

**PRIME**  
America's News Magazine

**FEELING TIRED**

Your iPad or Tablet may be killing your dreams.

**PHANTOMS VIBS**

Check now and see if your cow is vibrating.

#first  
world  
probs

**IS AMERICA ADDICTED TO SALT?**



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# PRIME

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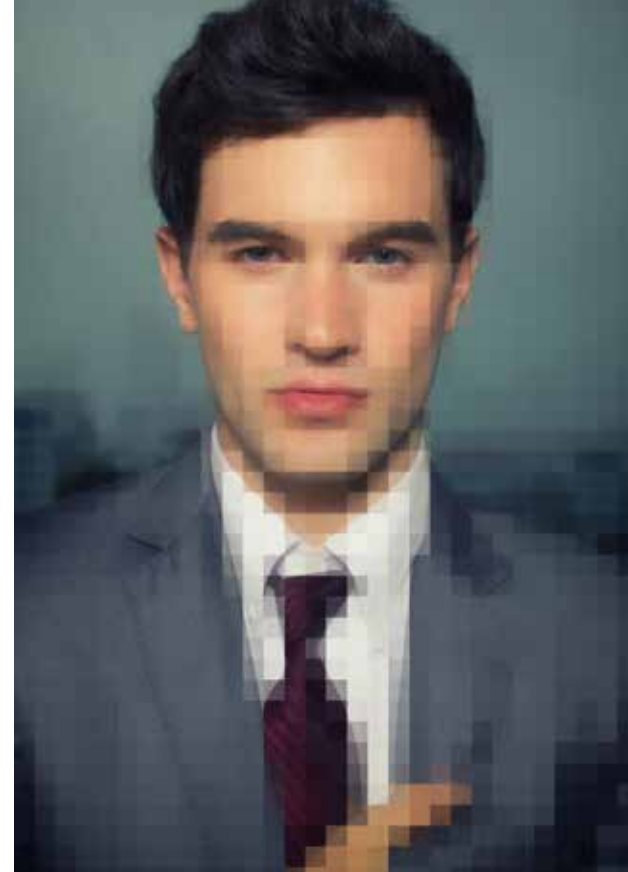
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*Is your Brie too hard, or Pimms too warm? The cleaners day off! We are blessed and better off than 90% of the world, and yet we still find things to gripe & moan about. This edition will explore first world problems and how they are slowly changing our minds.*

# #first world probs

**Is it a luxury to complain about one broken toilet? Maybe we should just be thankful for our picayune complaints.**

Last week, my usually steadfast and loyal upstairs toilet decided to go on strike, requiring the intervention of a slightly psychotic but surprisingly competent handyman. The whole thing needed to be replaced, he declared ominously, but it was a process that would take a number of days, demanding the toilet be left in peace, living out its final days in quiet dignity. In the meantime, this would require me trudging downstairs, to the bathroom, for an amazing-late-midnight piss.

Naturally, the following day I would be attacked by Normandy-like waves of nausea, turning Lou Ferrigno green, retching and coughing and puking until my stomach was vacant and throbbing. With upstairs off limits, I left the comfort of my bed, decamping to the narrow living room couch. This minor plumbing issue, corrected for a reasonable fee absorbed by an unreasonable landlord, provoked a good bit of complaint (“How long does it take to buy a new toilet?” “When can I return to my very comfortable, rather large bed?”). But these types of “white whines” are best whispered in private, lest one be reminded that while you might be infected with the Norovirus, someone else has cholera—and that you’re also suffering from a very acute case of “first world problems.”

That ubiquitous phrase—never uttered by beaten down inhabitants of the third world, incidentally, though beloved by the guilty, white, and bourgeois—is sarcasm disguised as social analysis: if someone somewhere is suffering a worse fate than you, then what right do you have to complain?

EDITOR IN CHIEF  
Patrick Olson

## Erratum

*It was our fault!*

On Feb. 15, Daniel Politi misstated the amount of snow that had fallen in some parts of Massachusetts over that weekend. It was 22 inches, not 20 feet.

In a Feb. 13 Brow Beat, L.V. Anderson misstated the interview with Richard LaGravenese is available to download on iTunes. It’s available on SoundCloud.

Due to an editing error, a Feb. 13 Business Insider misstated the dates on which Cisco stocks hit a seven-year high and the company released its earnings report. It hit the high on Thursday and released the report on Wednesday.

In a Feb. 13 Crime, Leon Neyfakh misidentified the publication that uncovered David Carr’s 1982 article about a police beating as Washington City Paper.

In a Feb. 13 Slatest, Eric Holthaus misstated that Boston broke its all-time February snow record on Sunday. The record was broken on Thursday.

