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This is a stone.

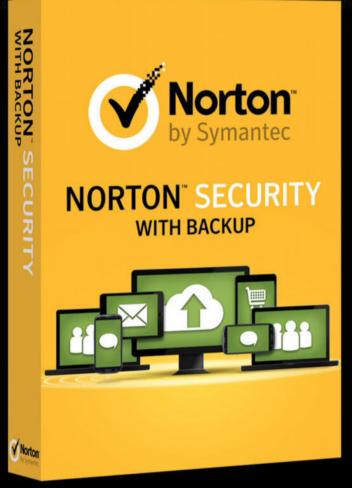
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## MILVVAUKEE TO 'POKEMON' MONSTERS: GET A PERMIT TO ENTER PARKS

"Pokemon Go" monsters can roam virtually wherever they please, but they'll need a permit to get into Milwaukee County parks.

At the height of the game's popularity last summer, the large crowds it attracted to one Milwaukee park left county officials at a loss for how to deal with the sudden influx of players and the trash they left behind. With more augmented-reality games in development, the permitting process Milwaukee County set up puts it at the forefront of an emerging challenge for government officials who want to regulate them.

"We're prepared for all of them now," said County Supervisor Sheldon Wasserman, who wrote the proposal setting up a permitting process that County Executive Chris Abele signed on Feb. 10. Other places where officials are looking at how to handle such games include Illinois, where lawmakers are considering requiring companies to remove sites from games when they receive a request to do so. The bill pending in the Illinois Legislature is a response to heavy foot-traffic last year at a suburban Chicago park with protected dunes.

Kate Edwards, the executive director of the International Game Developers Association, said in an email that local and state regulations haven't been on developers' radars because there haven't been any "that specifically affect game content or design."

Most people associate augmented-reality smartphone apps with "Pokemon Go," which allows players to catch monsters in the real world when they appear on their phones. But the number of games is growing. Other apps allow people to blast zombies on streets, race cars around the office, and aim basketballs at virtual hoops anywhere.

Edwards warned that "legislation and regulation at this early stage of an emerging technology" can stifle its growth.









But Wasserman said something needed to be done after months "of basically absolute hell" at a Milwaukee park along Lake Michigan. Hundreds and sometimes thousands of players came to Lake Park at all hours of the day, he said, leading to traffic congestion, overtime for sheriff's deputies providing security, overflowing bathrooms and so much trash that the county had minimum-security inmates help clean up.

The new ordinance requires that game developers such as Niantic, the San Franciscobased creator of "Pokemon Go," get a permit like any other business or group that wants to host park events. The fees will be on a sliding-scale - anywhere from \$100 to \$1,000, depending on how much of the park will be used and how many people are expected to be there, Wasserman said. The money will help with the park's upkeep, he said, and the permits will help the county prepare for the volume of people.

Wasserman said the county could pursue legal action if a company doesn't comply with a permit.

Niantic declined a request for comment.

Eddie Cullen, a county supervisor who voted against the measure, said officials should be encouraging, not restricting the public's use of the parks and that people should be responsible for their behavior.

"If someone crashes their car while using (Google Maps) it's not Google Maps' responsibility to pay for the damages. That falls on the user," he said. "If a 'Pokemon Go' player litters or damages something in the parks, it should be the responsibility of the player, not the corporation to pay for damages."





## YAHOO SALVAGES VERIZON DEAL VVITH \$350 MILLION DISCOUNT

Yahoo is taking a \$350 million hit on its previously announced \$4.8 billion sale to Verizon in a concession for security lapses that exposed personal information stored in more than 1 billion Yahoo user accounts.

The revised agreement, announced
Tuesday, eases investor worries that Verizon
Communications Inc. would demand a discount
of at least \$1 billion or cancel the deal entirely.

The hacking bombshells, disclosed after the two companies agreed on a sale, represent the two biggest security breaches in internet history.

The breaches raised concerns that people might decrease their use of Yahoo email and other digital services that Verizon is buying. A smaller audience makes Yahoo's services less valuable because it reduces the opportunities to show ads - the main reason that Verizon struck the deal seven months ago.

Yahoo has maintained that its users have remained loyal, despite any mistrust that might have been caused by its lax security and the lengthy delay in discovering and disclosing the hacks. The separate attacks occurred in 2013 and 2014; Yahoo disclosed them this past September and December.

The lower price, now pegged at \$4.48 billion, will cost Yahoo shareholders roughly 37 cents per share. But they may also be responsible for substantial legal costs.

After the Verizon deal closes, any future bills stemming from the hack will be shouldered by Altaba Inc. - a company that will become the caretaker of Yahoo's remains, which will include about \$7 billion in cash and lucrative stakes in Chinese e-commerce giant Alibaba Group and Yahoo Japan.

Altaba will be responsible for all costs stemming from shareholder lawsuits and a Securities and Exchange Commission probe into how Yahoo handled the disclosure of the massive hacks. Verizon and Altaba will split costs from all other hack-related lawsuits and government investigations.

This agreement "provides protections for both sides" and should help the deal close by the end of June, Marni Walden, Verizon's head of product innovation and new businesses, said in a statement. Yahoo shareholders have to approve it.

Avoiding an even larger reduction in the deal value represents a small victory for Yahoo CEO Marissa Mayer, who had already been under fire on Wall Street for her inability to turn around the company and then for the humiliating security lapses that came under her watch.





"Yahoo had to get this deal done. There is no better fit for them than Verizon," said Doug Melsheimer, managing director for Bulger Partners, an investment banking firm specializing in technology.

Yahoo shares rose 30 cents to \$45.40 in Tuesday afternoon trading while Verizon's stock added 19 cents to \$49.38.

Mayer, 41, is widely expected to step down after Verizon takes over, although she hasn't spelled out her plans definitively. If she departs, Mayer will leave with a severance package that was valued at \$44 million last summer. The package is probably worth even more now because it primarily consists of Yahoo stock, which has risen by nearly 20 percent since last summer.

Verizon's willingness to accept some of the lingering risks from Yahoo's security breaches underscores the wireless carrier's desire to become a bigger player in the digital advertising market. Google and Facebook currently dominate, but Verizon believes there's room to grow.









# AMAZON RESISTS REQUEST FOR ECHO INFO IN ARKANSAS SLAYING

Amazon is resisting an effort by Arkansas prosecutors to obtain potential recordings from a slaying suspect's Amazon Echo smart speaker, saying authorities haven't established that their investigation is more important than a customer's privacy rights.

The issue comes in the investigation into the death of Victor Collins, who was found floating face-up in a hot tub in a friend's Bentonville home in November 2015. The friend, James Andrew Bates, has pleaded not guilty to first-degree murder.

Benton County prosecutors asked a court to force Amazon to provide data that Bates' Echo may have collected. Echo devices "listen" for a user's voice and respond to commands.

In a response filed Friday, Amazon said prosecutors hadn't established the need for Amazon to violate its customers' constitutional rights. Amazon said prosecutors must prove the information isn't available elsewhere.

Amazon also wants the court to review the recordings before turning them over to prosecutors to ensure they're actually relevant to the case.

"Given the important First Amendment and privacy implications at stake, the warrant should be quashed unless the Court finds that the State has met its heightened burden for compelled production of such materials," Amazon said in the court documents.





The company had previously spoken about prosecutor's request for the information in more general terms, but this is Amazon's first formal legal response to the subpoena for audio recordings and transcripts from the night of Collins' death.

"Amazon will not release customer information without a valid and binding legal demand properly served on us. Amazon objects to overbroad or otherwise inappropriate demands as a matter of course," the company said in a statement.

The Associated Press left a phone message Wednesday seeking comment from prosecutors in the case.







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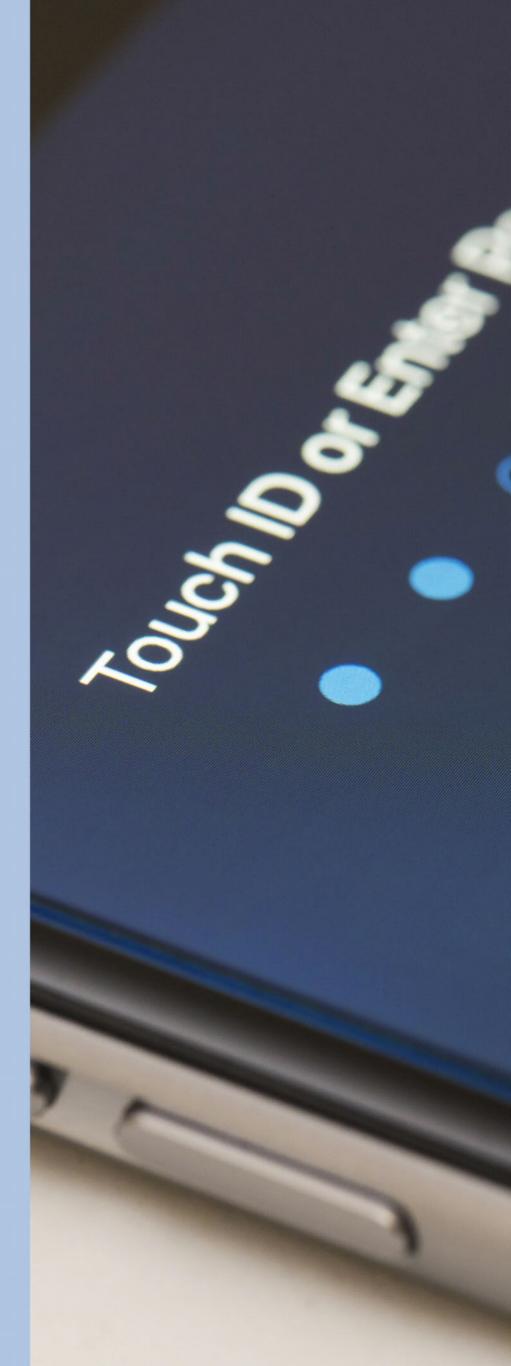




#### AP, OTHER MEDIA ASK JUDGE TO ORDER RELEASE OF iPHONE RECORDS

The Associated Press and two other news organizations asked a judge Monday to force the federal government to reveal how much it paid for a tool to unlock an iPhone used by one of the San Bernardino, California, shooters.

The news organizations said in a court filing there was "no adequate justification" for the FBI to continue to withhold information on the cost of the tool or the identity of the vendor that sold it. They said their requests were narrowly tailored and, contrary to the arguments of the FBI and Justice Department, did not seek information that would jeopardize national security or be exploited by America's enemies.







"While it is undisputed that the vendor developed the iPhone access tool, the government has identified no rational reason why knowing the vendor's identity is linked in any way to the substance of the tool, much less how such knowledge would reveal any information about the tool's application," lawyers for the news organizations wrote in the filing to the U.S. District Court in Washington.

The AP, Vice Media LLC and Gannett, the parent company of USA Today, sued the FBI in September. The news organizations sought to learn more about the mysterious transaction that cut short a legal dispute in which the government won a court order to force Apple Inc. to unlock the work phone of Syed Rizwan Farook, who along with his wife killed 14 people in the December 2015 San Bernardino attack.

The FBI had maintained for weeks that only Apple could access the information on its phone, which was protected by encryption, but announced in March that it had ultimately broken or bypassed the company's digital locks with the help of an unidentified third party. The government has refused to say how it acquired the tool or how much it paid, though FBI Director James Comey dropped a hint in April when he said the cost was more than he would make for the duration of his job-roughly seven years.



The Justice Department last month provided some heavily redacted records from the transaction, but withheld critical details that the AP was seeking. The government argued that the information it withheld, if released, could be seized upon by "hostile entities" that could develop their own "countermeasures" and interfere with the FBI's intelligence gathering. It also said that disclosure "would result in severe damage to the FBI's efforts to detect and apprehend violators of the United States' national security and criminal laws through these very activities and methods."

But in their latest court filing, the news organizations said they never sought the sensitive information the FBI has said it wants to protect, such as how the tool worked. They said the government was improperly invoking national security exemptions to the Freedom of Information Act, which they say mandates the release of the information.

"Release of this information goes to the very heart of FOIA's purpose, allowing the public to assess government activity - here, the decision to pay public funds to an outside entity in possession of a tool that can compromise the digital security of millions of Americans," the lawyers wrote.

# HIGH COURT RULING LIMITS INTERNATIONAL REACH OF PATENT LAWS



The Supreme Court on Wednesday sided with California-based Life Technologies Corp. in a patent infringement case that limits the international reach of U.S. patent laws.

The justices ruled unanimously that the company's shipment of a single part of a patented invention for assembly in another country did not violate patent laws.

Life Technologies supplied an enzyme used in DNA analysis kits to a plant in London and combined it with several other components to make kits sold worldwide. Wisconsin-based Promega Corp. sued, arguing that the kits infringed a U.S. patent.

A jury awarded \$52 million in damages to Promega. A federal judge set aside the verdict and said the law did not cover export of a single component.

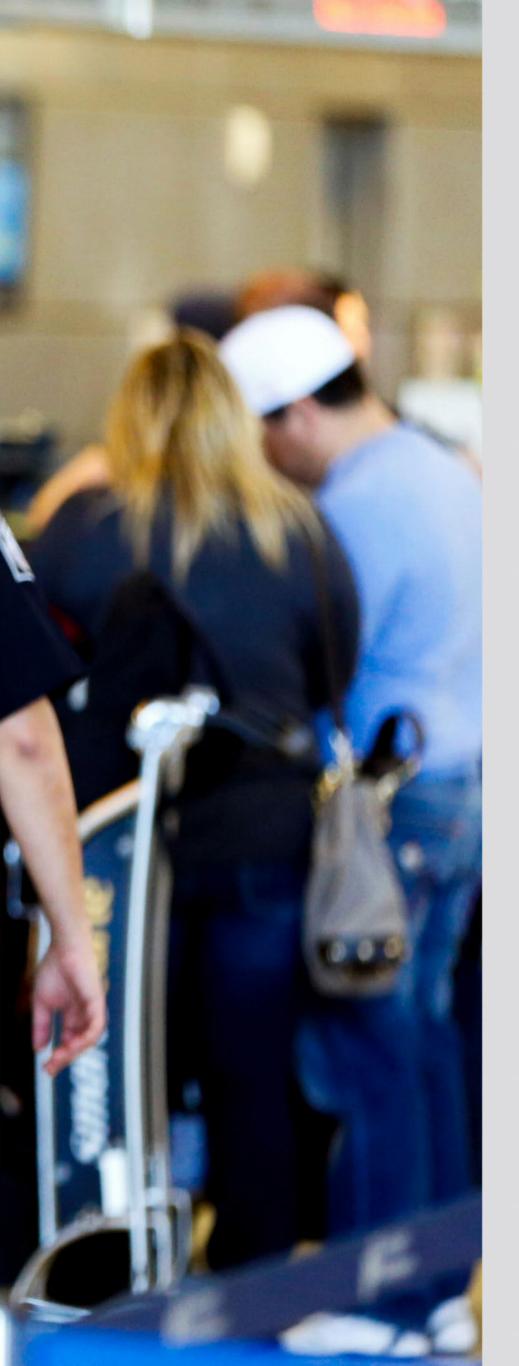
The federal appeals specializing in patent cases reversed and reinstated the verdict.

Patent laws are designed to prevent U.S. companies from mostly copying a competitor's invention and simply completing the final phase overseas to skirt the law. A violation occurs when "all or a substantial portion of the components of a patent invention" are supplied from the United States to a foreign location.

Writing for the high court, Justice Sonia Sotomayor said the law addresses only the quantity of components, not the quality. That means the law "does not cover the supply of a single component of a multicomponent invention," Sotomayor said.

Only seven justices took part in the ruling. Chief Justice John Roberts heard arguments in the case, but later withdrew after discovering he owned shares in the parent company of Life Technologies.





# ELECTRONIC MEDIA SEARCHES AT BORDER CROSSINGS RAISE WORRY

Watchdog groups that keep tabs on digital privacy rights are concerned that U.S. Customs and Border Protection agents are searching the phones and other digital devices of international travelers at border checkpoints in U.S. airports.

The issue gained attention recently after at least three travelers, including a Canadian journalist, spoke out publicly about their experiences.

The episodes have gained notice amid an outcry over President Donald Trump's travel ban and complaints of mistreatment of foreign travelers, but the government insists there has been no policy change in the new administration.

Border Protection says searches increased fivefold in the final fiscal year of the Obama presidency, but still amounted to less than one-hundredth of 1 percent of all international arrivals.

Here are some things to know about the searches and your privacy rights.

#### WHAT HAS PROMPTED THE CONCERN?

The American Civil Liberties Union and the Electronic Frontier Foundation both say they have noticed an uptick in complaints about searches of digital devices by border agents.

The increase has become most noticeable in the last month, said Adam Schwartz, a senior staff lawyer at the Electronic Frontier Foundation.

"We are concerned that a bad practice that has existed under past presidents has gotten worse in quantity under the new president," Schwartz said.

The government says nothing has changed. Customs officials also say the perceived shift can be attributed to a jump in the number of electronic devices that people are carrying with them and shifting tactics as the agency adjusts to the amount and types of information that can be stored on today's devices.

## WHAT SEARCH AUTHORITY DOES THE BORDER PROTECTION HAVE?

Americans have protection under the Fourth Amendment from unreasonable search and seizure.

A police officer, for example, must obtain a warrant from a judge before searching a suspect's phone.

But the U.S. border is a legal gray zone. Border agents have long had the right to search travelers' physical luggage without a warrant, and that interpretation has been expanded to include digital devices, ACLU staff attorney Nathan Freed Wessler said.

In 2013, the 9th U.S. Circuit Court of Appeals ruled that if agents want to do a forensic





search they need to have a reasonable suspicion of wrongdoing, he said. But the court stopped short of requiring agents to obtain a search warrant beforehand, he said.

And an agent can flip through a phone in a cursory search for any reason.

The law has not kept up with the "incredible volume of personal data that we have in our pockets now" - and that creates tremendous constitutional questions, said Wessler.

"In some ways, a search of your phone is more invasive than a search of your house," he said.

A case currently headed to another appeals court could further clarify the law, said Schwartz.

#### WHAT DOES THE BORDER PROTECTION SAY?

Numbers provided by the Border Protection show a fivefold increase in electronic media searches in the 2016 fiscal year ending on Sept. 30 over the previous fiscal year.

In 2016, under the Obama administration, there were 23,877 electronic media searches. That comes to .0061 percent of total arrivals into the U.S. In fiscal year 2015, there were 4,764 electronic media searches.

A senior CBP official briefed reporters on the issue Friday, but the agency insisted the official not be identified.

"We see it as an article that is brought into the U.S., no different than a booklet of materials, no different than a suitcase with items in it," the official said.









"We've uncovered very serious and significant information in these types of searches, everything from national security concerns to child pornography to evidence of crimes to determinations of people's admissibility status under the immigration laws."

### HOW CAN YOU PROTECT YOUR DIGITAL PRIVACY WHILE TRAVELING?

Privacy advocates say travelers who are concerned should leave their phones and laptops at home and buy a cheap phone once they arrive at their destination.

The Council on American-Islamic Relations is also advising its members to do the same.

Those who can't leave their devices behind should encrypt them and close out of all social media applications so they aren't accessible without a password, said Schwartz.

But those steps won't matter much if a border agent asks a traveler to unlock the phone or provide a password, said Scwhartz.

