

March 22, 2016 - SCIENCE AND STUFF

According to Smithsonian Magazine, Twitter may be faster than FEMA for tracking disaster damage. They report on studies by a data scientist in Australia. Of course, since FEMA is part of the government, you already knew it would be poorly run. ... *Rapid response in areas hardest hit by hurricanes, floods, earthquakes and other natural disasters can save lives and help first responders best allocate limited resources to places that are most in need. But traditional means used to identify high priority locales are surprisingly clumsy and expensive, often requiring personal visits to sites or aerial surveys.*

Suspecting that social media could do a better job, Kryvasheyev and his colleagues homed in on 2012's Hurricane Sandy as a case study. They accumulated more than 55 million geo-tagged tweets posted one week preceding and three weeks following the storm. The tweets included keywords such as "sandy", "frankenstorm", "flooding" and "damage".

The team standardized the data using demographic figures of neighborhood populations, which allowed them to directly compare the number of tweets from places that are heavily populated, like Manhattan, with places that are less densely packed. Finally, they consulted as many sources as possible on actual damage caused by the storm, including insurance claims and FEMA data.

As the researchers report today in Science Advances, combining the social media findings and the damage assessments on a map revealed significant overlap, with hardest hit areas also producing the most chatter on Twitter.

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Two hundred years ago three years of cold weather came from the eruption of one volcano. NY Times has the story.

In April 1815, the most powerful volcanic blast in recorded history shook the planet in a catastrophe so vast that 200 years later, investigators are still struggling to grasp its repercussions. It played a role, they now understand, in icy weather, agricultural collapse and global pandemics — and even gave rise to celebrated monsters.

Around the lush isles of the Dutch East Indies — modern-day Indonesia — the eruption of Mount Tambora killed tens of thousands of people. They were burned alive or killed by flying rocks, or they died later of starvation because the heavy ash smothered crops.

More surprising, investigators have found that the giant cloud of minuscule particles spread around the globe, blocked sunlight and produced three years of planetary cooling. In June 1816, a blizzard pummeled upstate New York. That July and August, killer frosts in New England ravaged farms. Hailstones pounded London all summer.

A recent history of the disaster, "Tambora: The Eruption that Changed the World," by Gillen D'Arcy Wood, shows planetary effects so extreme that many nations and communities sustained waves of famine, disease, civil unrest and economic decline. Crops failed globally.

"The year without a summer," as 1816 came to be known, ...

Haikai Magazine on the importance of whale poop. (More proof Pickerhead will read anything)

In the Southern Ocean, surrounding Antarctica, blue whales were nearly wiped out by industrial whaling from the 1920s to 1940s. But now, with whaling curtailed, the whales are surging back: their population growing by 7.3 percent per year. By 2066, blue whale numbers could be back to historic levels. For conservationists, this last-minute rescue of the largest animals on Earth is a good news story. For others, the blue whale's return is a daunting prospect. As conventional thinking suggests, the resurgence of these massive creatures—with their equally massive appetites—is creating an ever-greater competition for the commercial krill fishery.

These worries are not entirely unfounded. In the Southern Ocean, shrimp-like krill sit near the base of the food web. Estimates place the total krill biomass in the sea at 379 million tonnes. Each year, commercial trawlers pull in up to 5.6 million tonnes, and during peak feeding season a blue whale can eat nearly four tonnes of krill a day. With a pre-whaling population of 239,000 in the Southern Ocean, blue whales will soon be consuming a decent chunk of the total krill. That would leave the commercial trawl fleet—mostly from Norway, South Korea, and China—with fewer krill to use in fish meal for aquaculture and aquarium feeds, in vitamins or pharmaceuticals, or as bait for sport fishing.

Countering this conventional thinking, a study headed by marine biologist Trish Lavery suggests that blue whales are not exploitive gluttons that will ruin the commercial krill fishery. Instead, the mammals are actually an important and previously overlooked contributor to marine productivity. Blue whales don't decimate krill populations, they bolster them.

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Since whales defecate near the ocean's surface, most of this iron enters the water in the photic zone, where light can reach it. Each whale deposit, then, kicks off a burst of photosynthetic activity and triggers a phytoplankton bloom. In turn, these phytoplankton are the main food source for krill. ...

From whale poop to British Columbian mud; more tales of dirt and its uses. The story from Popular Science.

... The researchers incubated various strains of pathogens with clay samples or only with water as a control and found that 16 strains of the bacteria samples died when incubated with clay.

The clay, known as Kisomeet, came from a deposit northwest of Vancouver, and has been used by aboriginal Canadians for several centuries to treat ulcerative colitis, stomach ulcers, arthritis, and skin irritations, according to anecdotal reports.

The researchers suggest that the clay could eventually be an option for treating bacterial infections from ESKAPE pathogens in hospitals, especially in "last-resort situations."

Rousseau's idea of the "noble savage" has been one of the most destructive philosophies. You can see a modern version in socialist campaigns such as Bernie's that tell us all would be well if only the 1% was brought to heel. Science20.com has a post on digs in Africa that suggest Hobbesian views of life with nature as "nasty brutish and short" are more on the mark.

Scientists have pieced together an early human habitat for the first time, and life was no organic picnic 1.8 million years ago. Nature was out to kill us and the struggle our ancestors face, as all creatures do, is survival. Rather than the myth of ecological balance, if you were going to survive, you got there earlier and were more fit to last.

To accomplish that, our human ancestors, who looked like a cross between apes and modern humans, created stone tools with sharp edges and made sure they had ready access to food, water and shady shelter, according to remnants at Olduvai Gorge, Tanzania.

But it was tough living, she said. "It was a very stressful life because they were in continual competition with carnivores for their food," said Gail M. Ashley, anthropologist at Rutgers University. ...