*We continually strive to bring you the most accurate news, but we are still human. We all appreciate your understanding.*

24

3D Printing your Brain



33

Taking the needling out of drawing blood

8 **Rants & Raves** Feedback.

16 **In Review** Catch up from last time.

- 24 3D Printing your Brain
- 32 Making Drawing Blood Easier

43 **Features** #1stworldprobs

- 48 iPhone Separation Anxiety
- 52 Phantom Vibration Syndrome
- 58 Are iPad's Killing your Dreams
- 68 Why We Dream in Color

73 **Reader Requests** What you want

- 75 How to Improve Fine Motor Skills
- 79 What is the Best Exercise
- 94 Attached to Technology & Paying the Price

101 **Reviews** The best of the best

- 104 Crashplan v/s Backblase
- 106 American Rye Whiskey: Good & Bad
- 110 To Smart, or not to Smart (Phone)
- 116 Caffeine Powder; my old Friend
- 118 36 Questions: Fall in Love

101 **Sneak peak** A look into the future

- 102 America's Upcoming Entrepreneurs
- 61 Taxes...forgetaboutit!



106

America's Best Whiskey

Are growing expectations a indicator of entitlement, **or** a pointer to progress and of the future advances?



52

Please check that your cow on vibrate?

42

Top Ten First World Problems

A Poll from our Editors



87

DIY Brain Tumor Repair

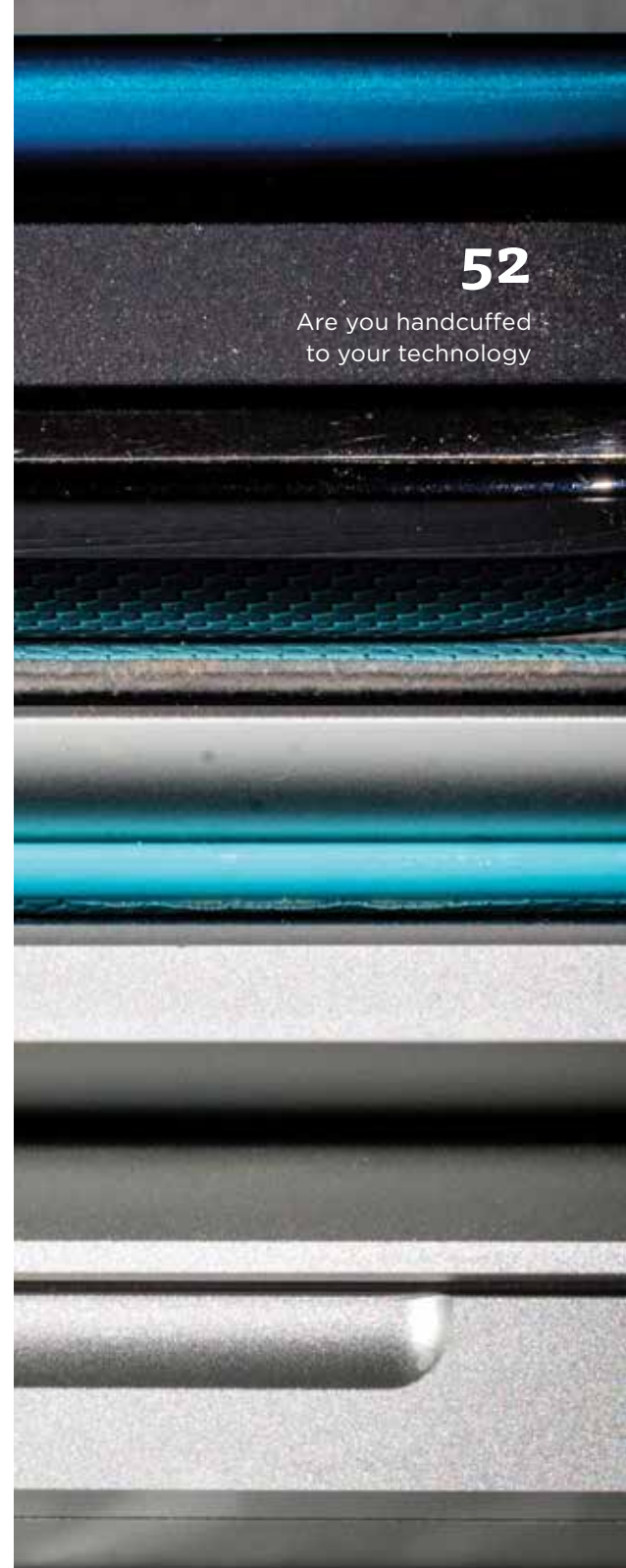
Man Saves Wife's Sight by 3D Printing Tumor



93

Your Dreams Are Ending?