And travelers should also be aware of the rules in other countries. Israel authorities can check mobile phones at the airport, for example.

#### WHAT HAPPENS IF YOU REFUSE?

CBP can't bar a U.S. citizen from entry if they refuse to comply, but agents can make things difficult.

Travelers who don't unlock their phones could be questioned, detained temporarily and have their phones taken by agents for days.

Travelers who are not U.S. citizens can be denied entry.





Hasaim Elsharkawi, a self-employed businessman from Anaheim, California, told the AP that he was stopped by agents in Los Angeles last week as he was boarding a plane to Saudi Arabia to make a pilgrimage to Mecca. They asked him to unlock his phone without telling him why.

Elsharkawi, a Muslim, said he refused because he didn't want the male agents to see photos of his wife with her head uncovered.

When he asked for a lawyer, the agents detained him, handcuffed him and interrogated him for four hours before he agreed to unlock the device for a female agent, he said. He was then released and his phone was returned after the female Homeland Security officer checked his email, photos and eBay and Amazon accounts.

Elsharkawi, 34, was born in Saudi Arabia to Egyptian parents. He came to the U.S. in 2004 and became a U.S. citizen in 2012.

"I was already nervous before and after what has happened ... I don't know what to expect next," he said.





## BIG HIT FOR BULLS, 'BENNY'S DAY OFF' CONNECTS ONLINE

Dancing on the roof, microphone in hand as he lip-synched to "Twist and Shout," Benny the Bull was putting on quite a performance as his tricked-out black van rolled through downtown Chicago.

It was not quite "Ferris Bueller's Day Off," and it won't be coming to a theater near you. But as spoofs go, "Benny's Day Off" is quite a production.

The story starring the Chicago Bulls' mascot played out almost in real time on social media on a recent Monday, with scenes posted on Snapchat right after they were recorded throughout the day. The team also tweeted the effort while the crew headed to the next location, fans tuning in to see what Benny would do next.

"You're only limited by your imagination," Bulls digital content manager Luka Dukich said. "You can do a lot of damage with a phone these days."

The NBA, including team and player accounts, has about 1.3 billion likes and followers over various social media platforms. The Bulls, by their own count, rank second to the Los Angeles Lakers among major North American sports franchises, with nearly 25 million followers across Facebook, Twitter, Snapchat, YouTube and Instagram.

Snapchat has emerged as a major player in recent years, particularly when it comes to reaching younger fans. NBA associate vice president of social media Sam Farber said a "vast majority" who follow the league's account are younger than 24.

"It's really important for us to use that platform to reach that audience in an authentic way and we found that to be quite successful over the last couple of years," he said.

The NBA's relationship with Snapchat started in 2014 and expanded this season with more ingame content and behind-the-scenes coverage. The league can also post features that show the evolution of the crossover or players talking about the first time they dunked, for example, on the Snapchat Discover channel. It can produce live stories that capture the atmosphere at the arena.

It allows the dozens of players to show themselves in a different light. The same goes for the teams, whether they take a more serious and basketball-centric approach or try to have fun with it, like the Bulls.









"Benny's Day Off" comes on the heels of a "Clue"-themed feature in late January that also starred their mascot. It had more than 60,000 views on Snapchat and an additional 55,000 on YouTube and Facebook in little more than two days after a marathon production that went from the United Center to a shop in Chinatown to a movie theater on the city's North Side to the famed Second City comedy club before heading to Daley Plaza downtown.

#### **BENNY'S NOT WELL**

The shoot starts in a storage room just off the United Center floor that's stuffed with costumes and uniforms.

The lights are out in Benny's lair as shooting begins. The mascot is in bed on a pullout loveseat with a blanket - a Bulls blanket - pulled in tight, just like Ferris Bueller. Bulls entertainment assistant Tom Sargent leans over like Ferris' parents.

"Benny, you don't look too good," he says. Benny shakes his head.

The cameraman is Dukich using his phone, the director Billy Bungeroth from Second City. Actors and actresses from the group pop up throughout the day.

They do several takes and eventually go with one that has the lights on in the room. In the second shot, it becomes clear that Benny is not skipping school like Ferris when Sargent mentions a "big meeting" and tells him to stay in bed. In the third shot, Sargent tells him to feel better and walks away. Benny whips out a sign that says: "Benny's Day Off A Snapchat Film." And with that, they're off.

#### **SPOOFING A CLASSIC**

While the shoot lasts all day, the idea was months in the making.

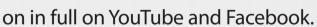
The Bulls' digital team started thinking about narratives for Snapchat before the season. Not long after that, they reached out to Second City and the brainstorming began.

They came up with a story where Benny was bored working odd jobs while the team was away. From there, they got another idea.

"Why doesn't he have like a Ferris Bueller day out in the city?" Dukich said. "That evolution kind of was in the last two weeks. It's amazing."

The Bulls could only produce the story on a day when the team was off and on the road because they needed their Snapchat channel clear. Benny's schedule also had to be open. The Second City crew had to be available, and the shoots at the shop in Chinatown and the movie theater had to be arranged.

Stories last only 24 hours on Snapchat, but the platform gives the Bulls a captive audience and the full attention of their viewers. And when it's gone, well, the 4-minute, 55-second video lives







#### **TOURING THE TOWN**

Cut to a boardroom at the United Center.

Second City's Jeffrey Murdoch is channeling Ben Stein as the economics teacher as he takes attendance.

"Bull? ... Bull? ... Anyone," he says in that "Bueller? ... Bueller? ... Bueller?" tone.

Sargent, seated at the head of a long table with the Bulls' court painted on top, explains that Benny is sick.

Another nod to the movie happens in a parking lot across from the arena. This time, it's the Ferrari scene.

There's Benny, in the driver's seat, lifting his left leg in and closing the door before the car peels off.

What viewers don't see is Benny getting out and Sargent behind the wheel in the scene that makes the cut.

Oh, and about the car. Instead of a classic 1961 Ferrari 250 GT California, they're using a vintage 1998 Lexus ES 300 that Bulls manager of corporate communications Ross Lipschultz purchased from his grandparents. Ferrari's not a team sponsor; Lexus is and considers Ferrari a competitor.

"Which is fine," Lipschultz said. "It's up to them. They're an official car sponsor so for cars we had to find a Lexus."

#### **BULL IN CHINATOWN**

In Chinatown, Benny visits a gift shop. The bull in the China shop drops a large glass egg - which actually lands on a team employee lying on the floor off camera - before getting kicked out of the store.

There's Benny, to the tune of "Danke Schoen," standing outside a North Side movie theater and two "fans" freaking out as he passes them on an escalator. He buys two buckets of popcorn and spills them when he bumps into another "fan," played by Second City's Martin Morrow, trying to take a selfie with him.

Not long after, he's shown leaning against the side of his van with a large image of him and the Bulls' logo, before climbing onto the roof and sitting on top as it rolls through the Old Town neighborhood toward downtown.

There are no seatbelts up there, just some bars to hang onto. There are also speakers and a hatch that allows him to climb from his windowless compartment in the back to the roof.

Benny's actual identity is kept secret from the public. He rarely utters a word when he's in uniform, and if he does, it's usually out of earshot from anyone but a Bulls staffer.

Yet, the reactions speak volumes.

There were smiles and laughs and people snapping pictures particularly as the van makes its way along Wells Street toward downtown.

And there were glowing reviewson Twitter as the story unfolded.

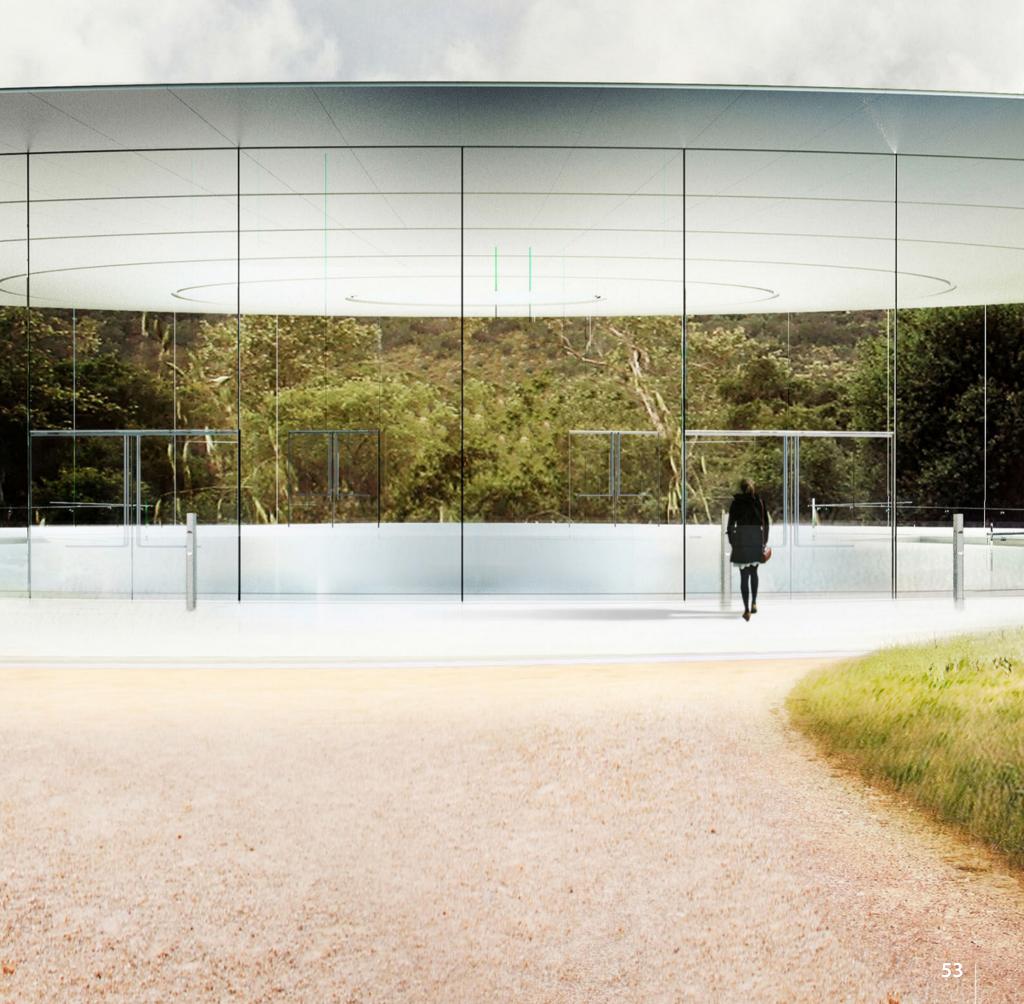
"It's awesome to have this platform and be able to do what we do here," Dukich said.



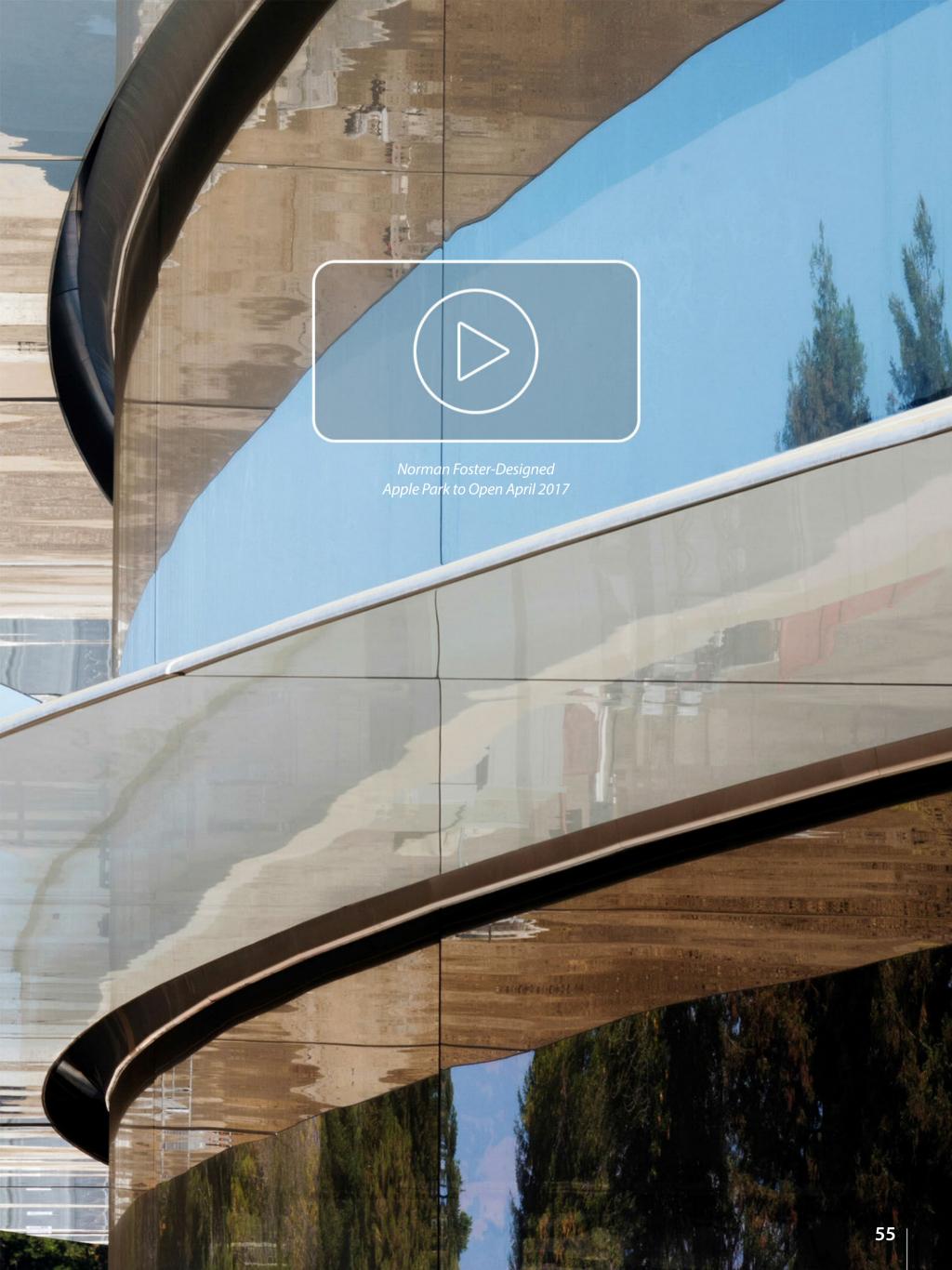




# NEVV APPLE HEADQUARTERS TO HAVE THEATER NAMED FOR STEVE JOBS

















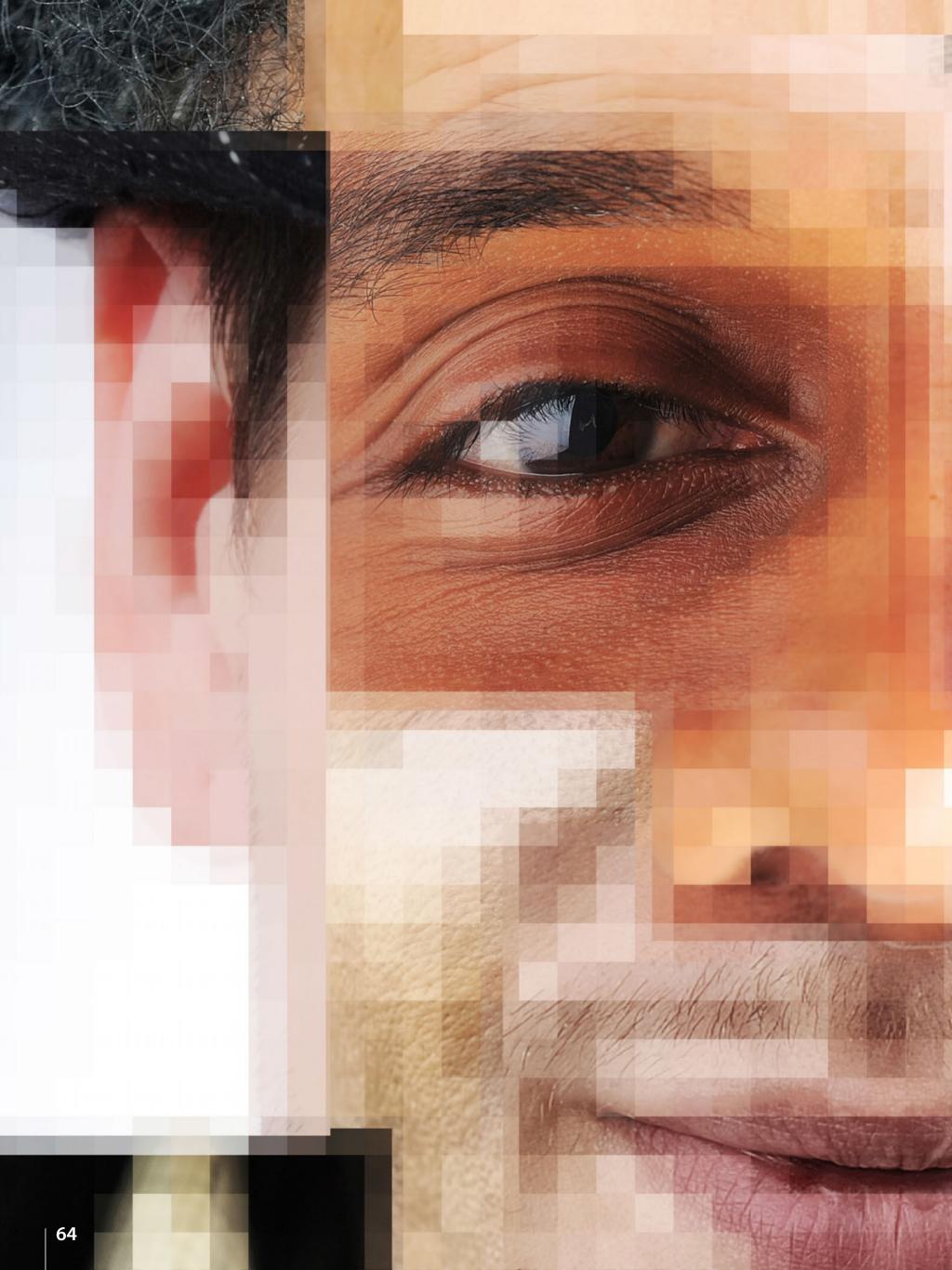
#### THE IPHONE 8 RUMOR MILL

The rumor mill continues to churn in regards to what we might see with the next iPhone release. The most recent hints suggest that a facial recognition feature that will propel Apple forward toward more advanced biometrics. After all, it has been widely speculated for some time now that Apple is ditching the home button in an attempt at a bezel-free design, and this would fit in well with the idea of a fully integrated facial recognition system. It makes sense that the Cupertino firm heads in this direction. Even if it doesn't yet reach the dizzying heights of Jonathan Ive's single sheet of glass design, we can still see a clear progression from the very first iPhone and its functionality.

Reports now claim that Apple has succeeded in purchasing Tel-Aviv based, Israeli start-up RealFace, a software company that provides "frictionless face recognition." The start-up, formed in 2014, is said to have been bought by Apple for several million dollars and may provide the "iPhone 8" (and future iterations of the smartphone) with a practical face scanning utility powered by a laser 3D scanner.









track individual faces and produce high-quality footage, alongside taking an extensive amount of information from constantly updating databases. Even if this technology did exist, we know that facial recognition is still not 100% accurate thanks to studies that have shown that **small alterations to a person's appearance**, such as taking off a pair of glasses, can significantly affect accurate facial recognition.