For a welcome change of pace we have a [NY Times](http://NYTimes.com) profile of Jessica Mendoza an ESPN baseball analyst. She'll be working one of the mikes Thursday night in an ESPN broadcast of a spring training game between the Cubs and Giants. Pickerhead first heard her last summer when Jake Arietta threw a no hitter against the Dodgers. *Well before Jessica Mendoza was analyzing the batting performances of major leaguers on Sunday nights for [ESPN](http://ESPN.com), her father was using videotape to break down her at-bats in softball.*

If she stepped into the bucket or didn't rotate her hips, Gil Mendoza's video showed it. If she didn't pay attention to her stride, the video made his admonitions more pointed.

"His tripod was out all the time," she said, smiling at the memory. "I wanted to get some swings in, and he wanted to videotape us."

Gil Mendoza, who has coached football, softball and baseball for decades in this area, knew how much video augmented what he told his hitters, whether they were in high school or college, or were his daughters, Jessica and Alana. "I started with them when they were 5 or 6," he said. "I videotaped everything: their soccer, basketball and track." ...

Smithsonian

Twitter May Be Faster Than FEMA Models for Tracking Disaster Damage

Real-time online activity could provide speedier assessments as disaster unfolds than tools currently used by the government agency

by Rachel Nuwer



Houses on the New Jersey shore sit in ruins in July 2013, roughly eight months after Hurricane Sandy made landfall in the area.

Social media is useful for more than just connecting with old high school friends and sharing cat videos. Twitter has become the go-to platform for breaking news on everything from the Boston Marathon bombing to the [flyby of Pluto](#).

Now, research reveals that Twitter can also be used for rapid damage tracking after natural disasters—possibly even more quickly and expansively than similar assessments carried out by FEMA.

“It turns out the relationship between actual physical damage and the response online is quite strong,” says [Yury Kryvasheyeu](#), a computational social scientist at Data61, an Australian digital and data innovation group. “You can get a quick, free signal that reliably maps the damage.”

This isn’t the first time Kryvasheyeu and his colleagues have used social media to gain real-world insights. They previously examined unemployment, epidemics and social mobilization through the lens of Twitter and other platforms. But this is the first time they’ve carried out an analysis on such an intensive timescale.

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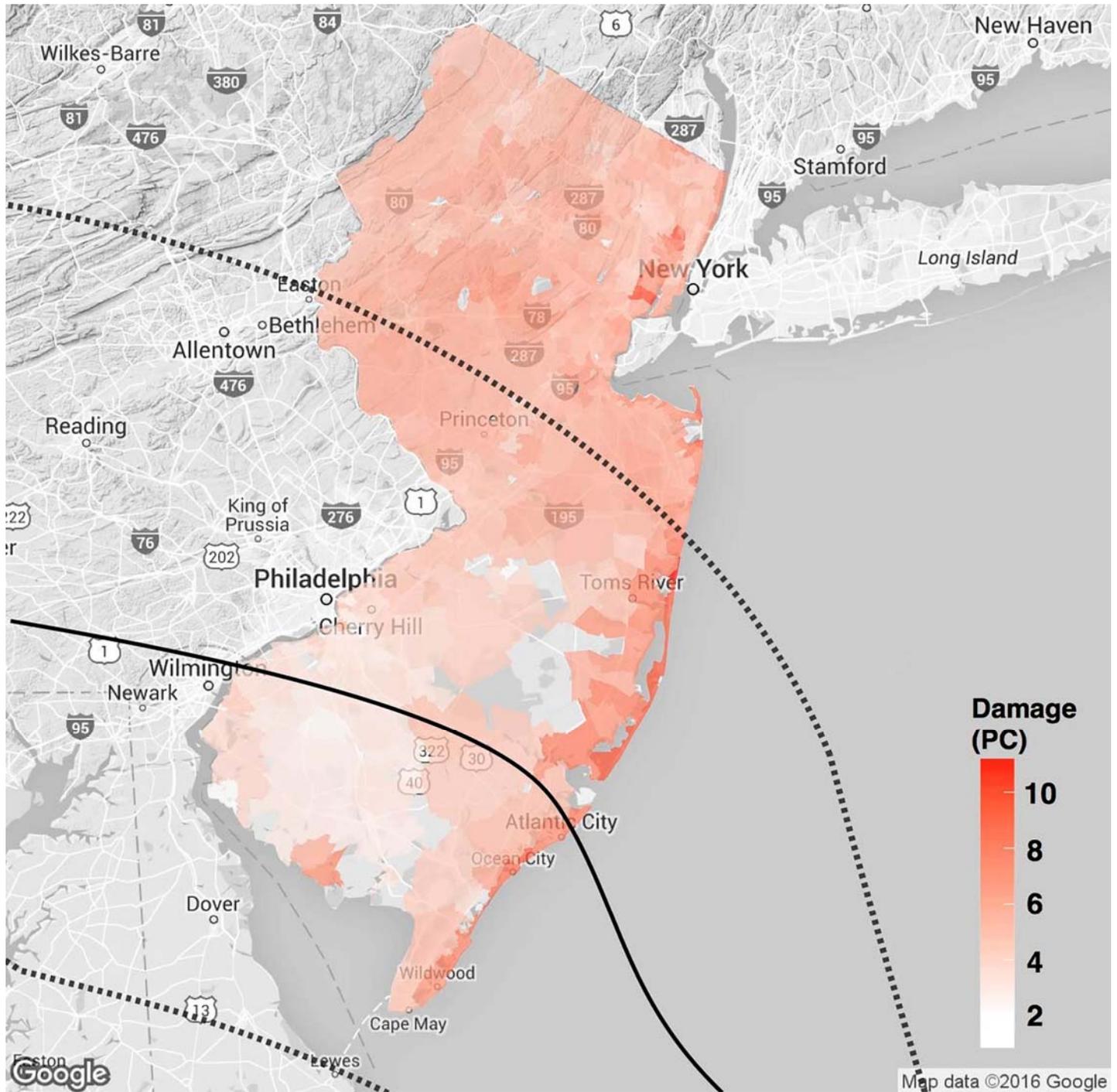
Suspecting that social media could do a better job, Kryvasheyeu and his colleagues homed in on 2012’s [Hurricane Sandy](#) as a case study. They accumulated more than 55 million geo-tagged tweets posted one week preceding and three weeks following the storm. The tweets included keywords such as "sandy", "frankenstorm", "flooding" and "damage".