Using tech before bed is killing your dreams



52

Are you handcuffed to your technology




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 Written by Susannah Locke
 

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*Ninety percent of Americans use electronic devices right before bed. And though it is a fun way to wind down, a new experiment shows that the bright screens are shining sleep problems directly into our eyes!*

*In the study, participants spent two weeks sleeping in a private hospital room and reading for four hours before bed with either a paper book or an iPad. Those using the iPad reported feeling less sleepy at night and took about 10 minutes longer to fall asleep. In addition, they also felt less alert when they awoke in the morning. And although they didn't sleep less, they spent less sleep in the REM stage, which may have accounted for the morning grogginess (and fewer dreams).*

*At night, the iPad users also experienced a 50 percent drop in melatonin — the hormone that makes people feel sleepy. Even more disturbing, their melatonin cycle shifted forward by an hour and a half, essentially they were creating a self-imposed jet lag.*

*Anne-Marie Chang, a neuroscientist at Brigham and Women's Hospital in Boston, is the lead author on the paper, which was published today in the Proceedings of the National Academy of Sciences. I talked to Chang about the experiment's results and what lessons we can draw from it to sleep better.*

# Yes I will!

**My harsh blue light will mess with circadian rhythms, and hinder melatonin production, both of which help get a better nights sleep.**

## Four tips for a better sleep

compiled by lifehacker

### 01 TURN OFF YOUR SCREEN

It's obvious that most people sleep better in darkness, but your TV and cell phone counts, too. I got in a bad habit of playing my phone in bed. Now I check Facebook, Twitter, Instagram before I head to the bedroom

### 02 COOL YOUR ROOM

Ensuring the room you sleep in is a few degrees cooler could make for a better night's sleep. Who doesn't love snuggling in blankets compared to sweating and kicking the covers off?

### 03 A EXERCISE ROUTINE

Since I stopped working out, I've had a much harder time falling asleep and staying asleep throughout the night. Even short walks can make a difference. Just MOVE!

### 04 MAINTAIN SLEEP SCHEDULE

This means two things. First, find a time that works for you and try to head to bed at that time (or close to it) each night. If you get in the habit of sleeping in until ten or so on the weekends.

**SL: Why did you compare the iPad or iPhone to a paper book rather than to a non-light-emitting device like the original Kindle?**

AC: That's a great question. We wanted to compare the devices with what typically people had been doing, and still a lot of people prefer to read books. Because at the time [2010 and 2011], they were pretty new and not so many people were using these devices.

We wanted to just compare what is the typical condition — which I don't know if that's changed since then, but at the time was reading printed books. Presumably reading on a non-light-emitting device would be the same as reading on a book, but we didn't specifically test that.

**SL: What are other differences between the experiment and real world?**

AC: One caveat is that the e-readers in our study were set to the very brightest level, and a reader at home may dim the light. In this case, reducing the brightness may reduce the magnitude of the response that we found.

Another limitation is that the hours of reading before bedtime that we used in the study is relatively long. Most people don't read for four hours. But if you total up the number of hours spent on [any] screen before bedtime [in the real world], it will be very comparable to four hours.

**SL: What do you think of software like F.lux that makes screens less blue?**

AC: Technology is moving so quickly, and science really can't keep pace with the pace of technology and the pace of commerce. So I think it's great when you have individuals and companies coming up with technologies to modify and improve the devices that we have, based on evidence.