#### **NEW BIOMETRIC TECHNOLOGIES**

We can only speculate about what this

potential addition of a facial recognition system can mean for the iPhone's current fingerprint recognition tech, Touch ID. The company's acquisition of RealFace only adds more fuel to the fire when it comes to the **rumors that** suggest that Apple is dropping Touch ID in favor of "new biometric technologies." This may simply be referring to the company holding patents for embedding a fingerprint reader into the screen, but the likelihood is that Apple will continue to adopt Touch ID alongside new facial recognition technologies that users can have as an alternative. If Apple does go ahead with exactly what is speculated, we can probably rest assured that their approach will be secure, using advanced tech such as 3D multi-point facial features or iris recognition, the latter of which is used worldwide to confirm identities at Immigration.

Further problems arise concerning basic things such as speed. Commercial systems that use this technology will typically take two seconds or longer to recognize you. Therefore, the rate in which we're used to unlocking our iPhone could so much as double. Secondly, we can refer

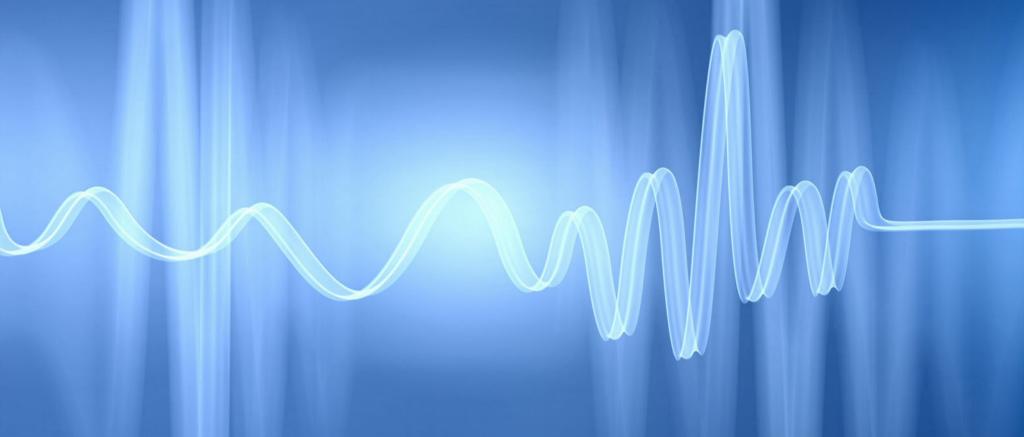




back to 'the superman effect' with regards to iris recognition software being unable to identify those wearing glasses. Those who wear glasses could be required to remove them each time they wish to unlock their phone, which is in no way practical and makes for a lacking user experience. This problem ties in with a similar one that may arise regarding unlocking your phone in dim lighting, something which doesn't require any explanation.

Facial recognition isn't the only form of security that has been raised, though. Voice recognition is recognized as a highly secure

form of biometric identification so much so that it is used by one of the world's leading banks, HSBC. Rather than remembering a password, customers are simply required to respond to a question over the phone to access their mobile banking. This could be an option, but it would probably be avoided by those who already admit that they are too embarrassed to use Siri in a public space. Apple would, therefore, be required to find a happy medium between offering the functionality of voice or iris technology, alongside a password input that is more inconspicuous.





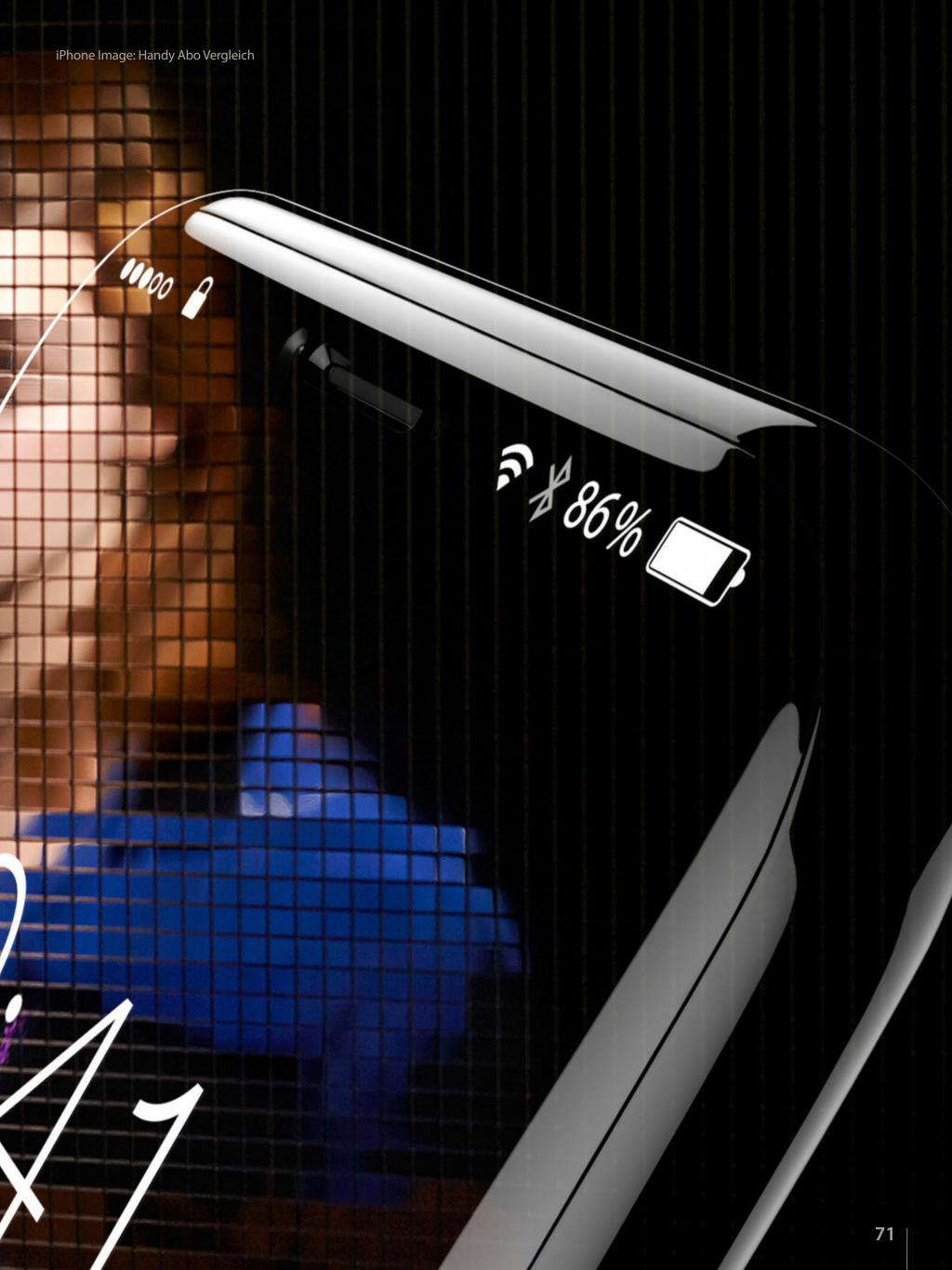
#### THE INCLUSION OF ARTECH

There have been huge implications that the next iPhone will be a game changer, because of the inclusion of augmented reality (AR) tech. The success of recent apps such as Pokémon Go and **Blippar**, which both use AR, have led to ideas that suggest the smart phone's next update will change the way that we communicate and express ourselves by being able to display digital information on top of real-world items. Inquisitive fingers have pointed to Apple's relationship with Lumentum, a 3D sensor technology company whose software will allow the iPhone to identify what it can see in the frame. We already know that **Apple CEO** Tim Cook has spoken in glowing terms about **AR**, though he continues to keep quiet about its inclusion in the next update.

Things on the facial recognition front remain vague. It is certainly possible that we could see the inclusion of some form of facial recognition software in the next update to the smartphone lineup, and iOS, but some reports suggest the deal between Apple and RealFace was not completed in time for the tech to be included this year. It isn't unusual for Apple to keep certain acquisitions under wraps, however, and they may have been working alongside the start up, or indeed, another company, for some time. One thing we do know, however, is that after all of these impressive rumors, fans and investors alike will be thoroughly disappointed if Apple fails to deliver anything short of spectacular come the expected release date in September.

by Benjamin Kerry & Gavin









# NEVV ZEALAND JUDGE UPHOLDS KIM DOTCOM EXTRADITION RULING

A New Zealand judge upheld an earlier court ruling that flamboyant internet entrepreneur Kim Dotcom and three of his colleagues can be extradited to the U.S. to face criminal charges.

The decision comes five years after U.S. authorities shut down Dotcom's file-sharing website Megaupload and filed charges of conspiracy, racketeering and money laundering against the men. If found guilty, they could face decades in prison.

Dotcom, who lives in New Zealand, has been fighting extradition in a case which has moved with glacial slowness at times. And Monday's decision won't be the last, with the case likely to be appealed up to New Zealand's Supreme Court, a process that could take another year or two.



U.S. prosecutors say that Megaupload raked in at least \$175 million, mainly from people using it to illegally download songs, television shows and movies. The New Zealand district court ruled in 2015 that Dotcom and the others were eligible for extradition on the charges. High Court judge Justice Murray Gilbert found Monday that the district court made mistakes in its ruling but that those didn't alter the big picture. Dotcom tweeted Monday: "We won but we lost anyway." Dotcom's lawyer Ron Mansfield said the high court agreed with a major part of their appeal - that copyright infringement on its own isn't an offense that warrants extradition - but had erred in finding the men could be extradited on conspiracy grounds. "Look, we're disappointed it's not all over in the high court," Mansfield said. "But we're one step away, as far as we're concerned, from winning outright." 75 Mansfield said they are determined to keep fighting. "There are substantial legal issues in play," he said.

The U.S. argues that the site cost copyright holders, which included Hollywood's major movie studios, more than \$500 million. Prosecutors say intercepted communications show the men talking about being "modern-day pirates" and "evil" and that they were part of a conspiracy to profit from copyright infringement.

Dotcom argues that he can't be held responsible for others who chose to use his site for illegal purposes, and that any case against him should have been heard in civil court.

Born in Germany as Kim Schmitz, Dotcom has long enjoyed a flamboyant lifestyle. He was arrested in New Zealand in 2012 after a dramatic police raid on his mansion.

Out on bail soon after, he released a music album, started another internet file-sharing company called Mega, and launched a political party which unsuccessfully contested the nation's 2014 election.

In addition to Dotcom, who founded Megaupload and was its biggest shareholder, the U.S. is also seeking to extradite former Megaupload officers Mathias Ortmann, Bram van der Kolk and Finn Batato.





## ZUCKERBERG'S GOAL: REMAKE A VVORLD FACEBOOK HELPED CREATE

Mark Zuckerberg helped create the modern world by connecting nearly a quarter of its citizens to Facebook and giving them a platform to share, well, everything - baby pictures and Pepe memes, social updates and abusive bullying, helpful how-to videos and livestreamed violence.

Now he wants to remake it, too, in a way that counters isolationism, promotes global connections and addresses social ills - while also cementing Facebook's central role as a builder of online "community" for its nearly 2 billion users.

The Facebook founder laid out his thoughts in a sweeping 5,800-word manifesto that hews closer to utopian social guide than business plan. Are we, he asked in the document, "building the world we all want?"

In a phone interview, Zuckerberg stressed that he wasn't motivated by the recent U.S. election or any other particular event. Rather, he said, it's the growing sentiment in many parts of the world that "connecting the world" - the founding idea behind Facebook - is no longer a good thing.





"Across the world there are people left behind by globalization, and movements for withdrawing from global connection," Zuckerberg, who founded Facebook in a Harvard dorm room in 2004, wrote on Thursday. So it falls to his company to "develop the social infrastructure to give people the power to build a global community that works for all of us."

### **CONNECTING IN FACEBOOK'S INTEREST**

Zuckerberg, 32, told the AP that he still strongly believes that more connectedness is the right direction for the world. But, he added, it's "not enough if it's good for some people but it's doesn't work for other people. We really have to bring everyone along."

It's hardly a surprise that Zuckerberg wants to find ways to bring more people together, especially on Facebook. After all, getting more people to come together on the social network more frequently would give Facebook more opportunities to sell the ads that generate most of its revenue, which totaled \$27 billion last year. And bringing in more money probably would boost Facebook's stock price to make Zuckerberg - already worth an estimated \$56 billion - even richer.

And while the idea of unifying the world is laudable, some critics - backed by various studies - contend that Facebook makes some people feel lonelier and more isolated as they scroll through the mostly ebullient posts and photos shared on the social network. Facebook's famous "like" button also makes it easy to engage in a form of "one-click" communication that can displace meaningful dialogue.







Facebook also has been lambasted as a polarizing force by circulating posts espousing similar viewpoints and interests among likeminded people, creating an "echo chamber" that can harden opinions and widen political and cultural chasms.

### **COMMUNITY SUPPORT**

Today, most of Facebook's 1.86 billion members - about 85 percent - live outside of the U.S. and Canada. The Menlo Park, California-based company has offices everywhere from Amsterdam to Jakarta, Indonesia, to Tel Aviv, Israel. (It is banned in China, the world's most populous country, though some people get around the ban.) Naturally, Zuckerberg takes a global view of Facebook and sees potential that goes beyond borders, cities and nations.

Equally naturally, he sees the social network stepping up as more traditional cultural ties fray. People already use Facebook to connect with strangers who have the same rare disease, to post political diatribes, to share news links (and sometimes fake news links). Facebook has also pushed its users to register to vote, to donate to causes, to mark themselves safe after natural disasters, and to "go live." For many, it's become a utility. Some 1.23 billion people use it daily.

"Our next focus will be developing the social infrastructure for community - for supporting us, for keeping us safe, for informing us, for civic engagement, and for inclusion of all," he wrote.

#### **LONG VIEW**

Zuckerberg has gotten Facebook to this position of global dominance - one that Myspace and



Twitter, for instance, never even approached - partly thanks to his audacious, long-term view of the company and its place in the world.

Last fall, Zuckerberg and his wife, the doctor
Priscilla Chan, unveiled the Chan Zuckerberg
Initiative, a long-term effort aimed at
eradicating all disease by the end of this century.
Then, as now, Zuckerberg preferred to look far
down the road to the potential of scientific and
technological innovations that have not been
perfected, or even invented yet.

That includes artificial intelligence, which in this case means software that's capable of "thinking" enough like humans to start making the sorts of judgments that Facebook sometimes bobbles. Last September, for instance, the service briefly barred the famous Vietnam War-era photograph dubbed "Napalm Girl" because it featured a nude child, and only reversed its decision after users - including the prime minister of Norway - protested.

Al systems could also comb through the vast amount of material users post on Facebook to detect everything from bullying to the early signs of suicidal thinking to extremist recruiting. Al, Zuckerberg wrote, could "understand more quickly and accurately what is happening across our community."

Zuckerberg said he understands that we might not "solve all the issues that we want" in the short term.

"One of my favorite quotes is this Bill Gates quote, that 'people overestimate what they can get done in two years and underestimate what they can get done in 10 years.' And that's an important mindset that I hope more people take today," he said.









# BOOK BY NEVV NATIONAL SECURITY ADVISER IS NO. 1 BEST-SELLER

Here's a way to reach the top of the best-seller lists: Become the next national security adviser.

Lt. Gen. H.R. McMaster's "Dereliction of Duty," first published in 1997, was No. 1 on **Amazon.com** as of Wednesday morning. The book's popularity soared after McMaster was chosen Monday by President Donald Trump to replace Michael Flynn, who departed amid questions about contacts he had with the Russian ambassador. Harper Perennial, a paperback imprint of HarperCollins, told The Associated Press that it has ordered a new printing of 25,000 copies.

"Dereliction of Duty" is a highly regarded work about the failures of the Vietnam War that is sharply critical of both the military and political leadership.







Right-wing provocateur Milo Yiannopoulos' publisher has cancelled his planned book, "Dangerous."

Simon & Schuster and its Threshold Editions imprint announced that "after careful consideration" they had pulled the book, which had been high on Amazon.com's best-seller lists and was the subject of intense controversy.

The announcement came hours after the Breitbart editor was disinvited to this year's Conservative Political Action Conference because of past comments about relationships between boys and men. He has said remarks he made that could be construed as favoring men and boys having sex were edited wrongly.

"Dangerous" was originally scheduled to come out in March. But Yiannopoulos had pushed back the release to June so he could write about the uprisings during his recent campus tour. At the time of his publisher's announcement, it ranked No. 83 on Amazon's overall list and No. 1 in the subcategory of Censorship & Politics.

More than 100 Simon & Schuster authors had objected to his book deal, which was announced last December, and Roxane Gay withdrew a planned book.

Some bookstores had said they would not sell his book, although the National Coalition Against Censorship and other free speech organizations had defended the publisher.

Threshold is a conservative imprint that has published books by Republican President Donald Trump and Republican former Vice President Dick Cheney among others.







## SHOOTING GETS UNDERVVAY FOR HAN SOLO 'STAR VVARS' FILM

Alden Ehrenreich has taken control of the Millennium Falcon. The Han Solo "Star Wars" spin-off has begun production.

The Walt Disney Co. announced Tuesday that shooting began at London's Pinewood Studios on Monday. To kick off the untitled Han Solo movie, the studio released a photo of the cast at the controls of the Millennium Falcon. Ehrenreich, who plays a younger version of Harrison Ford's iconic smuggler, is seated amid cast members including Woody Harrelson, Emilia Clarke and Donald Glover, who plays Lando Calrissian.

The film is directed by Phil Lord and Christopher Miller, who helmed "The Lego Movie." In a statement they said, "We can't think of anything funny to say, because we just feel really moved, and really lucky."

Disney will release the film in May 2018.

