working group, using a borrowed digitizer, compiled and digitized coastlines and international boundaries for the entire world—in a single weekend. This digital geographic database, World Data Bank I, contained more than 100,000 vertices that could be projected, eliminating the need for hand-scribing coastlines. *Cartographic production driven by:* the Bay of Pigs invasion, the Cold War, the Cuban Missile Crisis, the Six-Day War, the Soviet expansion, involvement in Vietnam, numerous African countries gaining independence.

1970s | The development of World Data Bank II was emphasized, and more detailed data was added to the growing database, including rivers, roads, railroads, administrative divisions, populated places, and attributes. Electronic typesetting led to improved efficiency, which caused an increase in research projects, especially atlases and street guides. *Cartographic production driven by:* the Vietnam war, President Nixon's visit to China, the Arab oil embargo, Camp David accords, Soviet invasion of Afghanistan, the Islamic Revolution and seizure of US Embassy officers in Tehran.

1980s | The demand for maps in briefing materials and publications increased dramatically, with more complex requests and shortened time frames. Cartography made a technological transition—from a time-intensive manual system to a computer-automated system that allowed quicker turnaround times and more innovative ways of presenting intelligence. Cartographers received interactive color workstations to construct 3D terrain models. *Cartographic production driven by:* the Falklands War, the Iran-Iraq war, the Israeli invasion of Lebanon, major acts of terror against US Marines, troop action in Grenada and Panama.

1990s | Improved computer graphics, such as 3D terrain perspectives and animation, spurred greater sophistication and effectiveness in the use of color, symbolism, and design to convey intelligence stories, while the rise of geodata sources and Geographic Information Systems technology led to advancements in data classification, manipulation, and rendering. *Cartographic production driven by:* major humanitarian crises in Africa and Central America, the proliferation of weapons of mass destruction, narcotics trafficking, the Middle East Peace Process, the Persian Gulf war, the breakup of the Communist Bloc, peacekeeping operations in Bosnia and Herzegovina.

2000s | Hardcopy publications became obsolete as the emphasis shifted to electronic briefings. Cartographers constantly adapted workflow to make the best use of available software and new technologies for creating and disseminating products. The rise of global terrorism also pushed cartographers to try new avenues for conveying the complex phenomena for policymakers. *Cartographic production driven by:* natural disasters and pandemics; turmoil in Africa, the Middle East, and former Yugoslavia; nuclear developments in Iran and North Korea; terrorism, including the 9/11 attacks and resulting operations in Afghanistan and Iraq.

2010s | Recent years have witnessed a push toward modernization of cartography workflow and technology, especially toward web and mobile platforms, which handle software and large amounts of data more efficiently, and using open-source mapping tools help visualize big data. *Cartographic production driven by:* the Ebola virus and natural disasters resulting in humanitarian crises, the rise of the Arab Spring, the Russian invasion of Crimea, spread of terrorism and the self-proclaimed Islamic State of Iraq. ●



BEFORE MT. EVEREST WAS DISCOVERED, **WHAT WAS THE HIGHEST MOUNTAIN IN THE WORLD?**

I TRAVEL AROUND THE WORLD, BUT ONLY STAY IN ONE CORNER. **WHAT AM I?**

Riddles.com

● Edited for clarity.

HISTORY

From Ptolemy to GPS, the Brief History of Maps

BY CLIVE THOMPSON | *Smithsonian Magazine* | July 2017

Last spring, a young woman was driving through an Ontario town. It was unfamiliar territory for her, so she was dutifully following her GPS. Indeed, she was so intent on following the device that she didn't notice that her car was headed straight for Georgian Bay—she drove down a boat launch and right into the frigid water. She thankfully managed to climb out and swim to shore, as her car sank beneath the waves.

Is it possible that today's global positioning systems and smartphones are affecting our basic ability to navigate? Will technology alter forever how we get around?

Most certainly—because it already has. Three thousand years ago, our ancestors began a long experiment in figuring out how they fit into the world, by inventing a bold new tool: the map.

One of the oldest surviving maps is, ironically, about the size and shape of an early iPhone: the Babylonian Map of the World. A clay tablet created around 500 B.C. in Mesopotamia, it depicts a circular Babylon at the center, bisected by the Euphrates River and surrounded by the ocean. It doesn't have much detail, but it wasn't really for navigation. It was more primordial: to help the map-holder grasp the idea of the whole world, with himself at the center.