**SL: What do you personally do about screen time before bed?**

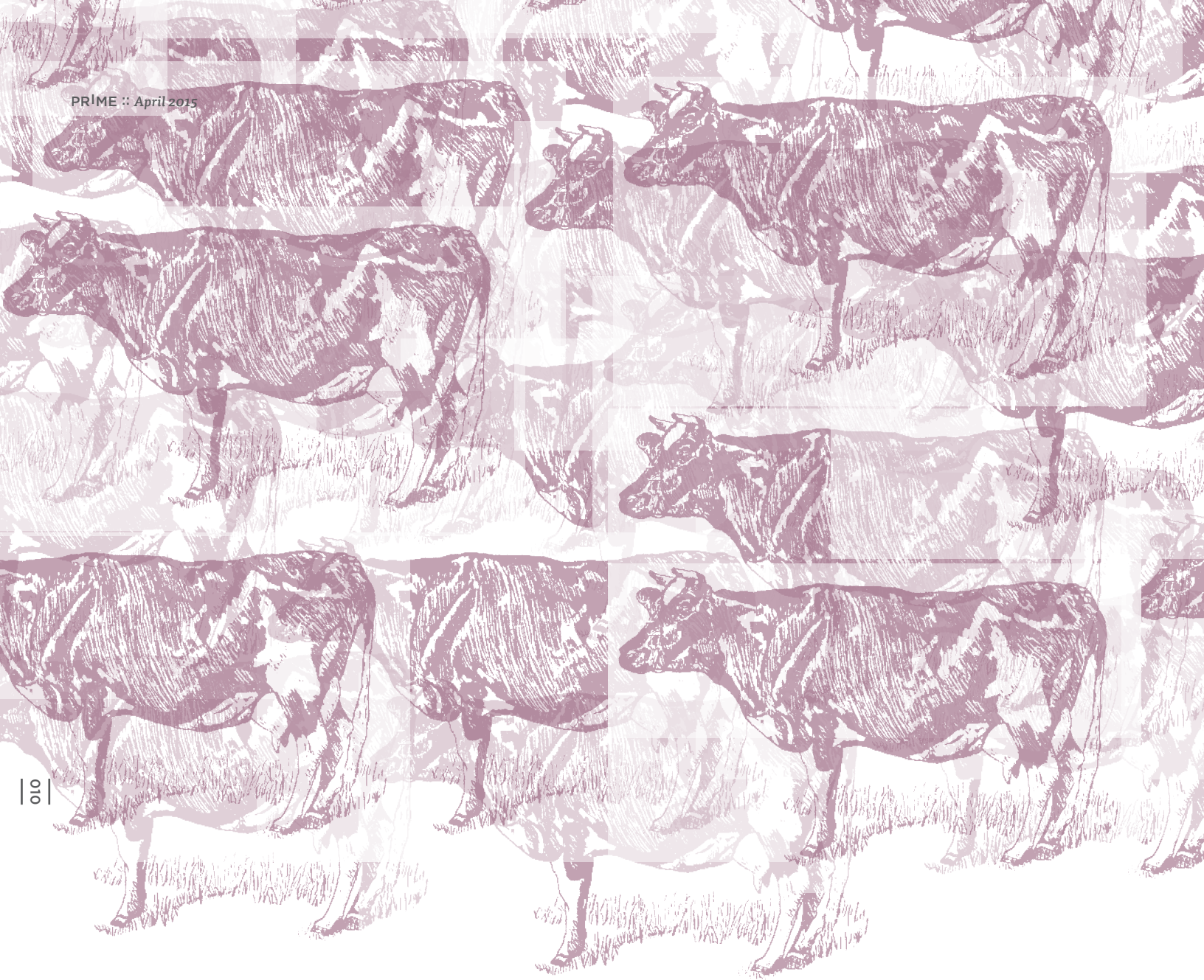
AC: Let me start with what I tell my kids. This is the technology that's popular with kids. More and more children and adolescents are sleeping with them, using them all the time. I think it's best to avoid any screen time an hour or two before bedtime. Devices get charged outside of the bedroom so that they're not anywhere inside or near the bedroom. I tell my friends if you have to use devices, be on the computer, or check your phone, to turn down the brightness that can be helpful.

**SL: Is there anything else you'd like to add?**

AC: For the vast majority of people, we don't have so much control or wiggle room in the morning as far as when we wake up. But we have presumably a lot more voluntary control over when we go to bed. So if we can deal with issues of light-emitting devices and when we use them, or how can we improve what we have, I think those would be great goals.

**Susannah Locke: What did your studies show about tablets, smart phones, computers and sleep that has never been shown in a study?**

Anne-Marie Chang: Other studies had showed that light in the evening affects the way you sleep. What we showed was [what happens] when individuals use a light-emitting device in the hours before bedtime. It takes them longer to fall asleep. They feel more sleepy the following morning. They have less REM sleep. The light suppresses their melatonin, which is the sleep-promoting hormone, by more than 50 percent. And their melatonin rhythm was more than an hour and a half delayed. So that amount is pretty large. **CONTINUED ON PAGE 69**



# Excuse me, but is your cow vibrating?

WRITTEN BY DONNA WILCOX, ADAPTED FOR MAGAZINE BY MARY GLASS

Phantom vibrations have been around since the mobile age, but it is already so deeply ingrained into our psyche that any frequency's remotely similar have us grabbing for denim.

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**The cows' moo is very muffled, it kind of sounds like ...errrrrr! that's very similar to what my cell phone sounds like when it is vibrating in my purse or on my desk.**

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That phenomenon where you think your phone is vibrating but it's not, has only been around only since the mobile age. Five years ago, when its wider existence became recognized, news organizations, including ours, covered the "syndrome" as a sign of the digital encroachment in our lives. Now, it's so common that researchers have devoted studies to it.

For Valerie Kusler, who works on a 2,200 acre cattle ranch, the sensation is complicated by the cows. "The cows' moo is very muffled, it kinda sounds like ... errrrrr," she says. "So that's very similar to what my phone sounds like when it vibrates on my desk or in my purse."