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Trailer

NOVIES STVShows



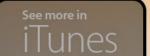


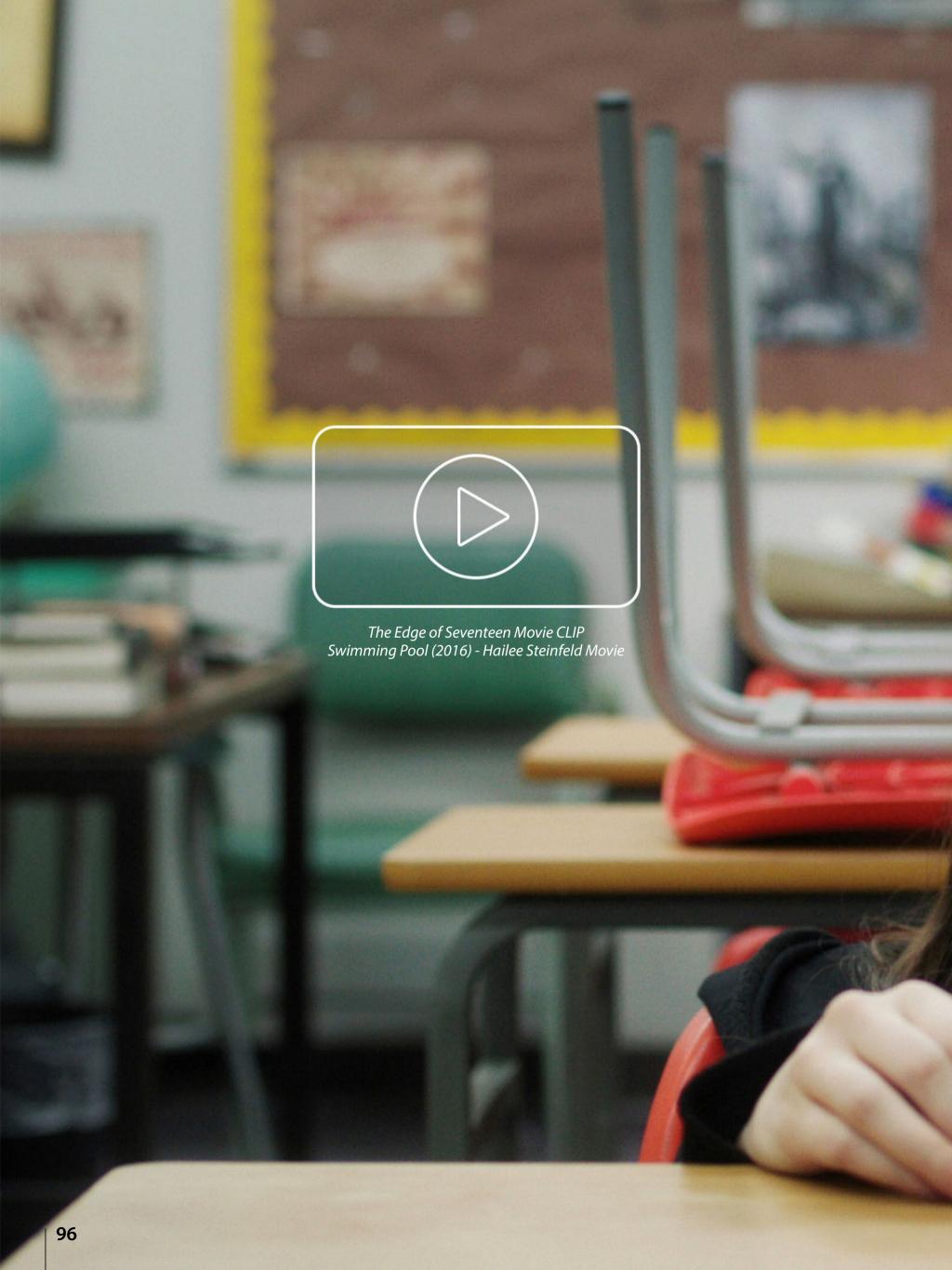
## The Edge of Seventeen

Growing up can have its awkward moments, and it certainly does for seventeen-year-old Nadine (Hailee Steinfeld) who has to learn to deal with her all-star older brother Darian (Blake Jenner) dating her best friend. With the help of a reluctant teacher (Woody Harrelson) and an unlikely friendship with a boy from school, she starts to realise that life doesn't have to be so terrible.

## **FIVE FACTS:**

- 1. The working title for this movie was 'Besties'
- 2. This is Kelly Fremon Craig's directorial debut
- **3.** The film shares its title with a song of the same name by Stevie Nicks
- **4.** Hayden Szeto who plays Erwin was the first actor to be cast and was actually 31 at the time of the film's release.
- **5.** Hailee Steinfeld received a Golden Globe nomination for her performance







## The Accountant

The story follows math savant Christian Wolff (Ben Affleck) who, behind the cover of a small office, works as an accountant for some of the world's most dangerous criminal organizations. When the Treasury Department's Crime Enforcement Division starts to close in on him, Wolff takes on a legitimate client which leads him to discover a discrepancy involving millions of dollars. As he gets closer to the truth, a number of double identities start to come out of the woodwork.

## **FIVE FACTS:**

- **1.** Anna Kendrick based her character on her mother who is a real life accountant.
- **2.** The martial art in the movie is a variety of Indonesian Silat which is also seen in the 'Raid' movies.
- **3.** The screenplay for the film was featured in 2011's Blacklist, a list of most liked unmade scripts of the year.
- **4.** The two paintings that feature in the film are "A Friend in Need" by Cassius Coolidge (1903) and "Free Form" by Jackson Pollock (1946).
- **5.** In real life, Ben Affleck is known to be such a cunning poker and blackjack player that he is banned from a number of casinos because of his habit of card-counting.



iTunes Preview







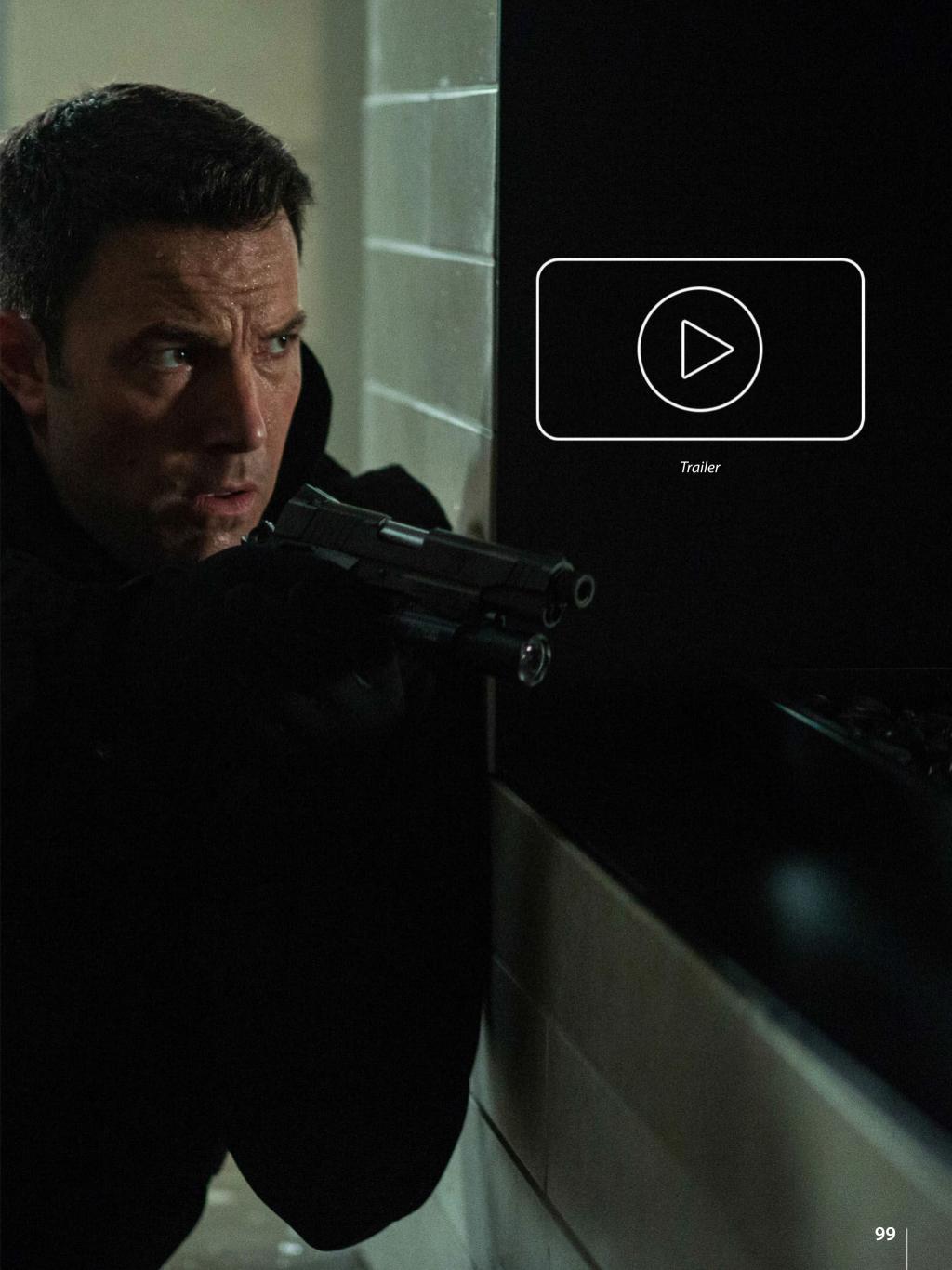
by Gavin O'Connor Genre: Drama Released: 2017 Price: \$19.99



Rotten Tomatoes

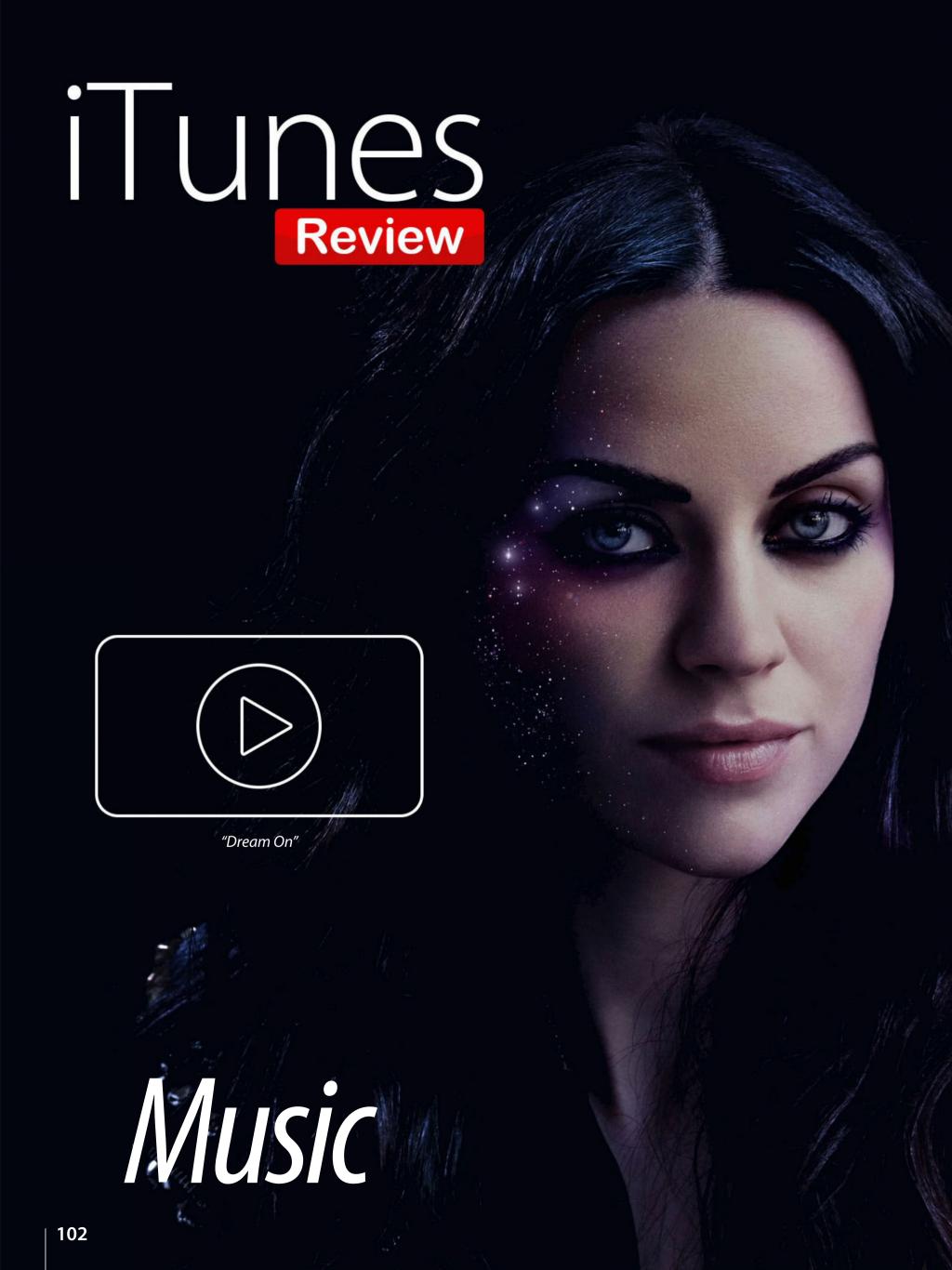


51%



















Genre: Pop Released: Feb 17, 2017 11 Songs

Price: \$9.99

## Under Stars (Deluxe) Amy Macdonald

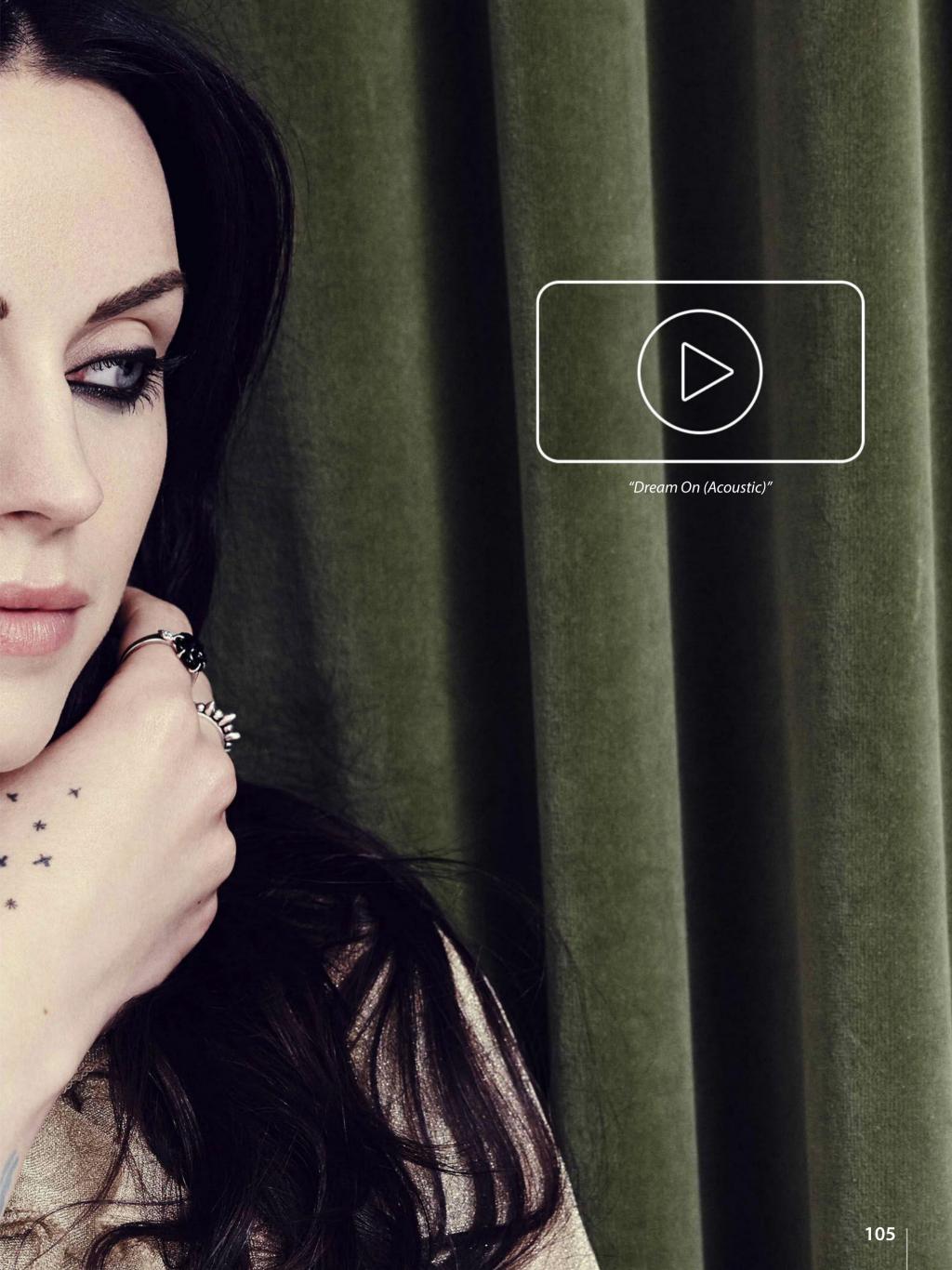
This deluxe version of the fourth album from multiplatinum-selling singer-songwriter Amy Macdonald features eight acoustic tracks including a cover of Bruce Springsteen's 'I'm on Fire'.

## **FIVE FACTS:**

- **1.** Amy taught herself how to play the guitar via "how to play guitar" tutorials on the internet
- **2.** She cites one of her main influences as Travis, who she saw perform at T in the Park festival as a teen. Other influences include The Killers and The Libertines
- **3.** Her first album This Is the Life sold 3 million copies and reached No.1 in the UK, the Netherlands, Switzerland and Denmark
- **4.** Macdonald is a supporter of Rangers football club and is currently engaged to former Rangers player Richard Foster
- **5.** In December 2008, she was voted "Scottish Person of the Year" by newspaper The Daily Record







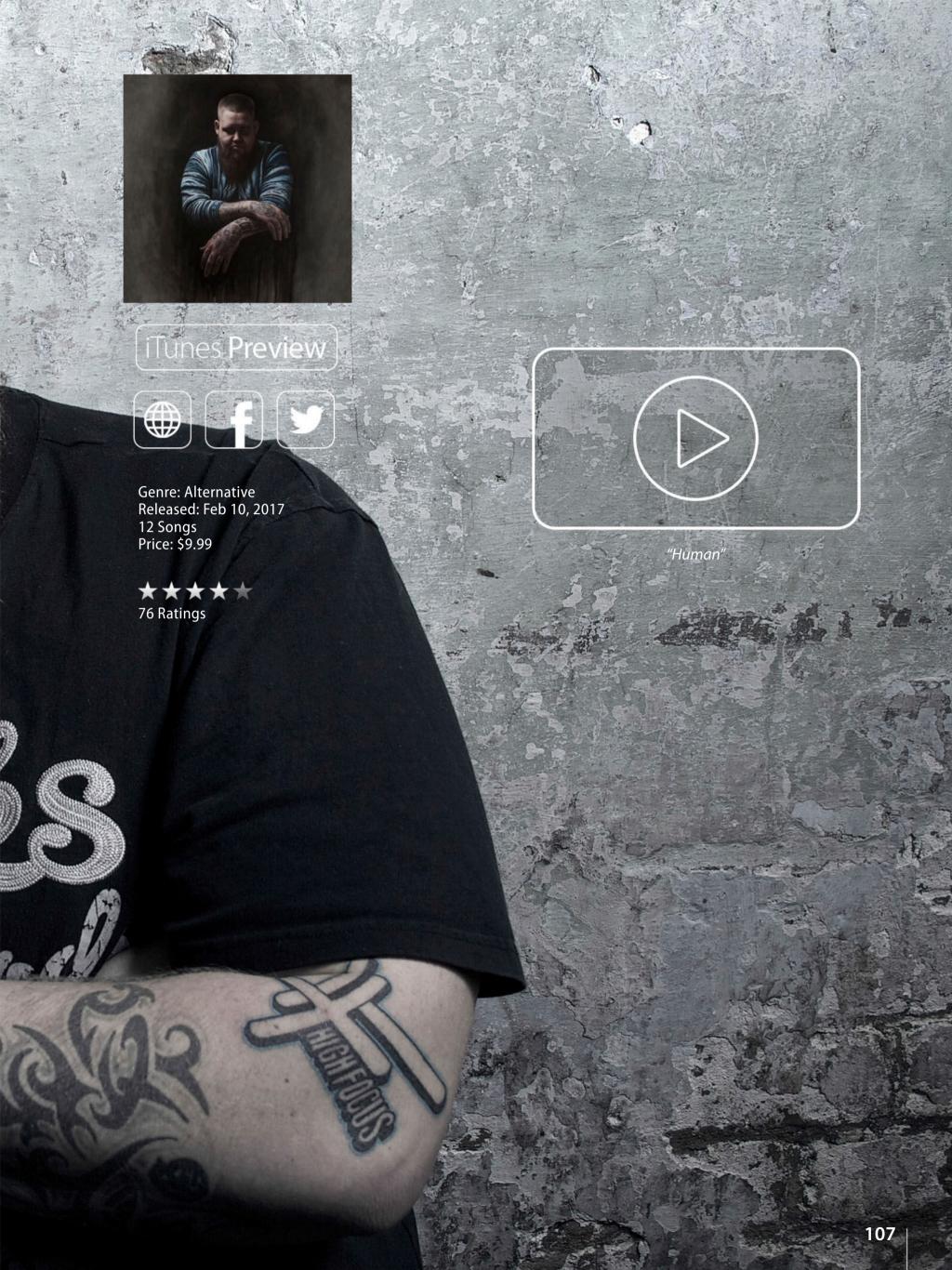
## Human Rag 'n'Bone Man

This chart-topping debut from Rag'n'Bone man is full of honest grittiness alongside channelling gospel touches with a nod toward American roots music. This is an album that perpetuates raw emotion through a powerful voice.