"There was something almost talismanic, I think, about having the world in your hand," says Jerry Brotton, a London professor who specializes in cartography. Indeed, accuracy wasn't a great concern of early map-drawers. Maps were more a form of artistic expression, or a way of declaring one's fiefdom.

The first great attempt to make mapping realistic came in the second century with Claudius Ptolemy. He was an astronomer and astrologer obsessed with making accurate horoscopes, which required precisely placing someone's birth town on a world map.

Ptolemy gathered documents detailing the locations of towns, and he augmented that information with the tales of travelers. By the time he was done, he had devised a system of lines of latitude and longitude, and plotted some 10,000 locations. Ptolemy even invented ways to flatten the planet (he knew the Earth was round) onto a two-dimensional map. He called this new technique "geography."

After the Roman Empire fell, Ptolemy's realistic geography was lost to the West. Once again, maps were concerned more with storytelling: A famous 12th-century map commissioned by a King of Sicily neatly blended Islamic and Christian cities together.

Other Christian maps cared even less about accuracy: They were designed to show how the story of Christ

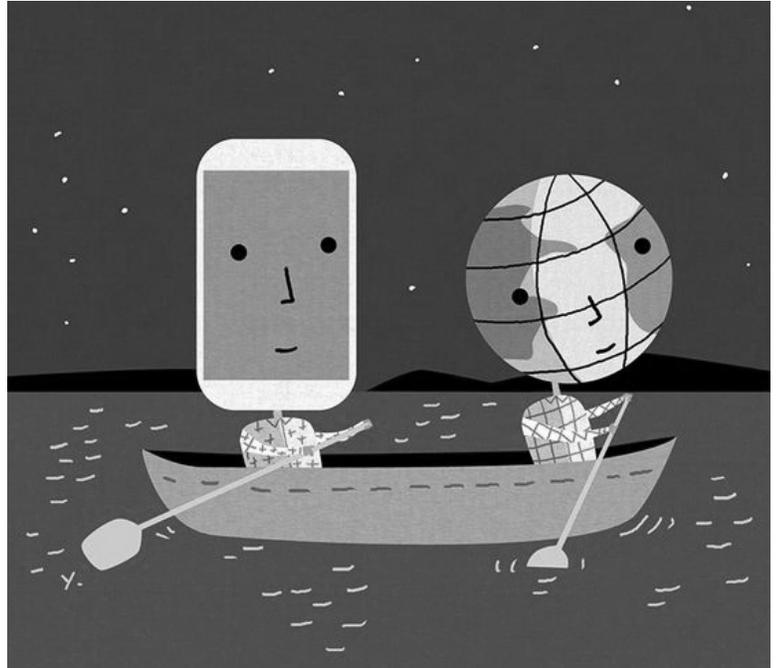


Illustration by
James Yang

spread around the world. The most famous of these was a massive creation drawn on a single animal skin. Almost none of Europe, Asia or North Africa is recognizable.

At the top of the map were pictures showing Adam and Eve tossed out of Eden, and Christ returning on the Day of Judgment. The map wasn't intended to get you from town to town. It was designed to guide you to heaven.

As the Renaissance dawned, maps began to improve. Commerce demanded it—ships were crossing oceans, and kings engaged in empire-building needed to chart their lands. Technology like compasses drove maps to greater accuracy. Ptolemy's ancient work was rediscovered, and new maps were drawn based on his thousand-year-old calculations.

Indeed, Christopher Columbus' voyage to America was partly due to Ptolemy's errors. Ptolemy thought the world was 30% smaller than it actually is, and the map used by Columbus was measured in Arabian miles, which were longer than Italian ones. These mistakes led him to believe the voyage to Asia would be much shorter. It was an early example of a GPS-like near disaster.

As sea trade increased, maps of the New World became better—at least the seacoasts and major rivers. The inland of America was mostly a mystery; mapmakers often draw it as a big blank space labeled "terra incognita."

This was becoming the cardinal rule of maps: "No map entirely tells the truth," notes Mark Monmonier,

author of *How to Lie With Maps*. “There’s always some distortion, some point of view.”