The team standardized the data using demographic figures of neighborhood populations, which allowed them to directly compare the number of tweets from places that are heavily populated, like Manhattan, with places that are less densely packed. Finally, they consulted as many

sources as possible on actual damage caused by the storm, including insurance claims and FEMA data.

As the [researchers report today](#) in *Science Advances*, combining the social media findings and the damage assessments on a map revealed significant overlap, with hardest hit areas also producing the most chatter on Twitter.

“For me, the biggest surprise was that this actually works so well, and that the signal is so strong,” Kryvasheyeu says.



An intensity map of damage caused by Hurricane Sandy in the New Jersey area (red gradient), together with the hurricane track (solid line).

The researchers further verified their findings by performing the same exercise on all major disasters declared by FEMA in 2013 and 2014, including floods, tornadoes, a mudslide and an earthquake. They found that the method worked for 11 of the 12 events; the outlier—flooding in Alaska—was likely in an area too sparsely populated to produce a strong signal on Twitter.

The study exemplifies the use of “social media as a mirror reflecting society,” says [Kristina Lerman](#), a computer scientist at the University of Southern California who was not involved in the research. Although that reflection is sometimes more akin to “a funhouse mirror, distorting some segments of society,” it is still clear enough in many cases to derive accurate measurements on important topics, she says.

First responders can begin using the method—using Twitter to identify hotspots during a disaster—immediately, Kryvasheyev says, as implementing it requires nothing more than Twitter, openly available Census Bureau demographic data and some basic computer programming skills. More than that, though, Kryvasheyev and his colleagues hope that Twitter itself may take up the effort in-house, as [Google has done](#) to help UNICEF map the spread of Zika virus.

“There’s a trend now of big technology companies helping NGOs, because they have better engineers, computers and data,” says study co-author [Manuel Cebrian](#), also a computational social scientist at Data61. “Our hope is that this is something Twitter can do in collaboration with emergency managers.”

NY Times

[A Volcanic Eruption That Reverberates 200 Years Later](#)

by William J. Broad



The deep volcanic crater, top, was produced by the eruption of Mount Tambora in Indonesia in April 1815 - the most powerful volcanic blast in recorded history.

In April 1815, the most powerful volcanic blast in recorded history shook the planet in a catastrophe so vast that 200 years later, investigators are still struggling to grasp its repercussions. It played a role, they now understand, in icy weather, agricultural collapse and global pandemics — and even gave rise to celebrated monsters.

Around the lush isles of the Dutch East Indies — modern-day Indonesia — the [eruption of Mount Tambora](#) killed tens of thousands of people. They were burned alive or killed by flying rocks, or they died later of starvation because the heavy ash smothered crops.

More surprising, investigators have found that the giant cloud of minuscule particles spread around the globe, blocked sunlight and produced three years of planetary cooling. In June 1816, a blizzard pummeled upstate New York. That July and August, killer frosts in New England ravaged farms. Hailstones pounded London all summer.

A recent history of the disaster, “Tambora: The Eruption that Changed the World,” by Gillen D’Arcy Wood, shows planetary effects so extreme that many nations and communities sustained waves of famine, disease, civil unrest and economic decline. Crops failed globally.

“The year without a summer,” as 1816 came to be known, gave birth not only to paintings of fiery sunsets and tempestuous skies but two genres of gothic fiction. The freakish progeny were Frankenstein and the human vampire, which have loomed large in art and literature ever since.

“The paper trail,” said Dr. Wood, a University of Illinois professor of English, “goes back again and again to Tambora.”

The gargantuan blast — 100 times bigger than Mount St. Helens’s — and its ensuing worldwide pall have been the subject of increasing study over the years as scientists have sought to comprehend not only the planet’s climatological past but the future likelihood of such global disasters.

Clive Oppenheimer, a volcanologist at the University of Cambridge, who has studied the Tambora catastrophe, put the chance of a similar explosion in the next half-century as relatively low — perhaps 10 percent. But the consequences, he added, could run extraordinarily high.



The Mount Tambora eruption's profound aftermath influenced the skies of 19th-century paintings like "Chichester Canal," above, by J.M.W. Turner.

“The modern world,” Dr. Oppenheimer said, “is far from immune to the potentially catastrophic impacts.”

Before it exploded, Tambora was the tallest peak in a land of cloudy summits. It lay atop the tropic isle of Sumbawa, its spires rising nearly three miles. Long dormant, the mountain was considered a home to gods. Villages dotted its slopes, and nearby farmers grew rice, coffee and pepper.

On the evening of April 5, 1815, according to contemporary accounts, flames shot from its summit and the earth rumbled for hours. The volcano then fell silent.

Five days later, the peak exploded in a deafening roar of fire, rock and boiling ash that was heard hundreds of miles away. Flaming rivers of molten rock ran down the slopes, destroying tropic forests and villages. Days later, still raging but by then hollow, the mountain collapsed, its height suddenly diminished by a mile.

Locally, an estimated 100,000 people died. Sumbawa never recovered.

The repercussions were global, but no one realized that the widespread death and mayhem arose from an eruption halfway around the world. What emerged was regional folklore. New Englanders called 1816 “eighteen hundred and froze to death.” Germans called 1817 the year of the beggar. These and many other local episodes remained unknown or unconnected.