## **FIVE FACTS:**

- **1.** Rag'n'Bone Man won the Choice Award at the 2017 Brit Awards.
- **2.** His real name is Rory Graham and was born in Uckfield, East Sussex, England.
- **3.** Human sold 117,000 copies in its first week, making Rag'n'Bone Man the biggest selling male debut of the decade.
- **4.** He cites his earliest influence as his dad playing the guitar, stating his family were musical and that it "would be a family thing to listen to music together."
- **5.** Rory used to perform on pirate radio stations in Brighton with his friends.













## BOXOFFICETOP 20: 'LEGO BATMAN,' 'FIFTY SHADES' STAY ON TOP

Holdovers "The Lego Batman Movie" and "Fifty Shades Darker" led the North American box office for a second week, while Matt Damon's "The Great Wall" - a hit in China, where it was made - struggled in its domestic debut.

Warner Bros."The Lego Batman Movie" was No.1 again, selling \$42.7 million in tickets over the four-day holiday weekend, according to final figures Tuesday from comScore. Universal's "Fifty Shades Darker," which led overseas business, earned \$22.7 million Friday through Monday.

But Universal's critically panned action epic "The Great Wall," the most expensive film ever made in China with a budget of \$150 million, failed to make as much of an impact as it did on the other side of the world. After racking up \$171 million in China earlier this year, the North American bow of director Zhang Yimou's film netted \$21.5 million. New releases "Fist Fight," the Fox comedy starring Ice Cube and Charlie Day (\$14.1 million), and Gore Verbinski's "A Cure for Wellness" (\$5 million) also struggled.





The top 20 movies at U.S. and Canadian theaters Friday through Monday, followed by distribution studio, gross, number of theater locations, average receipts per location, total gross and number of weeks in release, as compiled Tuesday by comScore:

**1** "The Lego Batman Movie," Warner Bros., \$42,744,131, 4,088 locations, \$10,456 average, \$107,310,445, 2 weeks.

2 "Fifty Shades Darker," Universal, \$22,683,970, 3,714 locations, \$6,108 average, \$91,380,425, 2 weeks.

**3** "The Great Wall," Universal, \$21,508,490, 3,325 locations, \$6,469 average, \$21,508,490, 1 week.

4 "John Wick: Chapter Two," Lionsgate, \$18,981,463, 3,113 locations, \$6,097 average, \$61,173,546, 2 weeks.

**5** "Fist Fight," Warner Bros., \$14,121,149, 3,185 locations, \$4,434 average, \$14,121,149, 1 week.

6 "Hidden Figures," 20th Century Fox, \$9,010,782, 2,217 locations, \$4,064 average, \$144,502,612, 9 weeks.

7 "Split," Universal, \$8,488,990, 2,445 locations, \$3,472 average, \$125,054,520, 5 weeks.

8 "A Dog's Purpose," Universal, \$7,472,185, 2,400 locations, \$3,113 average, \$52,587,695, 4 weeks.

"La La Land," Lionsgate, \$5,640,915, 1,587 locations, \$3,554 average, \$134,644,981, 11 weeks.

10 "Lion," The Weinstein Company, \$5,144,385, 1,542 locations, \$3,336 average, \$37,399,868, 13 weeks.





1 1 "A Cure For Wellness," 20th Century Fox, \$5,004,463, 2,704 locations, \$1,851 average, \$5,004,463, 1 week.

12 "Rings," Paramount, \$2,729,286, 1,560 locations, \$1,750 average, \$26,152,504, 3 weeks.

**13** "Moana," Disney, \$1,457,717, 424 locations, \$3,438 average, \$244,912,679, 13 weeks.

14 "I Am Not Your Negro," Magnolia Pictures, \$1,258,942, 260 locations, \$4,842 average, \$3,493,364, 3 weeks.

15 "Everybody Loves Somebody," Lionsgate, \$1,067,515, 333 locations, \$3,206 average, \$1,067,515, 1 week.





16 "Sing," Universal, \$1,046,055, 561 locations, \$1,865 average, \$266,977,160, 9 weeks.

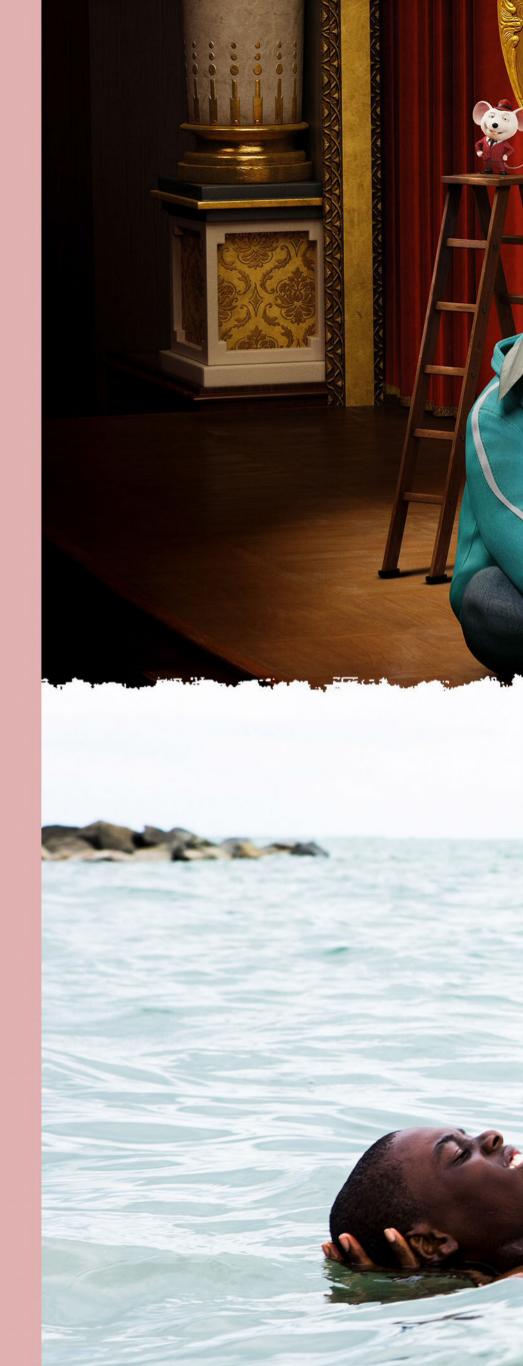
**1** Fences," Paramount, \$1,032,350, 560 locations, \$1,843 average, \$55,379,319, 10 weeks.

18 "Rogue One: A Star Wars Story," Disney, \$996,014, 435 locations, \$2,290 average, \$528,807,482, 10 weeks.

19 "2017 Oscar Shorts," Magnolia Pictures, \$783,978, 270 locations, \$2,904 average, \$1,824,225, 2 weeks.

20 "Moonlight," A24, \$671,582, 455 locations, \$1,476 average, \$21,294,977, 18 weeks.

Universal and Focus are owned by NBC Universal, a unit of Comcast Corp.; Sony, Columbia, Sony Screen Gems and Sony Pictures Classics are units of Sony Corp.; Paramount is owned by Viacom Inc.; Disney, Pixar and Marvel are owned by The Walt Disney Co.; Miramax is owned by Filmyard Holdings LLC; 20th Century Fox and Fox Searchlight are owned by 21st Century Fox; Warner Bros. and New Line are units of Time Warner Inc.; MGM is owned by a group of former creditors including Highland Capital, Anchorage Advisors and Carl Icahn; Lionsgate is owned by Lions Gate Entertainment Corp.; IFC is owned by AMC Networks Inc.; Rogue is owned by Relativity Media LLC.











# ONLINE OPTIONS FOR OSCARNOMINATED FLICKS EXPAND THIS WEEK

More movies and cheaper options arrive online this week for movie fans still needing to catch up on Oscar-nominated flicks.

Of the 62 full-length movies and shorts nominated for any category, 45 are available in some form online. That includes animated and live action shorts released by the cable channel Shorts HD.

One more title, the best picture nominee "Fences," comes out online this Friday, leaving just 16 that you can see only in theaters.

Watching all 46 online will cost at least \$173, assuming you already have subscriptions to Netflix, Hulu, Amazon Prime or HBO Now. Focusing on just best picture and the four acting categories will still cost you nearly \$70, not including the monthly subscriptions.

It's the cost of improving your chances of winning the Oscar pool. The good news is that prices have fallen for a few titles since last week. Here's your viewing guide:

### **BEST PICTURE (AND DIRECTING)**

None of the nine best picture nominees is available through a subscription service.

You can rent "Arrival," "Hacksaw Ridge," "Hell or High Water," "Manchester by the Sea" and "Moonlight" through Amazon, Google Play or Apple's iTunes. "Fences" will be available for purchase only next Friday.

Rentals typically cost about \$3 or \$4, or a dollar more if you want them in high definition. Buying downloads usually cost about \$15 for standard definition or \$20 for HD. Shop around, as prices aren't always the same at the various services. Based on the cheapest options, you'll have to spend nearly \$40 on the best picture movies.

You'll need to visit a theater for "Hidden Figures," "La La Land" and "Lion." They aren't expected online before Sunday's ceremony.

On the plus side, you'll also get to watch all the nominees for best directing; all five nominees are also up for best picture.

### **ACTING NOMINEES**

In addition to the best picture flicks, you'll need to watch six more movies to catch everyone nominated for the four acting categories.

"Captain Fantastic," "Florence Foster Jenkins,"
"Loving" and "Nocturnal Animals" are available
for rent. "Jackie" is available for purchase online.

The cumulative total: nearly \$70.

To see "Elle," you'll need to visit your local cineplex or indie theater.





### **SCREENPLAY CATEGORIES**

All but two of the nominees in the two writing categories overlap with best picture. "The Lobster" is available through Amazon Prime, while "20th Century Women" isn't online at all.

### **FULL-LENGTH CARTOONS**

Netflix has "Zootopia." "Kubo and the Two Strings" is available to rent. "Moana" was released online Tuesday for purchase only. Head to theaters for "My Life as a Zucchini" and "The Red Turtle."

### **FULL-LENGTH DOCUMENTARIES**

Netflix produced "13th" and streams it exclusively. Amazon Prime has "Life, Animated." Hulu has "O.J.: Made in America" (as does WatchESPN, though you'll need to sign in with a cable or satellite TV account).

"Fire At Sea" can be rented, while "I Am Not Your Negro" isn't expected online until June.

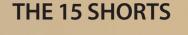
### **FOREIGN LANGUAGE**

Rent "A Man Called Ove" and "Tanna." Buy a ticket for the rest.









- Animated: Shorts HD has a package with four of the five nominated shorts. The cheapest option as of Tuesday was through Google Play for about \$6. You'll need to buy Pixar's "Piper" separately through Amazon, Google Play or iTunes for about \$2.
- Live Action: Shorts HD has all five in a package. Again, Google Play was offering the best deal for about \$6.
- Documentaries: "Extremis" and "The White Helmets" are available through Netflix. The New York Times is streaming "4.1 Miles" for free, while The New Yorker magazine hosts "Joe's Violin."

You'll need to head to a theater for "Watani: My Homeland." Shorts HD runs screenings at theaters, libraries and museums across the country.







### AND THE REST ...

That leaves 15 movies for lower-profile categories such as music and makeup.

Netflix has "The Jungle Book," while Hulu and Amazon Prime offer "13 Hours: The Secret Soldiers of Benghazi." HBO has "Hail, Caesar!" and "Jim: The James Foley Story."

Five other movies can be rented, while two are for purchase only.

That means theaters for four - if you can still find a screening. These include big releases such as "Rogue One" and "Fantastic Beasts and Where to Find Them," so perhaps you've seen them already.

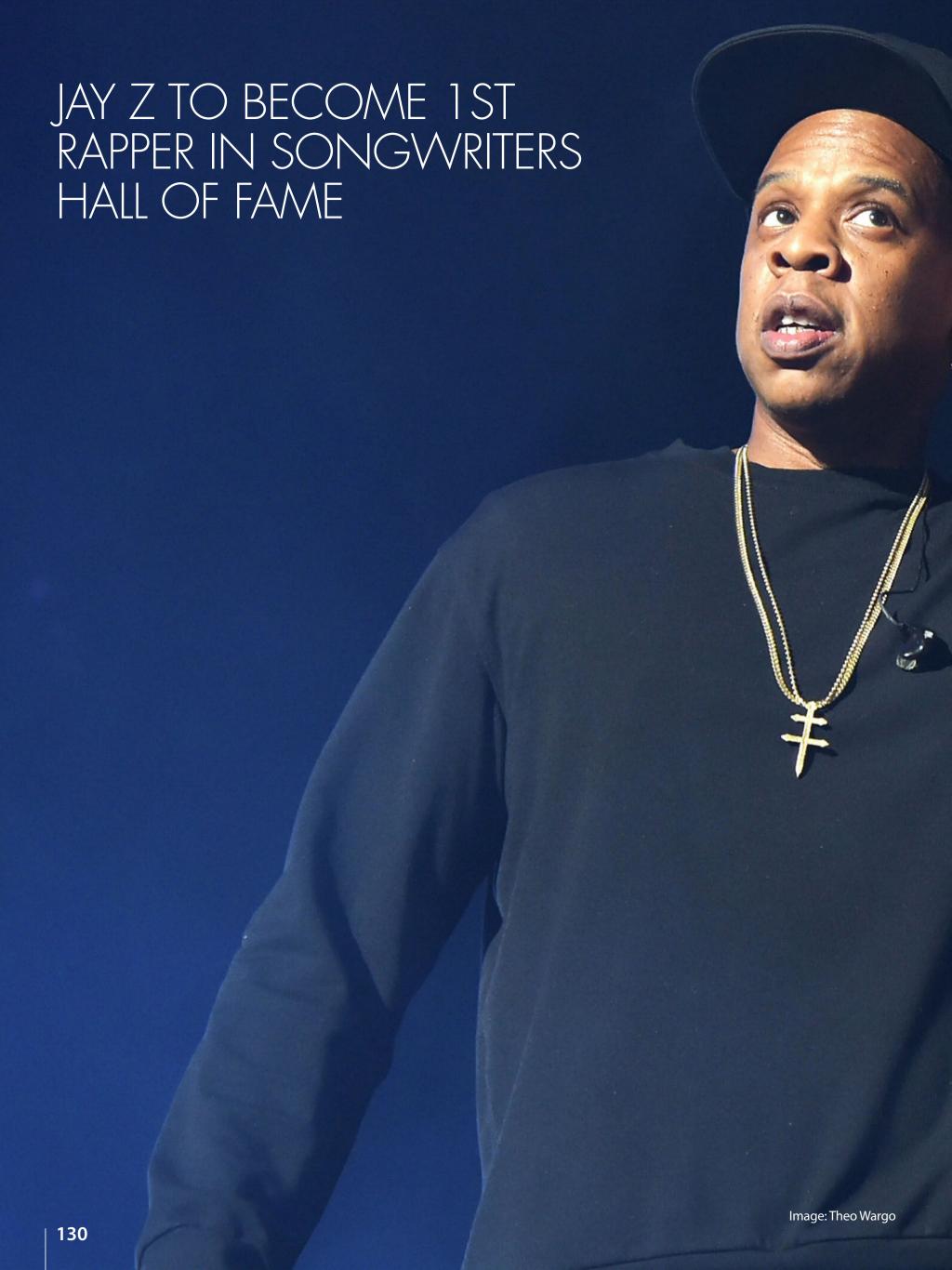
### **WATCHING THE SHOW**

In major cities, the ceremony itself will be streamed online at **abc.com** and the ABC app if you can't get to a TV. However, you'll need to sign in with a cable or satellite account.

You also might be able to watch through an online TV subscription with Sling TV, PlayStation Vue or DirecTV Now. Availability depends on where you live; only a handful of ABC stations are offered this way.

For the E! channel's red carpet coverage, you'll need a subscription with an online TV service or a traditional cable or satellite provider. The cheapest plan with both ABC and E! is at DirecTV Now for \$35 a month.

**Oscar.com** will have backstage and red-carpet coverage, starting at 7 p.m. ET. The stream continues once the ceremony begins at 8:30 p.m., but what's on stage will be only on ABC. It's free, with no cable or satellite account required.





Jay Z will become the first rapper ever inducted into the Songwriters Hall of Fame when he enters the prestigious organization in June.

The Songwriters Hall announced Wednesday that songwriting heavyweights in the industry, including Kenneth "Babyface" Edmonds, Max Martin and Jimmy Jam & Terry Lewis will also be part of its 2017 class.

The organization's 48th Annual Induction and Awards Dinner takes place June 15 in New York.

Three members of Chicago - Robert Lamm, James Pankow and Peter Cetera - as well as Motown founder Berry Gordy, who deferred his induction in 2016, will also be inducted.