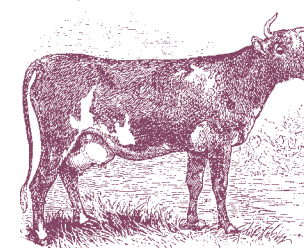
If you heard the comparison, you could understand how she gets confused. "Definitely other people have experienced it, too," Kusler says.

Other people may not confuse cows for their phones, but research shows phantom vibration syndrome, or its other nicknames — like hypovibochondria or ring-xiety — are a near-universal experience for people with smartphones.

Nearly 90 percent of college undergrads in a 2012 study said they felt phantom vibrations. The number was just as high for a survey of hospital workers, who reported feeling phantom vibrations on either a weekly or monthly basis.

"Something in your brain is being triggered that's different than what was triggered just a few short years ago," says Dr. Larry Rosen, a psychologist who studies how technology affects our minds.

"If you'd ask me 10 years ago, or maybe pyche even five years ago if I felt an itch beneath where my pocket of my jeans were, and asked me what I would do, I'd reach down and scratch it because it was probably a little itch caused by the neurons firing," he says. Now, of course, the tingle triggers him to reach for his phone. Rosen says it's an example of how our devices are changing how our brains process information.



The moo of a cow resonates between a frequency of 150 Hz and 180 Hz which just happens to be similar to the optimal vibration frequency for most mobile devices.

## Please turn your cow on vibrate before reading

NPR PODCAST TRANSCRIPT

*The following text is taken from an Interview with Host Melissa Block, Audie Cornish, Elise Hu, Valerie Kusler, Kristen Petronic, Xavier Prew, and Liz Riles.*

**Melissa Block:** Here's an experience that maybe you've had with your mobile phone: you could be on a plane or sitting at work...

**Audie Cornish:** Wait, wait. Is that my phone? Let's me just check my pocket.

**Block:** But your phone is on the table.

**Cornish:** OK. I guess it wasn't buzzing.

**Block:** That feeling that your phone is vibrating when it isn't is called a phantom vibration. And as NPR's Elise Hu reports, phantom vibration syndrome says something about the way we live these days.

**Elise hu:** you'd think Valerie Kusler wouldn't be bothered by phantom vibrations. She has a modern life at a rehab and recovery center on a 2,200 acre cattle ranch. But the Nashville-based therapist says she's just as attached to her iPhone as anybody.

**Valerie Kusler:** I am constantly getting emails that are important and urgent about work things and want to stay connected to my family back in Texas. So, I am constantly checking my phone, I will admit.

**Hu:** So, she's felt that phantom sensation of her phone vibrating when it's not. But Kusler's experience is complicated by cows.

**Kusler:** the cows' moo is very muffled. It kind of sounds like "rrrr..."

**Hu:** These are the cows near the ranch where (soundbite of mooing)

**Hu:** This is an iPhone ringing on vibrate. (soundbite of phone vibrating)

CONTINUED ON NEXT PAGE

## NPR PODCAST TRANSCRIPT (CONTINUED)

**Hu:** again, the cows:

**Kusler:** So, that's very similar to what my phone sounds like when it vibrates on a

**Hu:** You could easily understand how she gets confused about her phone vibrating.

**Kusler:** Yes, and definitely other people have experienced this feeling, too.

**Hu:** Other people may not confuse cows for their phones, but phantom vibration syndrome, or its other nicknames, like hypovibochondria and ring-xiety, is a near universal experience for people with mobile phones.

**Kristen Petronic:** I'll just feel it out of nowhere, like my phone is ringing. But then again it's nothing.

**Xavier Prew:** You know, it kind of tricks you out. It really does...so strange.

**Liz Riles:** Gives me false hope that someone cares about me. (Laughing)

**Hu:** That was Kristen Petronic, Xavier Prew and Liz Riles, who we caught out and about in downtown D.C. This phenomenon is prevalent enough now that in the past five years, researchers started studying it. Nearly 90 percent of college undergrads in one study said they felt phantom vibrations. The number was similar for hospital workers. Now that in the past five years, research. But even though the phantom vibration phenomenon seems so common, it's still relatively new.

**Larry Rosen:** Something in your brain is being triggered that is different from what was triggered just a few short years ago.

**Hu:** Dr. Larry Rosen is a California research psychologist and author who studies how technology affects our minds.

**Rosen:** If you'd asked me 10 years ago or maybe even five years ago, if I felt an itch beneath where my pocket of my jeans were, and asked me what I would do, I would say I just would reach down and scratch it because it was probably a little itch caused by the neurons firing in my brain.

**Hu:** Now, of course, the tingle triggers him to reach for his phone. Rosen says it's an example of how our devices are changing how our brains process information.