It was scientists who began to stitch together the big picture, especially the peculiar link between fiery volcanism and icy weather. An overarching goal was to separate natural climate fluctuations from those of human origin. One after another, studies came back to New England and its frigid summer of 1816.

Dr. Wood expanded the portrait in his book, which is due out in paperback next month. It draws on hundreds of scientific papers as well as Dr. Wood’s knowledge of 19th-century literature to lay bare three years of planetary mayhem as well as the origins of fictional demons.

“My interest was to understand a global event,” Dr. Wood said in an interview, “and that meant serious detective work in lots of unfamiliar archives.” Five years of inquiry took him to China, Europe and India.

It also transported him to Tambora, where he braved leeches and razor-sharp leaves to peer across its yawning caldera, four miles from rim to rim.

The exploding mountain, the book notes, heaved some 12 cubic miles of earthen matter to a height of more than 25 miles. While coarse particles soon rained out, finer ones traveled the high winds in a spreading cloud. “It passed,” Dr. Wood wrote, “across both south and north poles, leaving a telltale sulfate imprint on the ice for paleoclimatologists to discover more than a century and a half later.”

The global veil, high above rain clouds, reflected much sunlight back into space. So the planet cooled. The pall, Dr. Wood said, also spawned tempests far below.

His book reprints an [1816 oil painting of Weymouth Bay](#), a sheltered cove on England’s south coast, by John Constable — the sky above churning with dark clouds. “Everywhere,” Dr. Wood said, “the volcanic winds blew hard.” He noted that both history and computer models speak of fierce storms back then.

The particles high in the atmosphere also produced spectacular sunsets, as detailed in the famous [paintings of J.M.W. Turner](#), the English landscape pioneer. His vivid red skies, Dr. Wood remarked, “seem like an advertisement for the future of art.”

The story also comes alive in local dramas, none more important for literary history than the birth of Frankenstein’s monster and the human vampire. That happened on Lake Geneva in Switzerland, where some of the most famous names of English poetry had gone on a summer holiday.

By 1816, Switzerland, landlocked and famously rugged, was beginning to reel from the bad weather and failed crops. Starving mobs stormed bakeries after bread prices soared. The book recounts a priest’s distress: “It is terrifying to see these walking skeletons devour the most repulsive foods with such avidity.”

That June, the cold and stormy weather sent the English tourists inside a lakeside villa to warm themselves by a fire and exchange ghost stories. [Mary Shelley](#), then 18, was part of a literary coterie that included [Percy Shelley](#), her future husband, as well as [Lord Byron](#). Wine flowed, as did laudanum, a form of opium. Candles flickered.

In this moody atmosphere, [Mary Shelley](#) came up with her lurid tale of Frankenstein, which she published two years later. And Lord Byron hit on the outline of the modern vampire tale, published later by a compatriot as “[The Vampyre](#).” The freakish weather also inspired Byron’s apocalyptic poem “[Darkness](#).”

Dr. Wood’s book documents many other repercussions of the planetary chill, devoting a chapter to a cholera pandemic of 1817 that began in India and globally killed tens of millions of people. Dr. Wood attributes its rise to a deadly combination of monsoonal changes and pounding rains — a main theory of leading cholera detectives.



A harbor scene by Caspar David Friedrich, painted after the Tambora eruption, depicts a vivid sky.

The pandemic spread and eventually reached the Dutch East Indies. On Java alone it killed an estimated 125,000 people — more, Dr. Wood noted, “than died in the volcanic eruption itself.”

He also profiles the wintry chill in Yunnan Province in southern China, a land of mountains and jungles roamed by tigers and elephants. Rice crops there quickly failed, and famine gnawed deep for years. In July 1816, Dr. Wood noted, the province had “unprecedented snows.”

The poet, Li Yuyang, who was 32 as Tambora began its global rampage, wrote of cold downpours and flash flooding in “A Sigh for Autumn Rain.”

Water spilling from the eaves deafens me.
People rush from falling houses in their thousands
And tens of thousands, for the work of the rain
Is worse than the work of thieves. Bricks crack. Walls fall.
In an instant, the house is gone.

Dr. Wood closes with a portrait of the eastern United States in 1816, focusing first on upstate New York. One day that June, four young classmates walked to school, most barefoot. Then a blizzard struck. Dismissed early, the children ran for their lives as the snow rose to their knees. They succeeded in reaching warm cabins and fires.

For Thomas Jefferson, the pain lasted longer. The retired third president of the United States, at his estate in Virginia, faced a disastrous summer in 1816 because of the remarkably short growing season. The next year was just as bad.

In a letter, Jefferson expressed concern about the possible ruin of his Monticello farm “if the seasons should, against the course of nature hitherto observed, continue constantly hostile to our agriculture.”

The countless victims and occasional beneficiaries of Tambora’s fury were oblivious to the volcanic roots of their circumstances, Dr. Wood noted, making the challenge of writing about it formidable and “occasionally mind-bending.”

More generally, he said, the revelation of global volcanic ruin — a portrait 200 years in the making — offers a kind of meditation on the difficulty of uncovering the subtle effects of climate change, whether its origins lie in nature’s fury or the invisible byproducts of human civilization.

It is, Dr. Wood remarked, “hard to see and no less difficult to imagine.”



Blue whales are kind of like farmers, if farmers used their own feces as manure.

In the Southern Ocean, surrounding Antarctica, blue whales were nearly wiped out by industrial whaling from the 1920s to 1940s. But now, with whaling curtailed, the whales are surging back: their population growing by 7.3 percent per year. By 2066, blue whale numbers could be back to historic levels. For conservationists, this last-minute rescue of the largest animals on Earth is a good news story. For others, the blue whale's return is a daunting prospect. As conventional thinking suggests, the resurgence of these massive creatures—with their equally massive appetites—is creating an ever-greater competition for the commercial krill fishery.