Indeed, everyday people were realizing that a map was an act of persuasion, a visual rhetoric. In 1553, gentry in Surrey, England, drew a map of the town’s central fields, to prove these were common lands—and that villagers thus should be allowed to graze animals there. Meanwhile, educated people began collecting maps and displaying them as symbols of intelligence. Even if you couldn’t read the words on a map from a foreign country, you could generally understand it, and even navigate by it. The persuasive power of a map was that it made data visual.

Maps weren’t just symbols of power: They conferred power. With a good map, a military had an advantage in battle, a king knew how much land could be taxed. Western maps showing Africa’s interior as empty—the mapmakers had little to go on—gave empires dreamy visions of claiming Africa for themselves: All that empty space seemed, to them, ripe for the taking. Maps helped propel the depredations of colonialism.

By the late 19th century, the surge in mathematical reasoning and measurement technology made mapmaking explode. Breakthroughs in binocular lenses allowed surveyors to measure scores of miles at a glance. World maps became increasingly accurate.

Local mapping became deeply granular. The British Ordnance Survey began mapping the U.K. down to the square yard, and a German entrepreneur produced similarly nuanced maps of European cities. Tourists could now confidently tour foreign realms, their annually updated guides in hand, able to locate individual buildings, much like today’s citizens peering at Google Maps on their phones.

Maps could change the way people understood the world around them. In the 1880s, the social reformer Charles Booth produced a moral map of London, with houses color-coded by income and—in Booth’s shaky calculations—criminal tendencies. Booth wanted to help aid the poor by showing geography was tied to destiny, but his techniques wound up reinforcing it, leading to classist practices like redlining.

These days, our maps seem alive: They speak, in robotic voices, telling us precisely where to go—guided by the satellites and mapping of companies like Google. There’s no need even to orient yourself north: The robot voice tells you to turn right, turn left, with you always at the center.

Experts worry, though, that GPS is weakening something fundamental in ourselves, corroding not just our orientation skills, but how well we remember the details of the world around us. A 2008 study found that “GPS eliminates much of the need to pay attention.”

Others argue the convenience of GPS and online mapping means we live in an increasingly cartographic age. Many online searches produce a map as part of the

search results. People today see far more maps in a single day than they used to.

It’s possible both effects are true. Technology hasn’t changed some of our oldest urges. When the historian Brotton visited Google, the engineers showed him a huge, wall-sized version of Google Earth. They asked him, whenever a visitor shows up to try it out, what’s the first thing they zoom in to look for? Their own home.

“They go, wow, look at that!” Brotton says. It’s the same perspective as the people who held that Babylonian clay tablet nearly three millennia ago: using a map to figure out where, exactly, we stand. ●

🔗 Edited for space.

RANDOM-NEST

Types of Maps

BY AMANDA BRINEY | INFORMATION TAKEN FROM THOUGHTCO | 2020

Political Maps | A political map focuses on the state and national boundaries of a place. These maps also include the locations of cities large and small, depending on the detail of the maps.

Physical Maps | A physical map is one that documents landscape features of a place. These maps generally show things like mountains, rivers, and lakes. Bodies of water are commonly shown in blue. Mountains and elevation changes are sometimes shown with different colors and shades to show elevation.

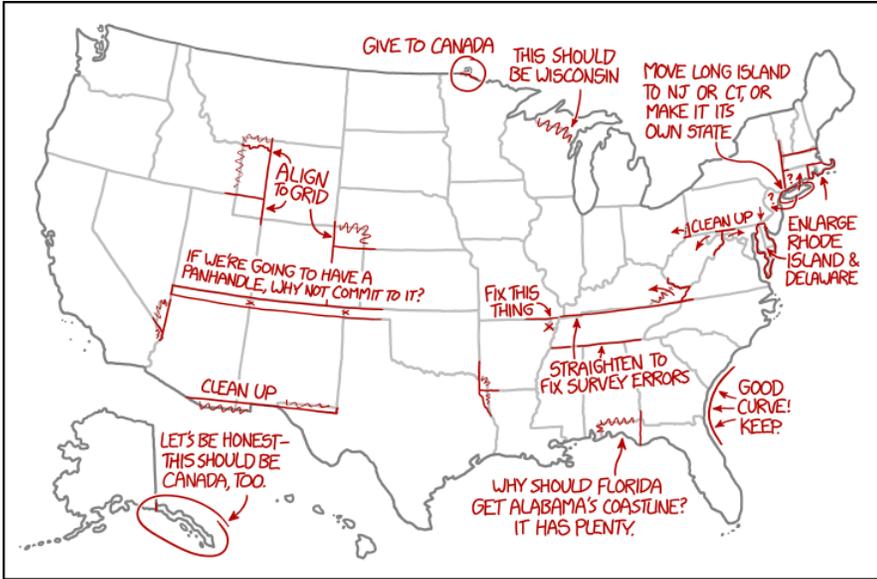
Topographic Maps | A topographic map is similar to a physical map in that it shows different physical landscape features. Unlike physical maps, though, this type of map uses contour lines instead of colors to show changes in the landscape. Contour lines on topographic maps are normally spaced at regular intervals to show elevation changes (e.g. each line represents a 100-foot elevation change). When lines are close together, it means the terrain is steep.