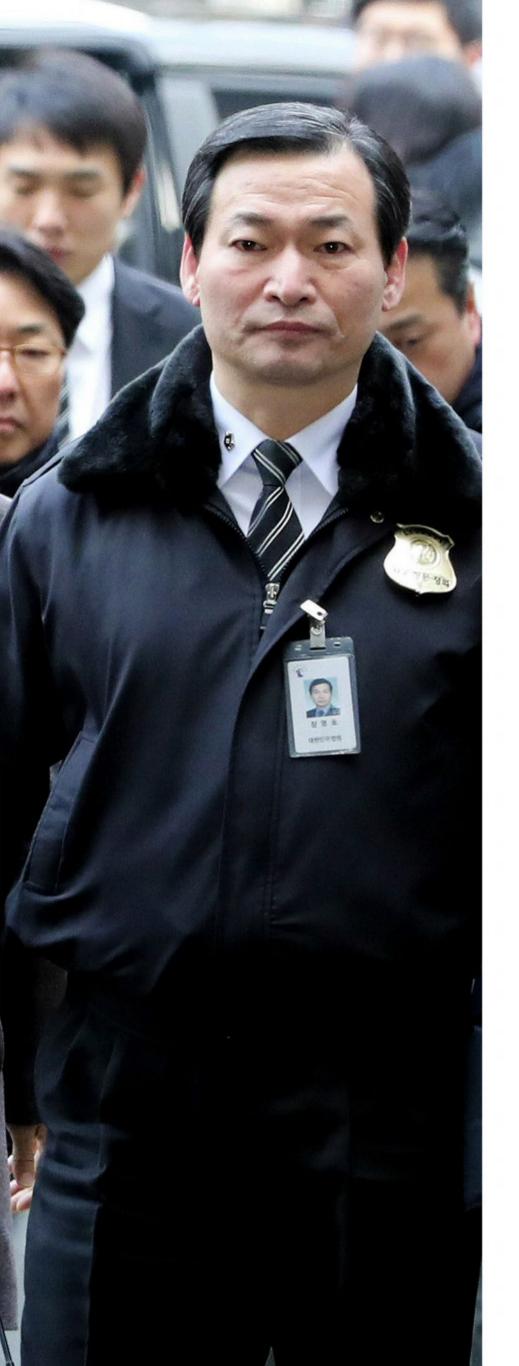
Jay Z is the first rapper to be nominated for the Songwriters Hall. Songwriters are eligible for induction after writing hit songs for at least 20 years. Jay Z, who released his debut album "Reasonable Doubt" in 1996, has launched multiple hits in the last two decades, from "Big Pimpin" to "Empire State of Mind."

Babyface has won countless Grammys for writing hit songs for Whitney Houston, Boyz II Men and other acts, while Martin has become pop music's leading contemporary songwriter, co-writing No.1 hits for Taylor Swift, Katy Perry, the Weeknd and other superstars.

Songwriting Hall nominees who did not move on to induction include the late George Michael, Madonna, Bryan Adams, Vince Gill, Kool & the Gang and Gloria Estefan.

Only five songwriters, or songwriting groups, are inducted each year.





## SAMSUNG FAMILY SUCCESSION HITS SNAG VVITH CHIEF'S ARREST

South Korea was taken by surprise last Friday with the arrest of the scion of the country's richest family and de-facto leader at Samsung over his alleged involvement in a massive corruption scandal that engulfed the president and riveted the nation.

Prosecutors believe Lee Jae-yong, 48, a vice chairman at Samsung Electronics and the only son of the ailing Samsung chairman, gave bribes worth \$36 million to President Park Geun-hye and her close friend to help win government support for a smooth company leadership transition, including a contentious merger of two Samsung companies.

A look at how his arrest affects the electronics giant:

## LITTLE IMPACT ON PHONE, TV BUSINESSES

Some conservative commentators are worried that Lee's arrest could hurt Samsung's businesses and therefore the economy, which relies on such companies for exports and jobs.

But others dismiss such concern as exaggerated. "What would affect its businesses are the Galaxy phone's success, the performance of the semiconductor sector and how fast Chinese rivals are catching up, not whether Lee Jae-yong is arrested or not," said Park Sang-in, a professor at Seoul National University.

Chiefs of companies such as Hyundai Motor Group and SK Group have been jailed before but still ran their companies from behind bars.

Samsung Electronics, which is the world's largest maker of mobile phones, TVs and computer memory chips, has three separate chief executive officers each overseeing its electronic component, mobile phone and television divisions.

But long-term business decisions, such as appointing executives and deciding on mergers and acquisitions, may be put on hold. Samsung normally announces personnel reshuffling and promotions each December, but postponed those announcements in 2016 as it was dragged deeper into the political scandal.

Lee is not the first in his family to face criminal charges. His father was convicted in 2008 and 2009 for embezzlement and tax evasion









related to business dealings designed to pass down wealth to his son. Lee Kun-hee, the ailing chairman, stepped away from his role at the company when prosecutors indicted him in 2008. The younger Lee will likely follow a similar course and stay away from leadership role once investigators formally bring charges against him.

### **FAMILY SUCCESSION HITS SNAG**

As he stepped up his role in the absence of his ailing father, Lee was seen as the new face of Samsung, fluent in foreign languages and educated oversees. Since Lee assumed a bigger role, Samsung promised to inject the company's top-down hierarchy with a nimble, startup-like attitude. Corruption allegations similar to those that took down his father may mean the damage to Lee's reputation is irreversible.

Prosecutors were able to secure Lee's arrest in their second attempt, thanks to new evidence showing President Park's broader involvement in Samsung's family succession plan. Initially, prosecutors focused on their argument that Samsung offered bribes and in return, the government backed a controversial merger of two Samsung companies in 2015, which was a key step in the leadership transition.

But after the initial request was dismissed, additional evidence from a notebook that belonged to a top presidential adviser showed that the government gave favors to Samsung in other areas related to the Lee family's father-to-son succession, said Lee Kyu-chul, a spokesman for the special prosecution team.

Thanks to the family's decadeslong succession plan, the 48-year-old heir to Samsung was able to amass enormous wealth even before starting his own business.

Lee's net worth is estimated at \$6 billion. Here's how: In 1995, the elder Lee gave his only son, then in his 20s, 6 billion won (\$52 million), which became the seed money to purchase unlisted stock in several Samsung companies. And during the next two decades those unlisted Samsung companies saw increased revenues based on lucrative deals done with other Samsung firms. The shares could then be sold when the companies went public. Some Samsung securities were sold at illegally cheap prices to Lee before he sold them off with huge returns, which later led to the conviction of his father.

### **OPPORTUNITY FOR REFORM?**

With the Samsung scion's arrest, others saw an opportunity to change a business community long criticized for poor corporate governance and a lack of transparency.

Even though Lee has less than a 1 percent stake in Samsung Electronics and his father owns a 3.5 percent stake, the family's influence on the consumer electronics giant and other Samsung companies exceed other shareholders thanks in part to the way they control the business empire through a complicated web of cross-shareholding.

The merger between Samsung C&T and Cheil Industries in 2015 was one example showing how the Lee family could exert an outsized influence on Samsung Group.





Opponents of the merger, mostly minority shareholders, said the deal unfairly benefits the founding family while hurting other shareholders by devaluing the price of one company.

Samsung narrowly won the shareholder approval thanks to the support from the National Pension Fund, its key investor. Lee became the majority shareholder of the merged entity and he gained control over Samsung Electronics stock owned by Samsung C&T before the merger. If Lee had bought more Samsung Electronics stock, it would have cost him billions of dollars. But by merging two companies, he did not have to spend a penny.

"The arrest of Lee Jae-yong should provide a momentum for fundamental changes to end the collusion between the government and businesses, and reform the chaebol," said Park, referring to the family-controlled business conglomerates that dominate the economy.







# STUDY: TECHNOLOGY TROUBLE DENTS CAR AND TRUCK RELIABILITY



Technology glitches including Bluetooth phone pairing and misunderstood voice commands put a dent in car and truck reliability scores in a major survey of automobile owners.

Lexus and Porsche tied for the top spot, leading all brands for dependability in the survey released Wednesday by the consulting firm J.D. Power. But electronic problems caused trouble across the industry, pushing the average up to 156 problems per 100 vehicles. That's four problems higher than last year and the highest number since J.D. Power changed scoring methods in 2015.

Toyota, Buick and Mercedes-Benz rounded out the top five most dependable brands, while Fiat, Jeep and Infiniti were the least reliable, according to the survey.

The J.D. Power study, now in its 28th year, questioned 35,186 owners of 2014 model-year vehicles about issues they have had in the last 12 months.

In addition to technology trouble, complaints about battery failures jumped by 44 percent compared with last year. Batteries were the most frequently replaced part not related to normal wear, the study found.

That's because people are buying vehicles with more electric features such as power seats and high-end audio systems, plus automakers are converting mechanical devices such as power steering to electric power, said Dave Sargent, J.D. Power's vice president for global automotive. Also, in an effort to save fuel by reducing drag on the engine, automakers aren't fully charging batteries in some cases, Sargent said. "It seems like that maybe isn't going as well as they would like," he said.

The study found that mainstream brands are catching up with luxury and niche brands with excellent reliability. Of the top-10 brands, five are considered mainstream. Besides Toyota and Buick, Hyundai (6th), Chevrolet (8th) and Honda (9th) made the top 10. Luxury brands BMW (7th) and Jaguar (10th) also were high in the rankings.

The scores are important, because buyers who are unhappy with their vehicles are less likely to buy a future vehicle from the same brand. "We find buyers are increasingly avoiding models









with poor reputations for dependability, so manufacturers can't afford to let quality slip," Sargent said.

Automakers have struggled for nearly a decade to perfect electronic systems that link phones and handle voice commands. J.D. Power said the audio-communication-entertainment-navigation category caused the most problems in the survey, accounting for 22 percent of complaints. That's up from 20 percent last year.

The survey didn't include any vehicles with Apple CarPlay and Android Auto, which automakers have recently allowed into their in-dash systems. Both mimic the user's phone on the car touch screen. Sargent said he expects them to cause more problems at first as drivers become confused about whether they are using the phone system or the car's electronics.

Lexus and Porsche tied as the top brands with 110 problems per 100 vehicles. Toyota moved up one position to third with 123 problems, followed by Buick at 126 and Mercedes-Benz at 131. Hyundai was the most improved brand, jumping from 19th to sixth place, reducing problems per 100 vehicles by 25 to 133.

The study also ranks brands by market segment. Segment-level winners included the Camry for most dependable midsize car while Toyota's FJ Cruiser was the top Compact SUV. Ford's F-150 was the most reliable pickup truck.

Toyota Motor Co. won 10 of 18 segment awards, the highest number ever received by a single corporation. Winners included the Lexus GS, ES and RX, and Toyota's Avalon, Camry, FJ Cruiser, Prius, Prius v, Sienna and Venza. General Motors Co. had four segment winners.





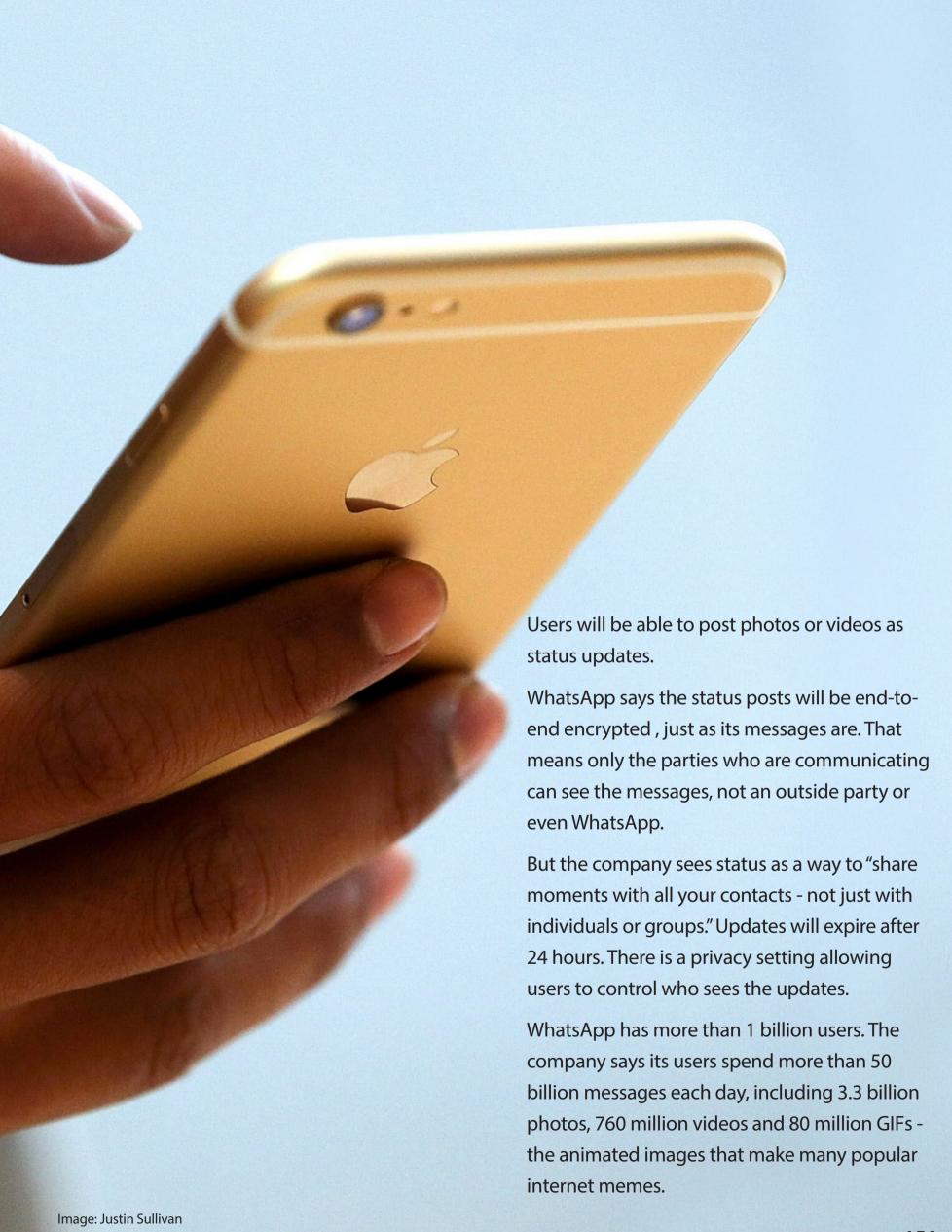
## VVHATSAPP ADDS 'STATUS' FEATURE IN NOT DO PAST AND FUTURE

In a nod to its past as well as its future, WhatsApp is adding a "status" feature that lets users tell their contacts what they are up to.

It's not a new idea - WhatsApp started out as a way for people to let their friends know what they are up to - at work or available, for example. Messaging, now the app's main function, was added later.

But it's also a sign that the Facebook-owned app is expanding the amount of features it has, just as Instagram, another Facebook subsidiary, has been doing over the years.









## INFLUENCE GAME: GM BILL IS SELF-DRIVING AND SELF-INTERESTED

With states seizing the initiative on shaping the future of self-driving cars, General Motors is trying to persuade legislators across the country to approve rules that would benefit the automaker while potentially keeping its competitors off the road.

The carmaker denies trying to freeze out other brands, but legislators in four states say GM lobbyists asked them to sponsor bills that the company's competitors contend would do just that. The bills set a blueprint for the introduction of fully self-driving cars that are part of ondemand, ride-sharing fleets, but they must be owned by an automaker.

Competitors working on self-driving technology like Uber and Alphabet's Waymo fear the measures could shut out their companies because they don't manufacture cars. And some automakers that are developing autonomous cars say they could be shut out, too, because their vehicles still rely on having a driver ready to step in.

GM began by getting a bill passed last year on its home turf, in Michigan. In response to complaints from Waymo, a compromise bill was also passed to allow participation by technology companies. But Bryant Walker Smith, a leading legal expert on self-driving cars, said the compromise was poorly worded, and it's unclear what it would do.

This year, bills similar to the Michigan law, but without the compromise language, have been introduced in at least five states: Georgia, Illinois, Maryland, Massachusetts and Tennessee. GM lobbyists have also urged lawmakers in other states to introduce versions of the bill.

Prospects for passage of the bills are uncertain. But the state-by-state lobbying by the powerful automaker and its competitors shine light on the behind-the-scenes fight to determine how self-driving cars will operate on American roads and which companies will have the competitive edge.

With no federal regulations for self-driving cars in place, states are assuming responsibility for ensuring the benefits of the technology can be reaped without sacrificing safety. Federal regulators provided safety guidance to states and automakers last year, but stopped short of issuing binding rules. Key members of Congress say they also are exploring legislation. Eight









states have self-driving car laws, and bills have been introduced in 20 states this year, according to tracking by Volvo.

General Motors' dealerships throughout the United States, many of which have close ties to local politicians, give the giant carmaker a lobbying advantage. GM has also made campaign contributions to state lawmakers who introduced the legislation it favors.

GM supports restricting who can deploy selfdriving cars because "public acceptance of the technology is going to be very critical," said Harry Lightsey, a top GM lobbyist. "If somebody is allowed to put technology on the roads and highways that proves to be unsafe, that could have very harmful repercussions."

The Self-Driving Coalition for Safer Streets, which includes Ford, Lyft, Uber, Volvo and Waymo, opposes the bills, saying they "would favor one company, create an uneven playing field and deter life-saving innovations from reaching citizens in these states by precluding or severely limiting technology companies from testing or deploying fully autonomous vehicles."

Audi and its parent company, Volkswagen, worry that the bills could exclude partially self-driving cars like the one Audi plans to introduce next year, said Brad Stertz, Audi's government affairs director. GM hasn't been willing to see the bills modified or to answer other companies' concerns so far, he said.

Lightsey said lawmakers who have introduced bills are acting on their own, not at GM's behest.

"These bills aren't being introduced at GM's urging," he said.

But several lawmakers told The Associated Press that GM lobbyists asked them to introduce bills based on the Michigan law.

Illinois state Rep. Mike Zalewski, a Democrat, said he sponsored a bill after GM sought him out. State records show Zalewski has received \$2,000 in GM campaign contributions. The bill's Republican cosponsor, state Rep. Tom Demmer, has received \$2,500 from GM and the bill's state Senate sponsor, Democrat Martin Sandoval, has received \$3,500.

"I don't make a connection between campaign contributions and policy," Zalewski said.

Maryland state Sen. William Ferguson said he introduced a bill at GM's urging in part because he hoped the automaker would expand its transmission facility near Baltimore, creating jobs.

The Democrat said GM lobbyists told him the company would "certainly look more favorably toward expanding in Maryland if there were a legal framework to test and develop (self-driving cars) more freely." After the AP asked GM about the transmission facility, Ferguson sought to clarify his remarks, saying the automaker didn't explicitly promise to expand its operations.

Several bill sponsors said they're willing to consider changes to the measures.

Tennessee state Sen. Mark Green, a Republican, said he wants to reach a compromise. Language that has drawn objections "is there now to get people to join the discussion," he said. Green's political action committee has received \$3,000 from GM. The bill's Tennessee House sponsor, Republican William Lamberth II, received a \$2,000 contribution from GM a month before introducing his bill.





Lamberth said the contribution had nothing to do with his decision to introduce a bill. Green, Demmer and Sandoval didn't respond to questions from the AP about the contributions.

Some lawmakers said they didn't introduce bills despite GM's requests because they view the measures as anti-competitive.

"We didn't want to pick winners and losers in the autonomous vehicle arena," said Colorado state Rep. Faith Winter, a Democrat.

Arizona lawmakers met last month with Gov. Doug Ducey's staff, GM, Waymo, Uber, Lyft and other companies in response to GM's effort to get a bill introduced there, said state Sen. Bob Worsley, the Senate transportation committee chairman. While GM argued in favor of the measure, everyone else opposed it, he said.

Worsley, a Republican, called GM's proposal "a protectionist measure for everybody in manufacturing."







## SPACEX LAUNCHES ROCKET FROM NASA'S HISTORIC MOON PAD

A SpaceX rocket soared from NASA's long-idled moonshot pad last Sunday (18), sending up space station supplies from the exact spot where astronauts embarked on the lunar landings nearly a half-century ago.