These worries are not entirely unfounded. In the Southern Ocean, shrimp-like krill sit near the base of the food web. Estimates place the total krill biomass in the sea at 379 million tonnes. Each year, commercial trawlers pull in up to 5.6 million tonnes, and during peak feeding season a blue whale can eat nearly four tonnes of krill a day. With a pre-whaling population of 239,000 in the Southern Ocean, blue whales will soon be consuming a decent chunk of the total krill. That would leave the commercial trawl fleet—mostly from Norway, South Korea, and China—with fewer krill to use in fish meal for aquaculture and aquarium feeds, in vitamins or pharmaceuticals, or as bait for sport fishing.

Countering this conventional thinking, [a study](#) headed by marine biologist [Trish Lavery](#) suggests that blue whales are not exploitive gluttons that will ruin the commercial krill fishery. Instead, the mammals are actually an important and previously overlooked contributor to marine productivity. Blue whales don't decimate krill populations, they bolster them.

The Southern Ocean is short of iron, an essential nutrient for photosynthesizing phytoplankton. Blue whale feces, however, has an iron concentration more than a million times higher than the background seawater.

Since whales defecate near the ocean's surface, most of this iron enters the water in the photic zone, where light can reach it. Each whale deposit, then, kicks off a burst of photosynthetic activity and triggers a phytoplankton bloom. In turn, these phytoplankton are the main food source for krill.

Imagine the iron acting like jet fuel to boost prey at the bottom of the food chain, a spike in phytoplankton that benefits predators all the way up the ladder—not just whales, but seals, penguins, squid, and fish. “By defecating in surface waters, blue whales essentially fertilize their own feeding grounds with the nutrients needed to sustain the growth of their krill prey,” Lavery and her colleagues write.

Recovery of blue whales to their historic abundance is “unlikely to reduce fishery yields and may, in fact, enhance ecosystem productivity in the Southern Ocean,” they report.

Lavery presented her findings at the recent conference of the Society for Marine Mammalogy, in San Francisco. The research earned her the society's [F. G. Wood Memorial student award](#).

[Lance Barrett-Lennard](#), a whale researcher with the Vancouver Aquarium, attended Lavery's presentation. “It seems very credible to me,” he says.

“As with lots of scientific theories like this, the devil is in the details. The amount of iron in whale feces, how it disperses once released, [and] how quickly photosynthetic plankton take it up” will all be important considerations in figuring out the ultimate balance between whales' hunger and their contributions of their waste, he says.

“For now, we can say there is, at least, a strong possibility that blue whales stimulate rather than suppress plankton abundance,” concludes Barrett-Lennard.

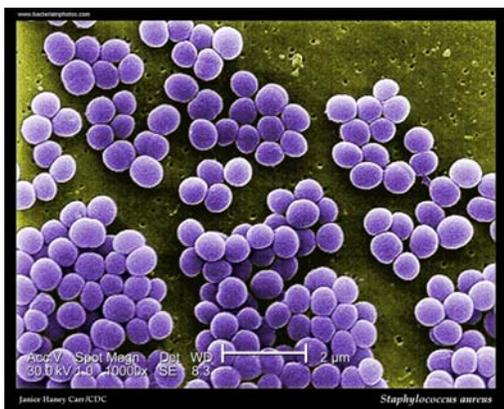
The findings should assuage some fishers' fears. At the same time, the research speaks to the incredible complexity of food webs, and shows how whaling affects more than just the whales.

Popular Science

[Drug-Resistant Bacteria Is No Match For...Clay From Canada?](#)

Offers a potential treatment for the cause of most U.S. hospital infections

by Annabel Edwards



Staphylococcus aureus is one type of ESKAPE bacteria that commonly causes infections in hospitals and could eventually be treated using mineral clay.

Antibiotic resistant bacteria pose a serious threat to public health, often [infecting vulnerable populations](#) like hospital patients. But researchers in British Columbia may have found a solution that was hiding just below their feet all along: clay.

Mineral Canadian clay exhibits antibacterial activity against a group of pathogens that are highly resistant to antibiotics, according to [new research](#) from the University of British Columbia.

The researchers tested the clay's reaction to a group of bacteria collectively known as ESKAPE pathogens – Enterococcus faecium, Staphylococcus aureus, Klebsiella pneumoniae, Acinetobacter baumannii, Pseudomonas aeruginosa, and Enterobacter species – named for their ability to resist the effects of antibiotics. As of 2008, they were responsible for the [majority of hospital infections](#) in the US.

"Infections caused by ESKAPE bacteria are essentially untreatable and contribute to increasing mortality in hospitals," [says](#) Julian Davies, co-author of the study and microbiologist at the University of British Columbia.

The researchers incubated various strains of pathogens with clay samples or only with water as a control and found that 16 strains of the bacteria samples died when incubated with clay.

The clay, known as Kisomeet, came from a deposit northwest of Vancouver, and has been used by aboriginal Canadians for several centuries to treat ulcerative colitis, stomach ulcers, arthritis, and skin irritations, according to anecdotal reports.