**Rosen:** We're seeing a lot of what looks like compulsive behavior, obsessive behavior, people who are constantly picking up their phone look like they have an obsession. They don't look much different than someone who is constantly washing their hands. I'm not saying that it is an obsession but I'm certainly saying that it could turn into one very easily.

**Hu:** Not everyone is so concerned. Nine out of 10 participants in a study of college students said the vibration feeling bothered them only a little or not at all. But Rosen says it would do all of our anxiety levels some good to back away from our phones every once in a while.

**Rosen:** One of the things that I'm really adamant about, in spite of being extremely pro-technology, I believe that we have to all learn how to kind of wean ourselves slowly off of the technology for short periods. And by short periods, I mean maybe just thirty minutes or an hour.

**Hu:** That kind of mindfulness is something Valerie Kusler, is the Tennessee based therapist, says she's working on.

**Kusler:** That is kind of a personal goal of mine, is to try to have a better boundary between my life and my phone.

**Hu:** But as long as these sounds...

(Soundbite of mooing)

**Hu:** ...Are part of her workday, Kusler has a better excuse than the rest of us for feeling those phantom vibrations. Elise hu...

(soundbite of phone vibrating)

**Hu:** ...NPR News.

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*If you'd ask me 10 years ago, or maybe even five years ago if I felt an itch beneath where my pocket of my jeans were, and asked me what I would do, I'd reach down and scratch it because it was probably a little itch caused by the neurons firing.*

*Now, of course, that pesky tingle triggers me to grab for my phone. It is a example of how our devices are changing our behaviors and how our brains process information.*

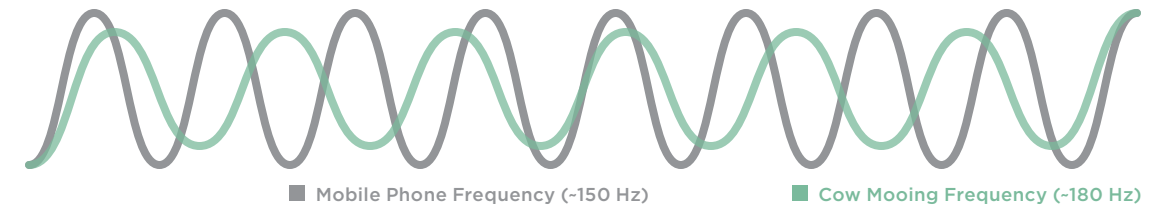
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"We're seeing a lot of what looks like compulsive behavior, obsessive behavior. People who are constantly picking up their phone look like they have an obsession. They don't look much different from someone who's constantly washing their hands. I'm not saying that it is an obsession, but I'm saying that it could turn into one, very easily," Rosen says.

While 9 out of 10 participants in the study of college students said the vibration feeling bothered them only a little or not at all, Rosen still recommends backing away from our phones once in a while to keep our anxiety down.

## FREQUENCY COMPARISONS: COWS V/S IPHONE

In addition to cattle, the 150 to 180 Hertz ranges are commonly used in many electronic devices as a subtle noise or feeling alert (aka the vibrate function). This is just one of the many reason why we our brains trick us into thinking our phone is vibrating when it's not.



"One of the things I'm really adamant about in spite of being very pro-technology, is just weaning ourselves off of the technology for short periods," Rosen says. "And by short periods, I mean, maybe just 30 minutes or an hour."

That kind of mindfulness is something the Tennessee-based Kusler says she's working on. "It has been difficult, but it is a personal goal of mine," she says, "to try and have a better boundary between my life and that of my phone."

But as long as muffled moos are part of her workday, she has a better excuse than the rest of us for feeling those phantom vibrations.

That phenomenon where you think your phone is vibrating but it's not, has been around only since the mobile age. Five years ago, when its wider existence became recognized, news organizations, including ours, covered the "syndrome" as a sign of the digital encroachment in our lives. Now, it's so common that researchers have devoted studies to it.

For Valerie Kusler, who works on a 2,200 acre cattle ranch, the sensation is complicated by the cows. "The cows' moo is very muffled, it kinda sounds like ...errrrrr," she says. "So that's very similar to what my phone sounds like when it vibrates on my desk or in my purse."

If you heard the comparison, you could understand how she gets confused. "Definitely other people have experienced it, too," Kusler says.

Other people may not confuse cows for their phones, but research shows phantom vibration syndrome, or its other nicknames — like hypovibochondria or ring-xiety — are a near-universal experience for people with smartphones. Nearly 90 percent of college undergrads in a 2012 study said they felt phantom vibrations. The number was just as high for a survey of hospital workers, who reported feeling phantom vibrations on either a weekly or monthly basis.