Climate Maps | A climate map shows information about the climate of an area. These maps can show things like the specific climatic zones of an area based on the temperature, the amount of snow an area receives, or the average number of cloudy days. These maps normally use colors to show different climatic areas.

Economic or Resource Maps | An economic or resource map shows the specific types of economic activity or natural resources present in an area through the use of different symbols or colors depending on what is being depicted.

Road Maps | A road map is one of the most widely used map types. These maps show major and minor highways and roads (depending on the degree of detail), as well as things like airports, cities, and points of interest such as parks, campgrounds, and monuments. Major highways on a roadmap are generally shown with thick, red lines, while minor roads are lighter in color and drawn with narrower lines.

Thematic Maps | A thematic map is a map that focuses on a particular theme or special topic. These maps are different from the six aforementioned general reference maps because they do not just show features like rivers, cities, political subdivisions, elevation, and highways. If these items appear on a thematic map, they are background information and are used as reference points to enhance the map’s theme.



IT WAS SCARY WHEN THE GRAPHIC DESIGNERS SEIZED CONTROL OF THE COUNTRY, BUT IT TURNED OUT THEY JUST WANTED TO FIX SOME THINGS ABOUT THE STATE BORDERS THAT HAD ALWAYS BOTHERED THEM.

xkcd.com

Words of Encouragement

“Life is not easy for any of us. But what of that? We must have perseverance and above all confidence in ourselves. We must believe that we are gifted for something and that this thing must be attained.” MARIE CURIE

I searched for a quote that felt ‘right’ when I thought of the amazing students that I had the privilege of learning from. I think of you all often, and the profound impact that you had on me. I was blown away by your courage, enthusiasm, intellect, and perseverance. I chose this quote because of how extraordinary you were in class. You are all incredibly gifted individuals and I hope that you continue to learn during this time. Have conversations about ideas. Read books with new perspectives. Challenge yourselves to find the creative solutions. Look for the lessons in adversity. Continue to invest in yourselves. Then take all of the new lessons and knowledge with you once you can enter the classroom again. I imagine things must be especially difficult right now, and above all else, I hope that you all are doing well. I’m sending well wishes and good vibes your way.

Ania



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Answers

SUDOKU #31

2	5	4	9	3	6	8	7	1
1	7	3	5	8	2	9	4	6
9	6	8	1	4	7	2	5	3
5	3	1	2	7	4	6	9	8
6	2	9	8	5	1	7	3	4
4	8	7	6	9	3	5	1	2
7	1	5	4	2	8	3	6	9
3	4	2	7	6	9	1	8	5
8	9	6	3	1	5	4	2	7

SUDOKU #32

4	7	6	1	3	2	9	8	5
3	2	8	9	4	5	1	7	6
5	9	1	6	7	8	2	4	3
2	8	5	7	1	3	4	6	9
6	4	3	5	8	9	7	2	1
7	1	9	4	2	6	3	5	8
9	6	2	3	5	4	8	1	7
1	5	4	8	9	7	6	3	2
8	3	7	2	6	1	5	9	4



Brainteasers

Page 3 A map

Page 6 Rebus Puzzle:

1. Waving goodbye
2. High seas
3. Just right

Page 7 Mt. Everest; it just wasn't discovered yet. // A stamp

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UNTIL NEXT TIME