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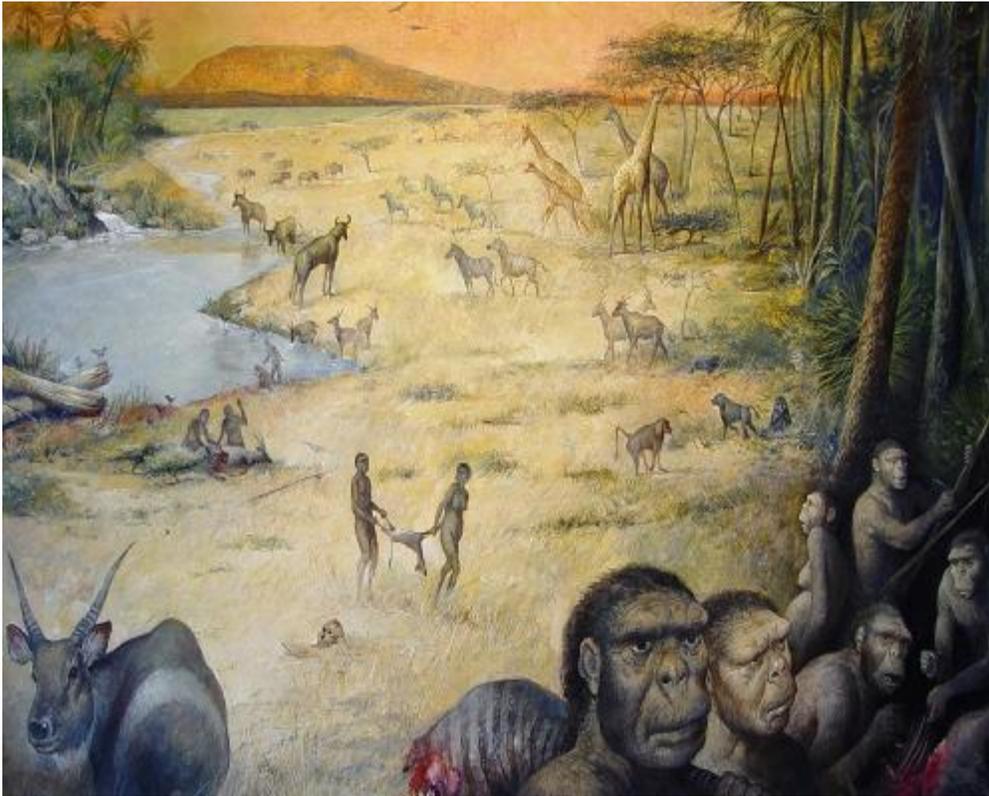
Science20.com

[Early Human Habitat In Tanzania Recreated, Shows Life Was No 'Harmony With Nature' Picnic](#)

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To accomplish that, our human ancestors, who looked like a cross between apes and modern humans, created stone tools with sharp edges and made sure they had ready access to food, water and shady shelter, according to remnants at Olduvai Gorge, Tanzania.

But it was tough living, she said. "It was a very stressful life because they were in continual competition with carnivores for their food," said Gail M. Ashley, anthropologist at Rutgers University.



This is an artist's rendition of an early human habitat in East Africa 1.8 million years ago.

Ashley and colleagues reconstructed an early human landscape on a fine scale, using plant and other evidence collected at the sprawling site, according to their paper in the *Proceedings of the National Academy of Sciences*. The anthropologist Mary Leakey discovered the site in 1959 and uncovered thousands of animal bones and stone tools. Through excavations in the last decade, archeologists and other scientists collected numerous soil samples and studied them via carbon isotope analysis.

The landscape, it turned out, had a freshwater spring, wetlands and woodland as well as grasslands.

They hope the landscape reconstruction will help paleoanthropologists develop ideas and models on what early humans were like, how they lived, how they got their food, what they ate and drank and their behavior.

"We were able to map out what the plants were on the landscape with respect to where the humans and their stone tools were found," Ashley said. "That's never been done before. Mapping was done by analyzing the soils in one geological bed, and in that bed there were bones of two different hominin species."

The two species of hominins, or early humans, are *Paranthropus boisei* - robust and pretty small-brained - and *Homo habilis*, a lighter-boned species. *Homo habilis* had a bigger brain and was more in sync with our human evolutionary tree, according to Ashley.

Both species were about 4.5 to 5.5 feet tall, and their lifespan was likely about 30 years.

Through their research, the scientists learned that the shady woodland had palm and acacia trees. They don't think the hominins camped there. But based on the high concentration of

bones, the primates probably obtained carcasses elsewhere and ate the meat in the woods for safety. A layer of volcanic ash covered the site's surface, nicely preserving the bones and organic matter, said Ashley, who has conducted research in the area since 1994.

"Think about it as a Pompeii-like event where you had a volcanic eruption," she said, noting that a volcano is about 10 miles from the site. The eruption "spewed out a lot of ash that completely blanketed the landscape."

On the site, scientists found thousands of bones from animals such as giraffes, elephants and wildebeests, swift runners in the antelope family. The hominins may have killed the animals for their meat or scavenged leftover meat. Competing carnivores included lions, leopards and hyenas, which also posed a threat to hominin safety, according to Ashley.

Anthropologists "have started to have some ideas about whether hominins were actively hunting animals for meat sources or whether they were perhaps scavenging leftover meat sources that had been killed by say a lion or a hyena," she said. "The subject of eating meat is an important question defining current research on hominins. We know that the increase in the size of the brain, just the evolution of humans, is probably tied to more protein."

The hominins' food also may have included wetland ferns for protein and crustaceans, snails and slugs.

Scientists think the hominins likely used the site for a long time, perhaps tens or hundreds of years, Ashley said.

"We don't think they were living there," she said. "We think they were taking advantage of the freshwater source that was nearby."

NY Times

[Jessica Mendoza's Calling Began With a Camera](#)

by Richard Sandomir



Jessica Mendoza at her home in Moorpark, Calif., this month. She will work with Dan Shulman and Aaron Boone on ESPN's marquee baseball play-by-play team.

MOORPARK, Calif. — Well before Jessica Mendoza was analyzing the batting performances of major leaguers on Sunday nights for [ESPN](#), her father was using videotape to break down her at-bats in softball.