"Something in your brain is being triggered that's different than what was triggered just a few short years ago," says Dr. Larry Rosen, a psychologist who studies how technology affects our minds.

"We're seeing a lot of what looks like compulsive behavior, obsessive behavior. People who are constantly picking up their phone look like they have an obsession. Other people may not confuse cows for their phones. They don't look much different, yet they very much are. **CONTINUED ON PAGE 92**

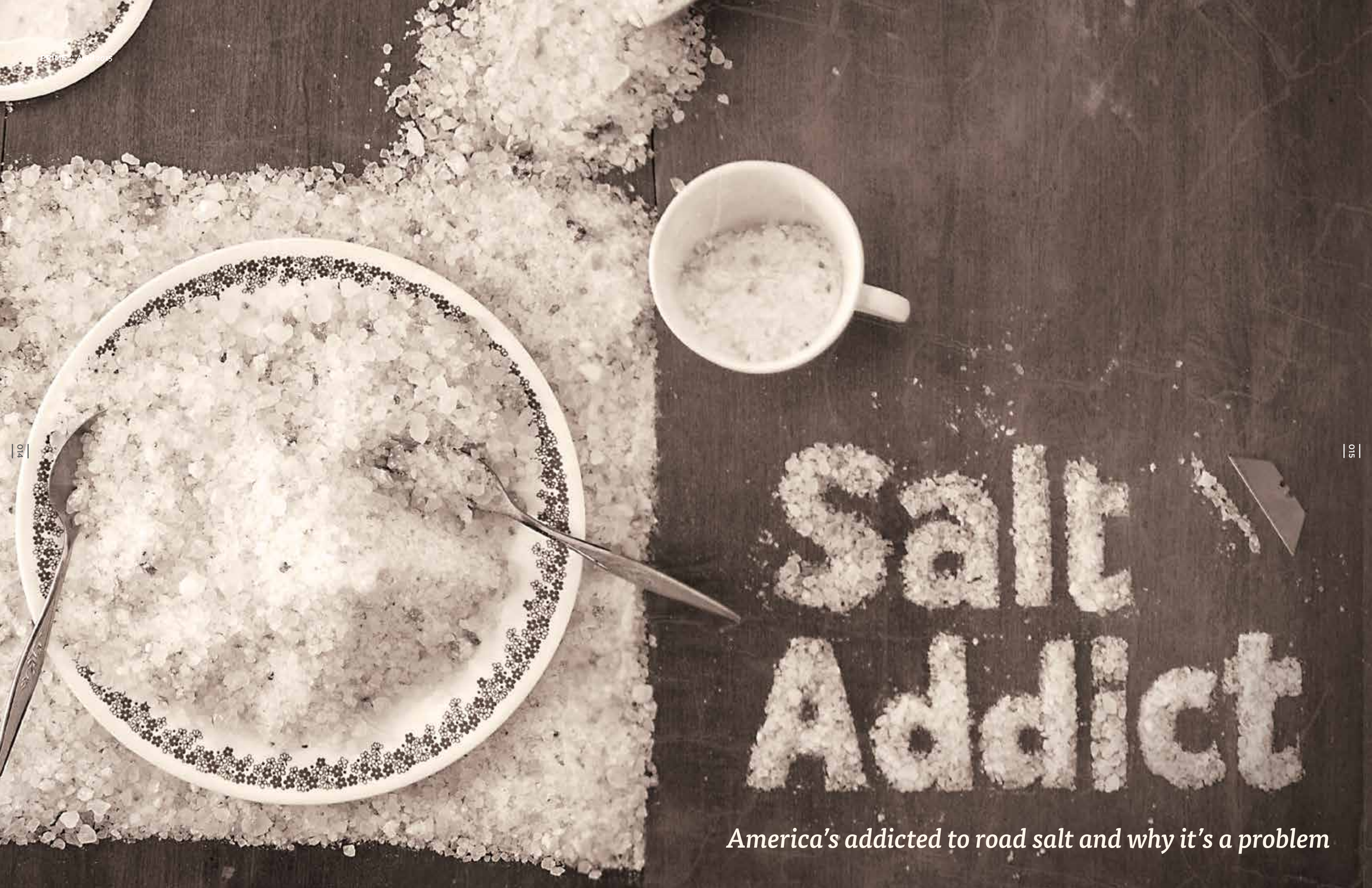
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87%

of people that carry & use electrical devices, such as cell phones or pagers, experienced a phantom vibration once a week.

In fact, phantom vibration syndrome is so common that there a multitude of online support groups. Facebook, for example, has 4 groups dedicated to discussing this topic.