It was the first flight from NASA's legendary
Launch Complex 39A since the shuttle
program ended almost six years ago, and
SpaceX's first liftoff from Florida since a rocket
explosion last summer.

The crowds at Kennedy Space Center watched eagerly as the unmanned Falcon 9 rocket took flight with a cargo ship bound for the International Space Station. They got barely 10 seconds of viewing before clouds swallowed up the Falcon as it thundered skyward.

As an extra special treat, SpaceX landed its leftover booster back at Cape Canaveral eight minutes after liftoff, a feat accomplished only twice before. Most of SpaceX's eight successful booster landings - rocket recycling at its finest - have used ocean platforms. As they did during the shuttle era, sonic booms heralded Sunday's return.

SpaceX employees at company flight headquarters in Southern California cheered as the 15-story booster landed upright at its designated parking spot at Cape Canaveral Air Force Station.

SpaceX chief Musk celebrated the successful touchdown via Twitter.

"Baby came back," he tweeted.

The celebratory roar grew when the Dragon cargo ship successfully reached orbit a couple minutes later. It will reach the space station Wednesday, delivering 5,500 pounds of food, clothes and experiments.

It was SpaceX's second launch attempt in a row. Saturday's effort was foiled by last-minute rocket concerns. The repairs paid off, and even the clouds parted enough to ensure a safe flight.

Musk said he's honored to use Launch Complex 39A. The company hopes to launch astronauts from this very spot next year, bringing U.S. crew launches back to home soil after a longer-than-intended hiatus. SpaceX Mars missions, first robots then people, could follow from here.





If the pad weathered Sunday's launch well, another Falcon could be standing there for a satellite send-up in just two weeks.

Kennedy Space Center's director Robert
Cabana, a former shuttle commander who flew
four times from 39A, is thrilled to see the pad
used for commercial flights like this "instead
of just sitting out there and rusting away." It's a
stark contrast, he noted, to the depression that
followed the final shuttle mission in 2011.

"It's just really an exciting time," Cabana said just before liftoff.

It was a momentous comeback for SpaceX. The last time SpaceX had a rocket ready to fly from Cape Canaveral, it blew up on a neighboring pad during prelaunch testing on Sept. 1.

Although the company successfully returned to flight last month from California, the focus was on getting leased Launch Complex 39A ready for action given that

the pad with the accident was left unusable. The damaged pad should be back in action later this year.

Built in the mid-1960s for the massive Saturn V moon rockets, Launch Complex 39A has now seen 95 launches. Apollo 11's Neil Armstrong, Buzz Aldrin and Michael Collins left Earth from here on July 16, 1969, on the first moonlanding mission. The very first space shuttle pilots, John Young and Robert Crippen, soared from here on April 12, 1981. And in a grand shuttle finale, Atlantis took off from here on July 8, 2011.

NASA signed over 39A to SpaceX in 2014 under a 20-year lease.









SpaceX has spent tens of millions of dollars to make 39A Falcon-ready. By the time astronauts climb into a Dragon capsule to fly to the space station, Shotwell said, pad renovations will exceed \$100 million.

Last week, the U.S. Government Accountability Office warned the commercial crew launches by SpaceX and Boeing are at risk of slipping into 2019. "The hell we won't fly before 2019," SpaceX President Gwynne Shotwell told reporters in response.

In a tweet Saturday, Musk said the company has already "retired" so much research and development risk on the crew Dragon capsule "that I feel very confident of 2018."

As for the second-stage steering issue that cropped up Saturday, SpaceX hustled to replace an engine part before Sunday morning's try. Musk said he personally called Saturday's launch off, saying he was unwilling to risk something going wrong.

For SpaceX employees long accustomed to breaking new ground, Sunday was "a huge deal for us," according to SpaceX's Dragon mission manager, Jessica Jensen.

"I'm sure the team will be out celebrating,"

Jensen told reporters. "We'll be out tonight if
you want to find us."

Online:

SpaceX: http://www.spacex.com/

NASA: https://www.nasa.gov/





## NASA AIMS TO MEASURE VITAL SNOVV DATA FROM SATELLITES

Instrument-laden aircraft are surveying the Colorado high country this month as scientists search for better ways to measure how much water is locked up in the world's mountain snows - water that sustains a substantial share of the global population.

A NASA-led experiment called SnowEx is using five aircraft to test 10 sensors that might one day be used to monitor snow from satellites. The goal: Find the ideal combination to overcome multiple obstacles, including how to analyze snow hidden beneath forest canopies.

"It would be, I would say, a monumental leap in our ability to forecast water supply if we had this kind of information," said Noah Molotch, a member of the science team for the experiment.

One-sixth of the world's population gets most of its fresh water from snow that melts and runs into waterways, said Ed Kim, a NASA researcher and lead scientist for SnowEx. "Right there, it's hugely important for people," he said.

Snow has other consequences for society as well, including floods, droughts and even political stability when water is scarce, Kim said.

The key to predicting how much water will pour out of mountain snows each spring is a measurement called snow water equivalent.

The global average is 30 percent of snow depth, Kim said - 10 inches of snow melts down to 3 inches of water.

But a single mountain snowbank contains multiple layers with different snow water equivalents, making measurement difficult. The layers were dropped by successive storms with different moisture contents, and then lingered under different weather conditions before the next storm covered them.

A further complication: At times during the winter, some snow melts, so water will flow through the interior of the snowbank, distorting or absorbing signals from remote sensors.

No single instrument can overcome all the obstacles.

"We have these different sensing techniques. Each one works to a certain degree," Kim said. "What's the optimal combination?"

Two SnowEx sensors will measure snow depth: Radar and LIDAR, which stands for light detection and ranging. LIDAR uses laser pulses to measure distance.

Four sensors will measure snow density: three other types of radar, plus a passive microwave instrument, which detects how much of the Earth's natural microwave radiation the snow is blocking.













Water utilities, farmers, public safety agencies and wildland firefighters track the updates closely to help predict how much drinking and irrigation water will be available in the spring and whether they will face floods or fire-inducing droughts.

SNOTEL collects data from individual points, but the "holy grail of mountain hydrology" is a way to estimate the distribution of snow water equivalent across broad mountain landscapes, said Molotch, who is also director of the University of Colorado's Center for Water, Earth Science and Technology.

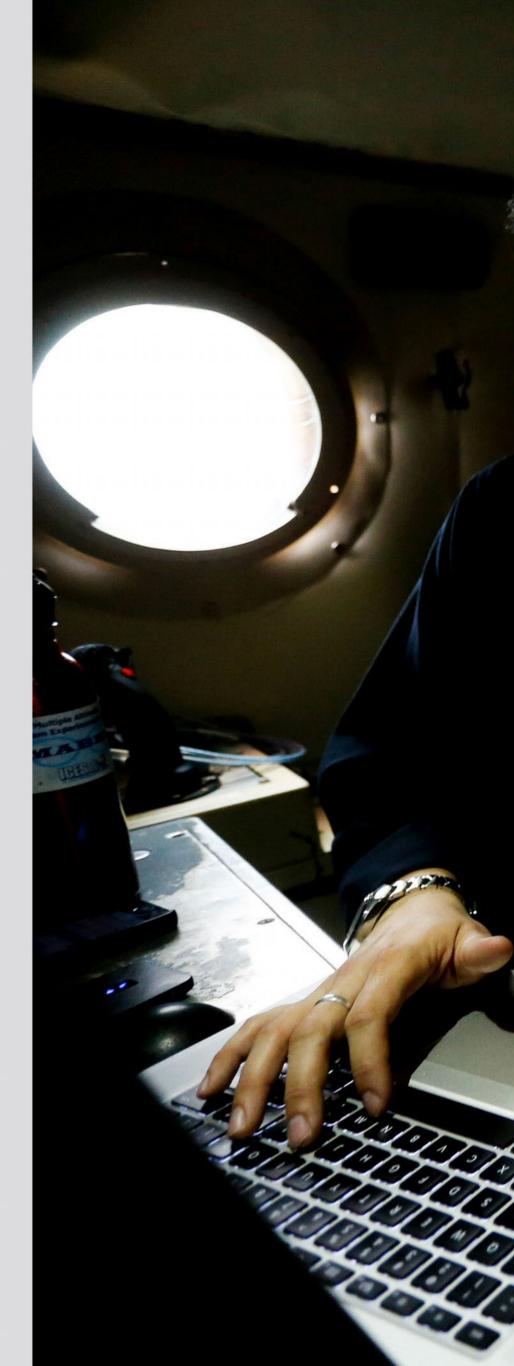
SnowEx could be a step toward that, he said.

Government agencies that forecast the spring runoff say satellite data on snow water equivalent would help them, although they base their predictions on multiple sources of information, including rain, temperature and current river flows.

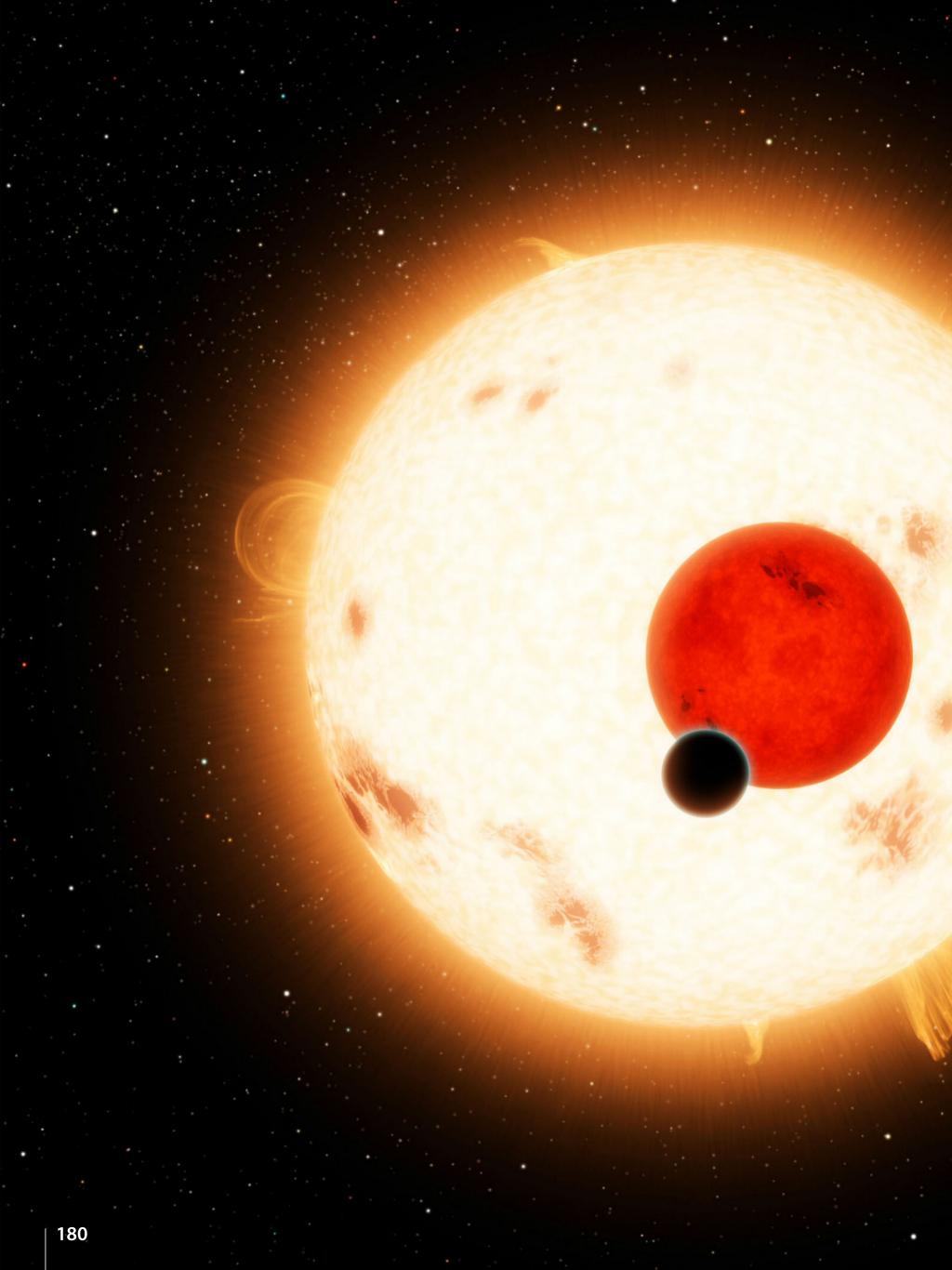
The Colorado Basin River Forecast Center in Salt Lake City, one of 13 National Weather Service centers that predict floods or river shortages nationwide, uses some NASA satellite data now, hydrologist Paul Miller said.

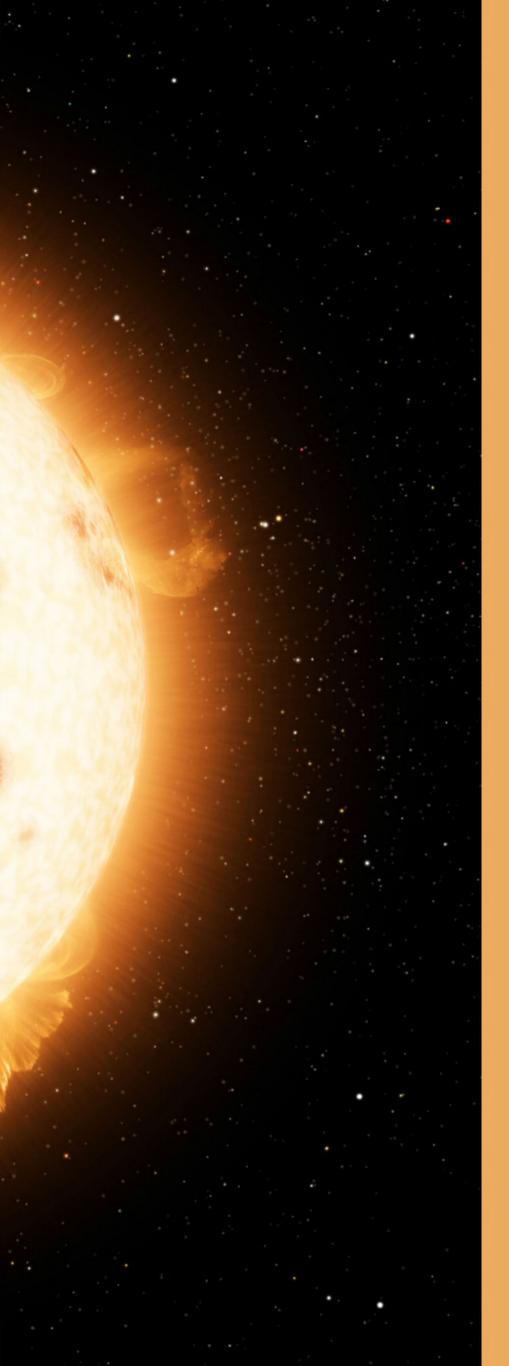
Satellite images show how much of the region has snow cover and how much dust is on the snow, he said. Dusty snow is darker, so it absorbs more heat and melts faster.

Snow water equivalent data from satellites "would be another source of information that we could look toward as guidance," Miller said. "It would definitely be something we would monitor and we would explore."









# 7 EARTH-SIZE WORLDS FOUND ORBITING STAR; COULD HOLD LIFE

For the first time, astronomers have discovered seven Earth-size planets orbiting a single nearby star - and these new worlds could hold life.

This cluster of planets is less than 40 light-years away in the constellation Aquarius, according to NASA and the Belgian-led research team who announced the discovery Wednesday.

The planets circle tightly around a dim dwarf star called Trappist-1, barely the size of Jupiter.

Three are in the so-called habitable zone, the area around a star where water and, possibly life, might exist. The others are right on the doorstep.

Scientists said they need to study the atmospheres before determining whether these rocky, terrestrial planets could support some sort of life. But it already shows just how many Earth-size planets could be out there - especially in a star's sweet spot, ripe for extraterrestrial

life. The more planets like this, the greater the potential of finding one that's truly habitable. Until now, only two or three Earth-size planets had been spotted around a star.

"We've made a crucial step toward finding if there is life out there," said the University of Cambridge's Amaury Triaud, one of the researchers.

The potential for more Earth-size planets in our Milky Way galaxy is mind-boggling. The history of planet-searching shows "when there's one, there's more," said Massachusetts Institute of Technology astrophysicist Sara Seager.

"With this amazing system, we know that there must be many more potentially life-bearing worlds out there just waiting to be found," she said.

NASA's Thomas Zurbuchen, associate administrator for the science mission, said the discovery "gives us a hint that finding a second Earth is not just a matter of if, but when," and addresses the age-old question of "Are we alone out there?"

"We're making a step forward with this, a leap forward in fact, toward answering that question," Zurbuchen said at a news conference. Last spring, the University of Liege's Michael Gillon and his team reported finding three planets around Trappist-1. Now the count is up to seven, and Gillon said there could be more. Their latest findings appear in the journal Nature.

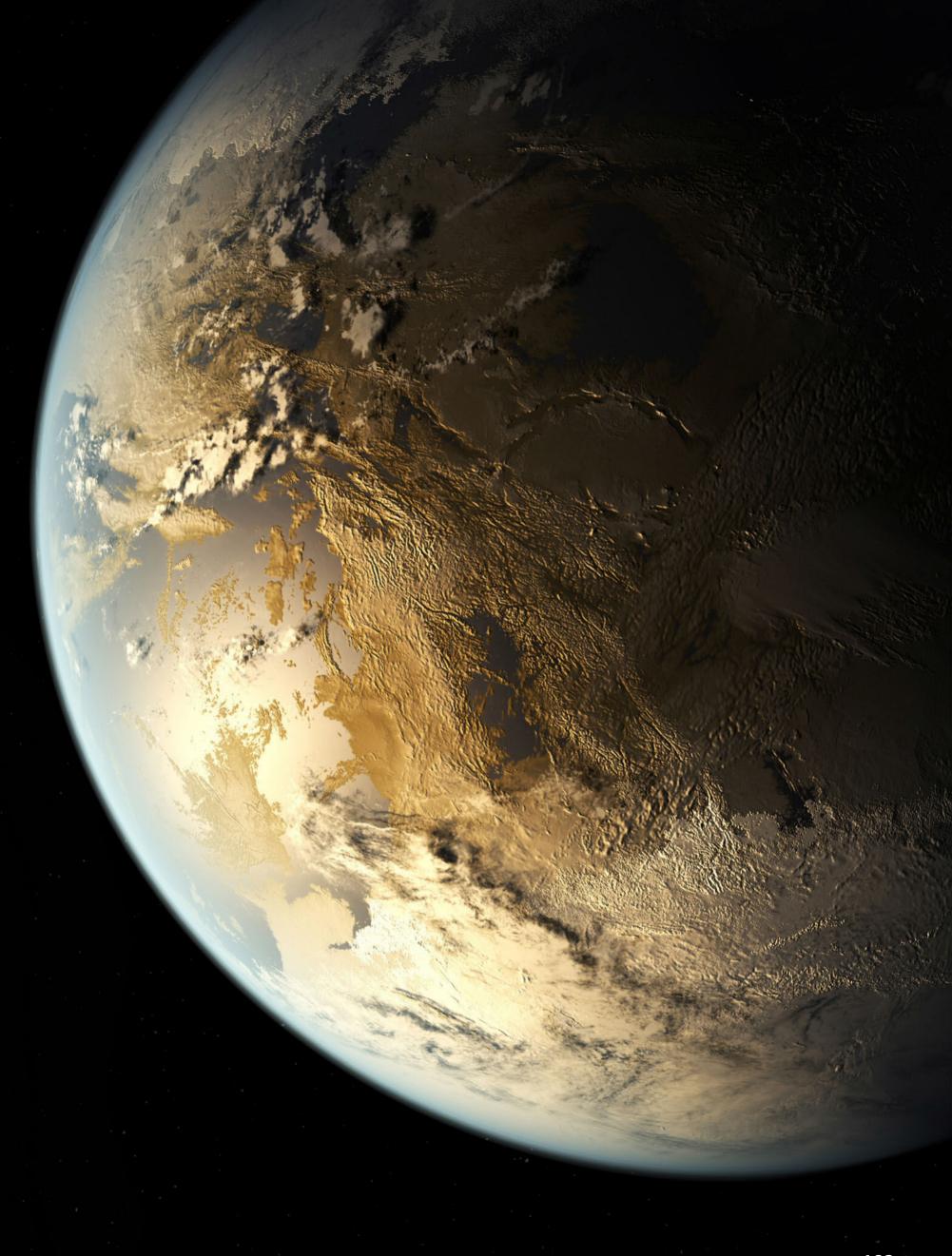
This crowded yet compact solar system - 235 trillion miles away - is reminiscent of Jupiter and its Galilean moons, according to the researchers.