If she stepped into the bucket or didn't rotate her hips, Gil Mendoza's video showed it. If she didn't pay attention to her stride, the video made his admonitions more pointed.

"His tripod was out all the time," she said, smiling at the memory. "I wanted to get some swings in, and he wanted to videotape us."

Gil Mendoza, who has coached football, softball and baseball for decades in this area, knew how much video augmented what he told his hitters, whether they were in high school or college, or were his daughters, Jessica and Alana. "I started with them when they were 5 or 6," he said. "I videotaped everything: their soccer, basketball and track."

Alana, now Alana Dusan, recalled that after long drives home to Camarillo from softball tournaments, her father would say, "The camera's ready."

Dusan, who went on to play at Oregon State, added, "We had a kind of love-hate relationship with the camera."

But as they got older, Gil Mendoza recognized that he had to let up on his daughters, who would watch the videos as he delivered his critiques.

"They didn't want to sit with Dad," he said. "So I just laid the tapes on the kitchen table so they could watch when they wanted."

All that video study — with her father and then her Stanford, Olympic and professional coaches — was a bridge to Mendoza's surprise move last year to ESPN's marquee baseball team, where it was apparent that her specialty was assessing what batters did: describing the leg kick that Addison Russell of the Chicago Cubs added to his swing during one game, for example, and noting how George Springer of the Houston Astros stayed back in the batter's box to hit a splitter off the Yankees right-hander Masahiro Tanaka in another.

"I can watch her break down Josh Hamilton and the small hitch in his swing, and I'm thinking that that's perfect," said Tim Walton, the Florida softball coach who coached Mendoza in the National Pro Fastpitch League a few years ago.

Mendoza, 35, is not the first woman to call a baseball game. Suzyn Waldman preceded her, on local and network television, and on radio, where she is a longtime voice of the Yankees.

But the ESPN job gives Mendoza, the intense daughter of a first-generation Mexican-American father, a weekly national platform. Her father, now 76, could be tough on her, focusing on the out she made in a game, not the three home runs she hit. The approach, he said, was based on the way his father treated him.

"My freshman year in college was the first time he said he was proud of me," she said. "I could have retired that day. It was better than a gold medal."

Now, she said, she is driven not to make mistakes on the air and to waking up at 4:45 a.m. to read articles online about the Boston Red Sox for a spring training game on March 21.

“I can’t let up,” Mendoza said. “When I say something, I have to own it. When the red light goes on, I can’t have any doubt.”

Earlier this month, after a trip to spring training camps in Arizona, Mendoza was at her house here 50 miles northwest of Los Angeles, where she lives with her husband, Adam Burks, and her children, Caden, 2, and Caleb, who, at 6, is his grandfather’s latest subject of video study. As she bobbed Caden in her arms, she discussed her evolution from all-American softball player with an Olympic gold medal to an analyst on “Sunday Night Baseball,” ESPN’s marquee baseball franchise. She was not a baseball insider by any measure, and not the gender that is expected in a baseball booth.

She received good reviews, but there was criticism, some of it foul, that a woman did not belong in the job, especially one who had played softball and never faced a major leaguer’s 100-miles-per-hour fastball. She had replaced a potential Hall of Fame pitcher, Curt Schilling, who was suspended for sharing an Internet meme about Nazis and Muslim extremism.

“Society says this is how it should be, that baseball should be called by a man,” she said calmly. “Any change gets you resistance — ‘No, I want things to be the way they are.’ ”

There has been relatively little in her smooth path to an elite ESPN job that has been occupied by the likes of Joe Morgan, Orel Hershiser, Bobby Valentine, Terry Francona and her friend and softball enthusiast John Kruk. She had been an ESPN softball analyst for seven years when she began to offer commentary to “Baseball Tonight” in 2014.

Phil Orlins, the network’s coordinating producer for baseball, said that Mendoza lobbied him to do more baseball work, perhaps as a field reporter. But he said he warned her: “If you want to differentiate yourself and make an impact — no matter if you break down a swing from the sideline — you’ll still be a female on the sideline. To really make a difference, to make a breakthrough, it has to be in the booth.”

So Orlins devised an open-ended plan: Sometime that season, he would add her to the booth for a game.

But her eagerness to be part of the Sunday night crew led her to a game last May at Dodger Stadium without an assignment.

“I went there five hours before, pretending to be part of the team,” Mendoza said. “Hanging out with Kruk on the field. In the truck. ‘Do you need me?’ I asked. I took notes. I was the nerd tagging along, and I wondered if people were saying, ‘Why is she here and is she going to leave any time soon?’ ”

Orlins kept his promise and added her to a Monday night game in late August. There was no announcement that she would be there, working with Dallas Braden and Dave O’Brien.

She recalled that it was easier than she expected.

“I’d done hundreds of softball games from the booth, and when I did baseball, I said, Yes, I understood everything and recognized it,” she said.

Two days later, Schilling’s Twitter message put his career on hiatus and transformed Mendoza’s. In her first Sunday night game in Schilling’s place, Jake Arrieta of the Cubs pitched a no-hitter.

After the season, ESPN gave Mendoza Schilling's job permanently. She will work with Dan Shulman and Aaron Boone.

"I would have been shocked if they said that you'll just come in and out next year," she said. "I deserved to be here on a consistent basis."

Mendoza is mindful of the need to close the gap between her mastery of softball and her knowledge of baseball. During spring training, she has been talking to scouts and team executives to understand what she missed by not rising to a major league team through a farm system.

"I've seen her firsthand, getting engulfed with somebody about the insider game of hitting," said Tim Kurkjian, an ESPN baseball reporter. "She's fascinated by it."

Her primary goal at spring training has been to face major league pitching. She did not feel she had to swing or even bring a bat. She simply wanted to see what she had not experienced in softball. She hoped to look at Clayton Kershaw and say, "O.K., Clayton, give me the slider I've heard so much about."