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*America's addicted to road salt and why it's a problem*



**There are huge benefits to salting the roads. One 1992 study found that spreading salt can reduce the chance of accidents by 87 percent during and after a snowstorm. De-icing will allow traffic to keep moving on highways and roads, a benefit worth billions of dollars.**

Written by Brad Plumer  
Photos by Nathan Dietz

Adapted for Print  
by Alyssa Laessig

*But road salt also comes with major downsides: Salt is corrosive, chewing through cars, trucks, concrete, and steel bridges. Worse still, when all that salt dissolves and washes away, it steadily accumulates in rivers and streams. In some areas, that makes drinking water saltier (bad news for people on low-sodium diets). All that salt also kill off fish, plants, and amphibians. Other times, moose and elk get attracted to the salt and wander onto roads, raising the risk.*

"We've become salt-addicted over the last 50 years, and we're now discovering that there are all these hidden costs," says Xianming Shi, an associate professor in civil and environmental engineering at the University of Washington. He estimates the US now spends \$2.3 billion each year to remove snow and ice from highways. It then costs another \$5 billion to pay for the resulting damage. And that's not even

So, in recent years, some officials have been looking for ways to reduce their reliance on road salt. There are tricks like pre-salting roads before storms hit — which prevents ice from sticking in the first place. There are exotic remedies like adding beet juice to salt, which can

lessen the ecological harm. Engineers like Shi have been working on more futuristic technologies — like "smart" snowplows that are thrifter with salt, or ice-free pavement.

No one's yet figured out a perfect alternative to salt, which is still the cheapest and easiest way to unfreeze roads. But the hunt is on, especially since there's a major salt shortage this winter (thanks to brutal weather last year), and other options are starting to look enticing.

Road salt is basically sodium chloride—much like table salt—and comes from deposits left over after prehistoric oceans evaporated, with huge mines in Ohio, Michigan, New York, Kansas, and Louisiana.

Often times, extra chemicals will be mixed in: For instance, road salt is less effective at melting ice when temperatures drop below 20°F, so when it gets extremely cold, other chemicals like magnesium chloride are mixed.

This year, however, there's a bit of a salt shortage. State and local officials are struggling to get enough salt for their roads, after the

particularly brutal winter in 2013 depleted stockpiles. In some areas, salt prices have risen as much as 30 percent. Cities like Milwaukee are trying to ration what salt they have. And that's led to a search for alternatives. Before World War II, few US cities used salt in the winter. When snow fell, local governments would plow the roads and then spread sand and cinders around to improve traction. Cars would don snow chains. And people generally

***Levels of road salt by-products (such as chloride and sodium) have been on the rise in 84% of the urban streams. Shockingly, one-third of the streams exceeded the federal safety limits according to a USGA study.***

accepted that the roads weren't always passable in icy conditions. By 2013, at least 26 states were sprinkling roughly 17 million ton of salt on their roads. (Usage can vary wildly by state: An old National Research Council survey found that Massachusetts used about 19.5 tons per lane mile, whereas Idaho used 0.5 just tons.) And people generally accepted that the roads weren't always passable.

To put it another way, while consumption varies each year, the US now puts approximately 10 times as much salt as it does in processed food. Road salt is basically sodium chloride — much like table salt — and comes from deposits left over after prehistoric oceans evaporated, with huge mines in Ohio, Michigan, New York, and Kansas.

Often times, extra chemicals will be mixed in: For instance, road salt is less effective at melting ice when temperatures drop below 20°F, so when it gets extremely cold, other chemicals like magnesium chloride or calcium chloride are mixed in. This year, however, there's a bit of a salt shortage. State and local officials are struggling to get enough salt for their roads, after the particularly brutal winter in 2013 depleted stockpiles. In some areas, salt prices have risen as much as 30 percent. Cities like Milwaukee are trying to ration what salt they have. And that's led to a search for alternatives.

Salt, after all, has plenty of drawbacks. It can corrode the steel in cars, trucks, bridges, as well as reinforcing rods in concrete — weakening valuable infrastructure. Transportation departments can add chemicals to the salt to inhibit corrosion or add coating to steel, but this gets pricey. State and local officials are struggling to get enough salt for their roads that salt corrosion now costs. **CONTINUED ON PAGE 142**

# \$16

**BILLION DOLLARS  
IN MAINTENANCE  
COSTS ANNUALLY**

Yes, that's a billion with a B! A Utah study estimated that salt corrosion costs the US \$16 to \$19 billion per year in road repairs.

***In American we  
consume twice  
the recommend  
amount of salt  
each single  
day, 5000  
milligrams***



#### **STRONGER THAN STEEL**

Even the toughest things can be susceptible to the power of salt. Here a metal chain has been eaten away and severely rusted by salt corrosion and weathering.