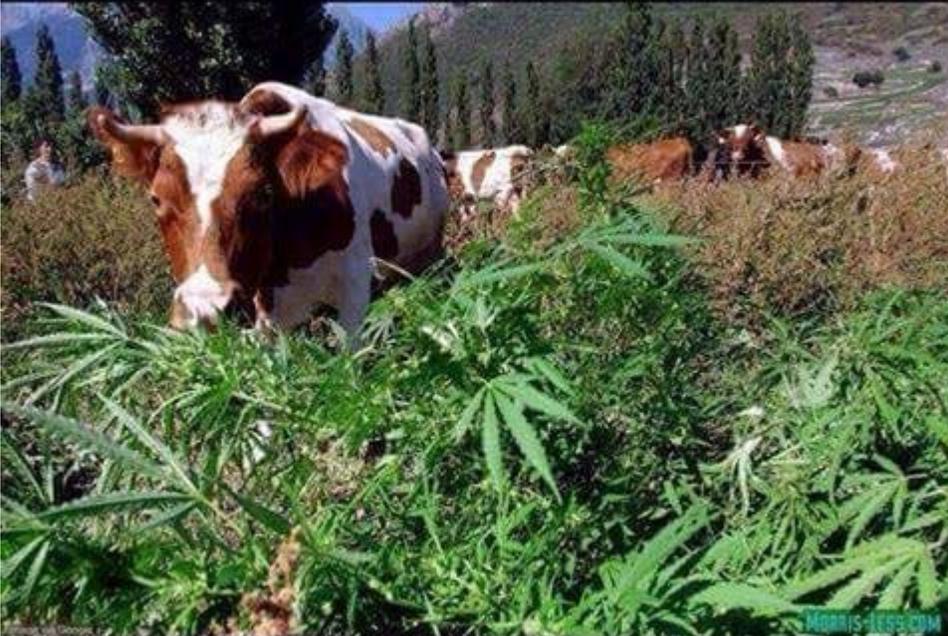
On Tuesday, she stepped into the batter's box against Jeff Samardzija of the San Francisco Giants. "His curve was beautiful, and it made me laugh out loud," she said, adding that Dave Righetti, the Giants' pitching coach, "was also laughing because he said, 'You nearly came out of your shoes.'"



**I finally quit
drinking
for good.**

**Now
I drink
for evil.**

**Why did the cows return
to the marijuana field?**

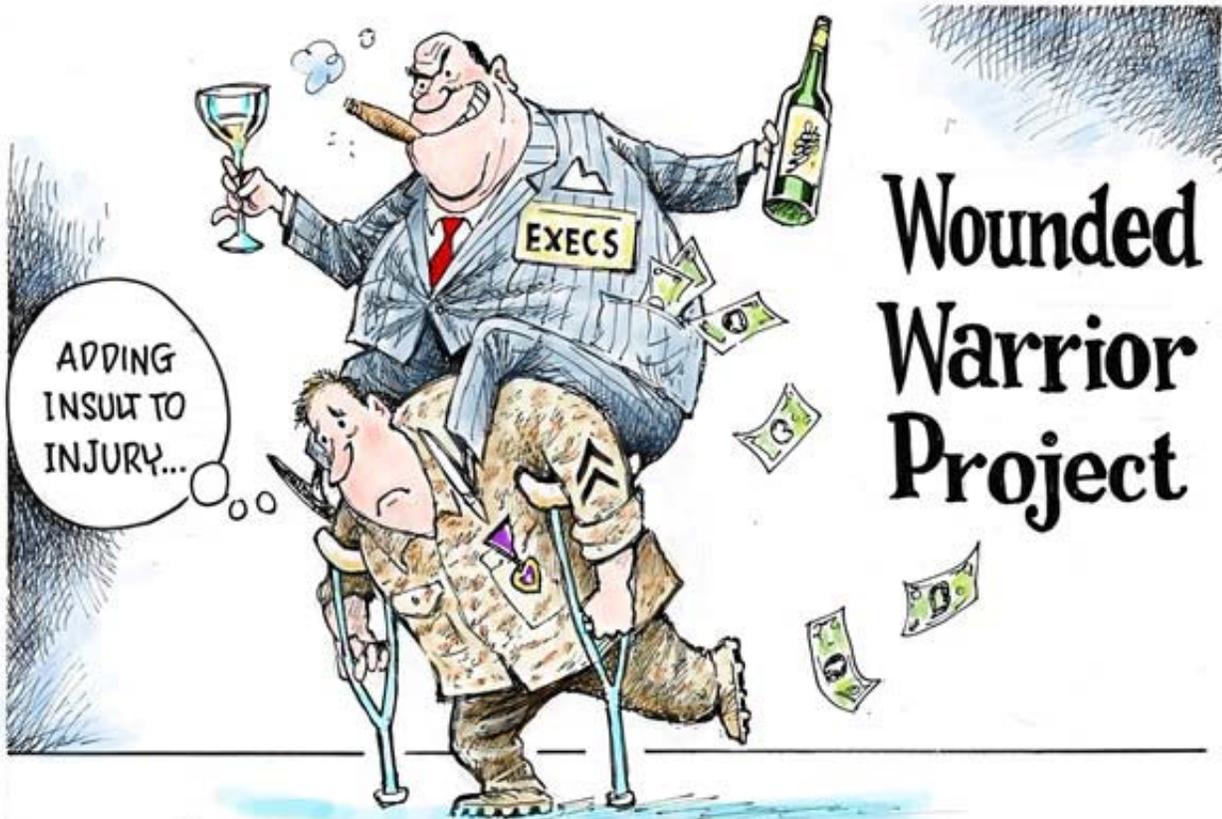


It was the pot calling the cattle back.



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