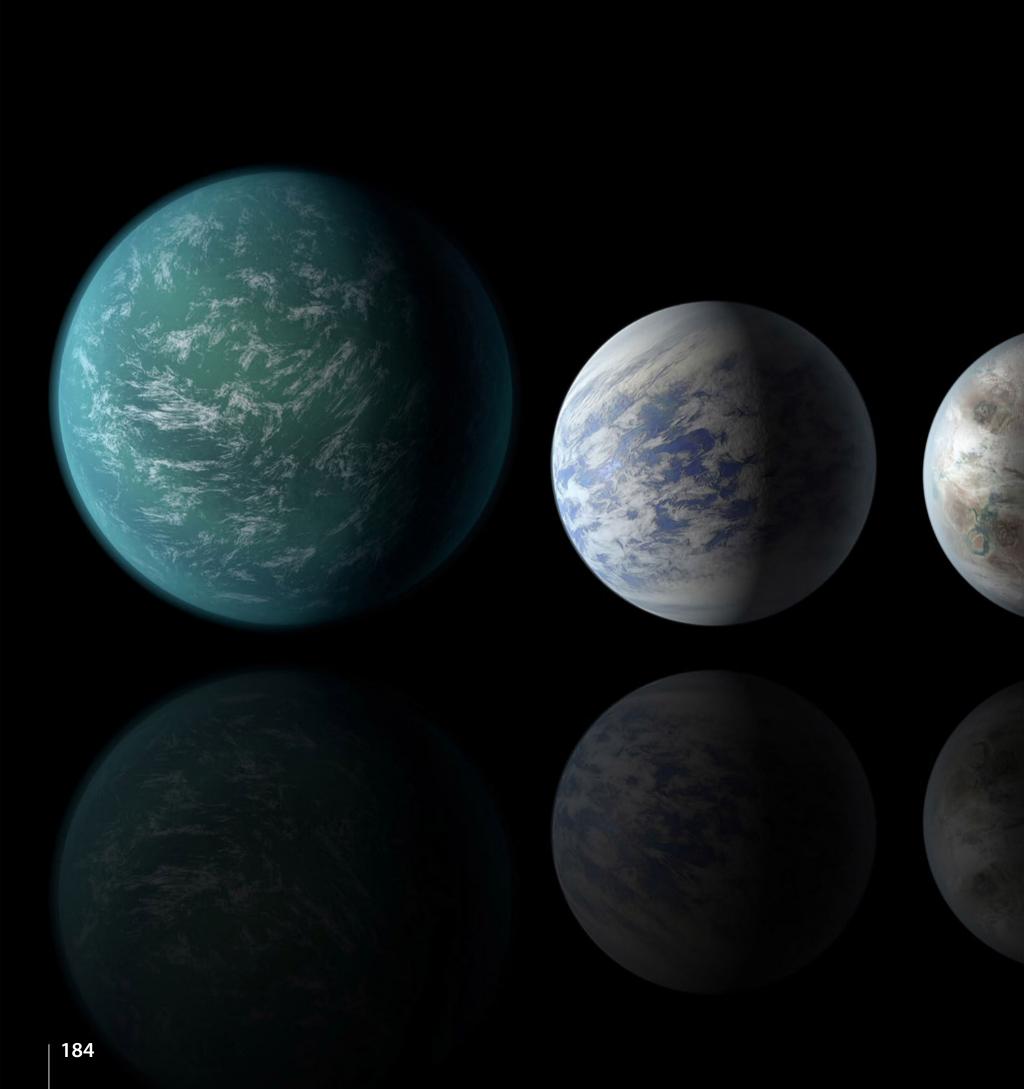
Picture this: If Trappist-1 were our sun, all seven planets would be inside Mercury's orbit. Mercury is the innermost planet of our own solar system.

The ultracool star at the heart of this system would shine 200 times dimmer than our sun, a perpetual twilight as we know it. And the star would glow red - maybe salmon-colored, the researchers speculate.

"The spectacle would be beautiful because every now and then, you would see another planet, maybe about as big as twice the moon in the sky, depending on which planet you're on and which planet you look at," Triaud said Tuesday in a teleconference with reporters.

Years are exceedingly short in this star system - the planets take just 1  $\frac{1}{2}$  to 20 days to orbit Trappist-1.



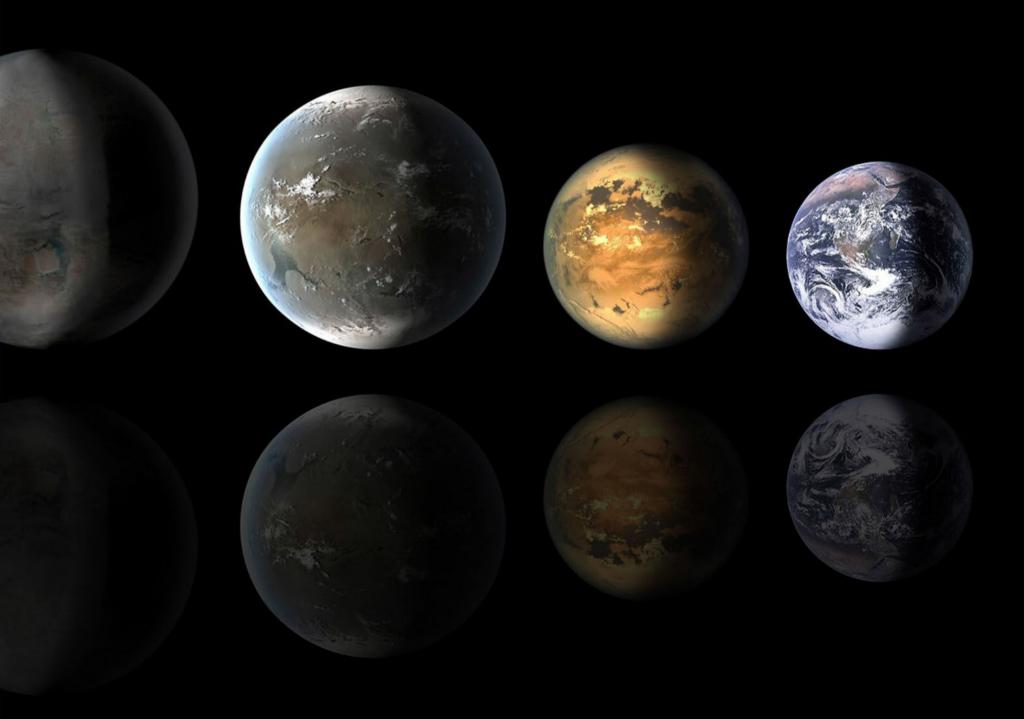


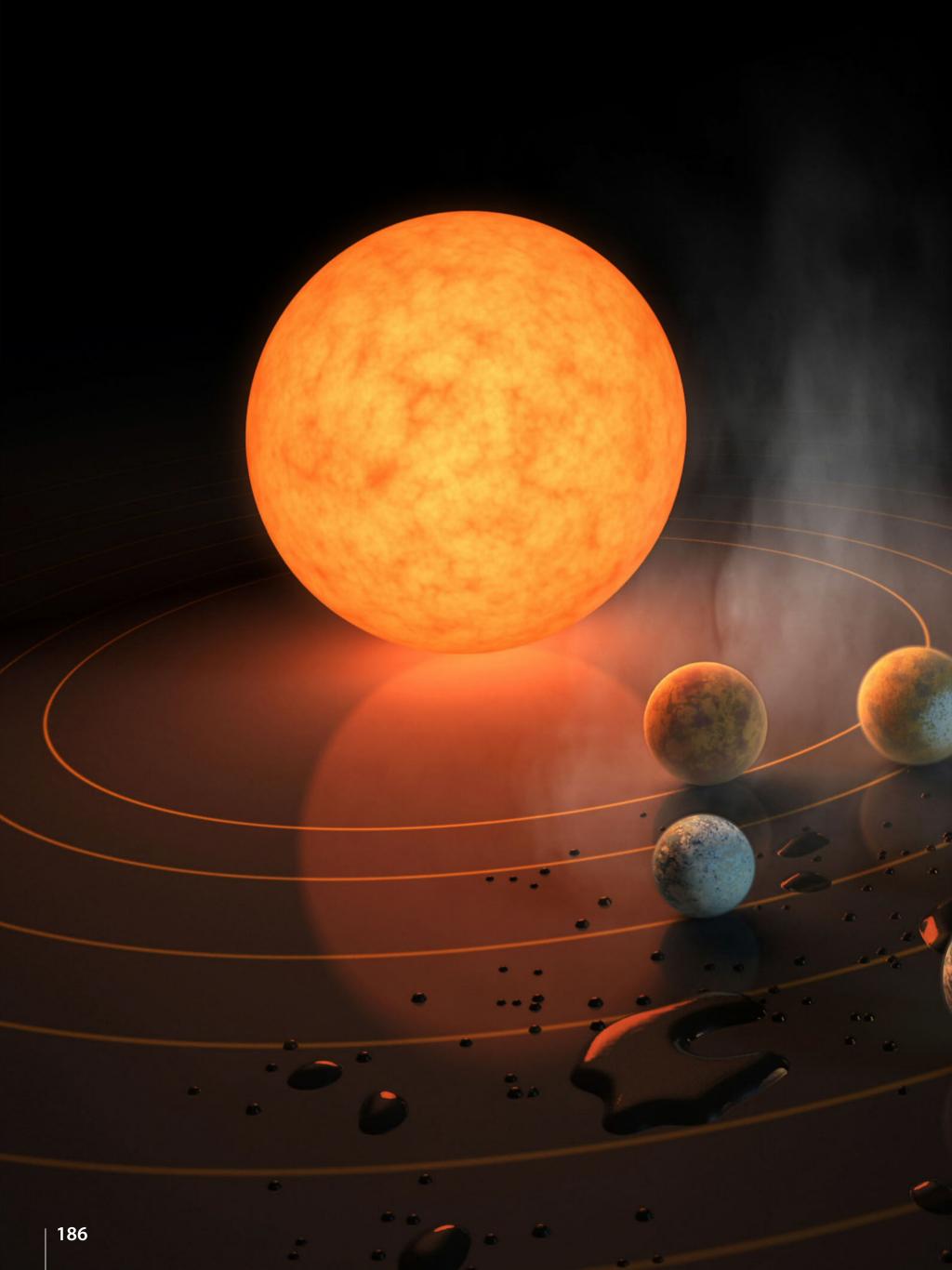
The Leiden Observatory's Ignas Snellen, who was not involved in the study, is excited by the prospect of learning more about what he calls "the seven sisters of planet Earth." In a companion article in Nature, he said Gillon's team could have been lucky in nabbing so many terrestrial planets in one stellar swoop.

"But finding seven transiting Earth-sized planets in such a small sample suggests that the solar system with its four (sub-) Earth-sized planets might be nothing out of the ordinary," Snellen wrote.

Altogether, astronomers have confirmed close to 3,600 planets outside our solar system since the 1990s, but barely four dozen are in the potential habitable zone of their stars, and of those, just 18 are approximately the size of Earth.

Gillon and his team used both ground and space telescopes to identify and track the seven Trappist-1 planets, which they label simply by lowercase letters, "b" through "h." As is typical in these cases, the letter "A" - in upper case - is reserved for the star. Planets cast shadows on their star as they pass in front of it; that's how the scientists spotted them.





Tiny, cold stars like Trappist-1 were long shunned by exoplanet-hunters (exoplanets are those outside our solar system). But the Belgian astronomers decided to seek them out, building a telescope in Chile to observe 60 of the closest ultracool dwarf stars. Their Trappist telescope lent its name to this star.

While faint, the Trappist-1 star is close by cosmic standards, allowing astronomers to study the atmospheres of its seven temperate planets. All seven look to be solid like Earth - mostly rocky and possibly icy, too.

They all appear to be tidally locked, which means the same side continually faces the star, just like the same side of our moon always faces us. Life could still exist at these places, the researchers explained.

"Here, if life managed to thrive and releases gases similar to that that we have on Earth, then we will know," Triaud said.

Chemical analyses should indicate life with perhaps 99 percent confidence, Gillon noted.
But he added: "We will never be completely sure" without going there.

**Online: NASA | Nature** 187

### COOL FACTS ABOUT 7 EARTH-SIZE PLANETS CIRCLING SINGLE STAR

Talk about an Earth-shattering discovery.

Scientists have spotted seven Earth-size planets around a nearby star, some or all of which could harbor water and possibly life. That's the biggest cluster of planets like this yet to be found.

Here's a quick look:

#### **AGE OF AQUARIUS**

This star system is less than 40 light-years from Earth, or 235 trillion miles away, in the constellation Aquarius. At the hub is a small, faint star known as Trappist-1. Seven planets circle Trappist-1, with orbits ranging from 1 ½ to 20 days. If Trappist-1 were our sun, all these planets would fit inside the orbit of Mercury. That's how close they are to their star and why their orbits are so short. The planets have no real names. They're only known by letters, "b" through "h." The letter "A" refers to the star itself.

#### **GOLDILOCKS ZONE**

Three of the planets are smack dab in the so-called habitable zone, also known as the Goldilocks zone, where conditions are just right for water and life to flourish - not too much and not too little stellar energy. The four other planets are tantalizingly close to the Goldilocks zone- so close that they, too, could harbor water and potentially life. But just because a planet is in this sweet spot, doesn't mean life exists or ever did. If aliens were observing our solar system from the Trappist-1 network, they might be saying, "Hey, there are three habitable planets there, Venus, Earth and Mars," said Sara





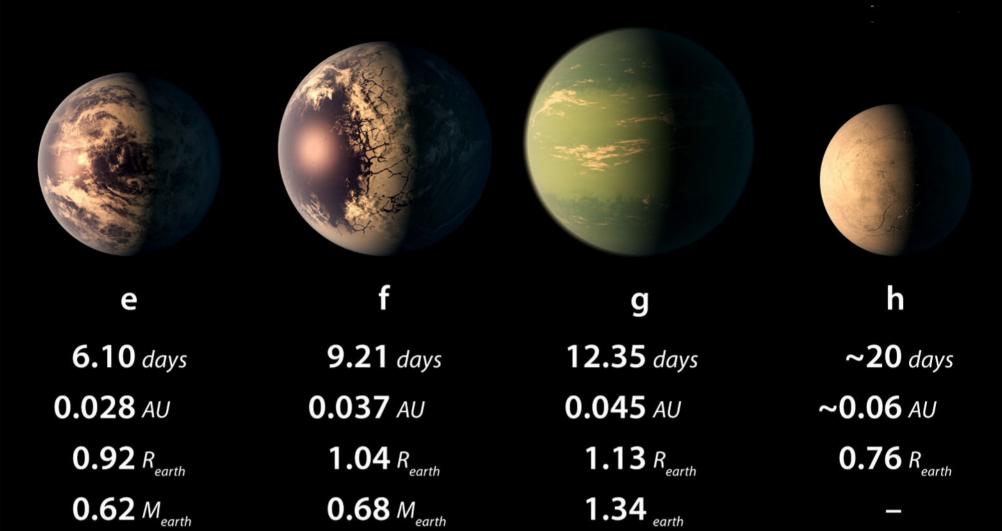
TRAPPIST-1 System			
	b	c	d
Orbital Period	<b>1.51</b> days	<b>2.42</b> days	<b>4.05</b> days
Distance to Star Astronomical Units (AU)	<b>0.011</b> AU	<b>0.015</b> AU	<b>0.021</b> AU
Planet Radius relative to Earth	1.09 R <sub>earth</sub>	1.06 R <sub>earth</sub>	<b>0.77</b> R <sub>earth</sub>
Planet Mass relative to Earth	<b>0.85</b> M <sub>earth</sub>	1.38 M <sub>earth</sub>	<b>0.41</b> M <sub>earth</sub>

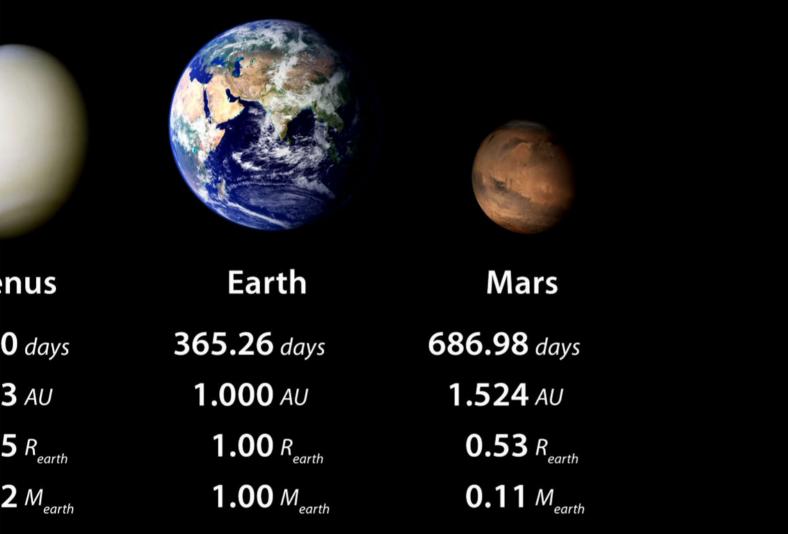
Solar System Rocky Planets		
	Mercury	
Orbital Period	<b>87.97</b> days	2
Distance to Star Astronomical Units (AU)	<b>0.387</b> AU	
Planet Radius relative to Earth	<b>0.38</b> R <sub>earth</sub>	
Planet Mass relative to Earth	<b>0.06</b> M <sub>earth</sub>	
relative to Earth	eartn	

0.72

0.9

0.8





Seager, a Massachusetts Institute of Technology astrophysicist who did not take part in the study. The point is, "let's wait and see what's out there," she cautioned.

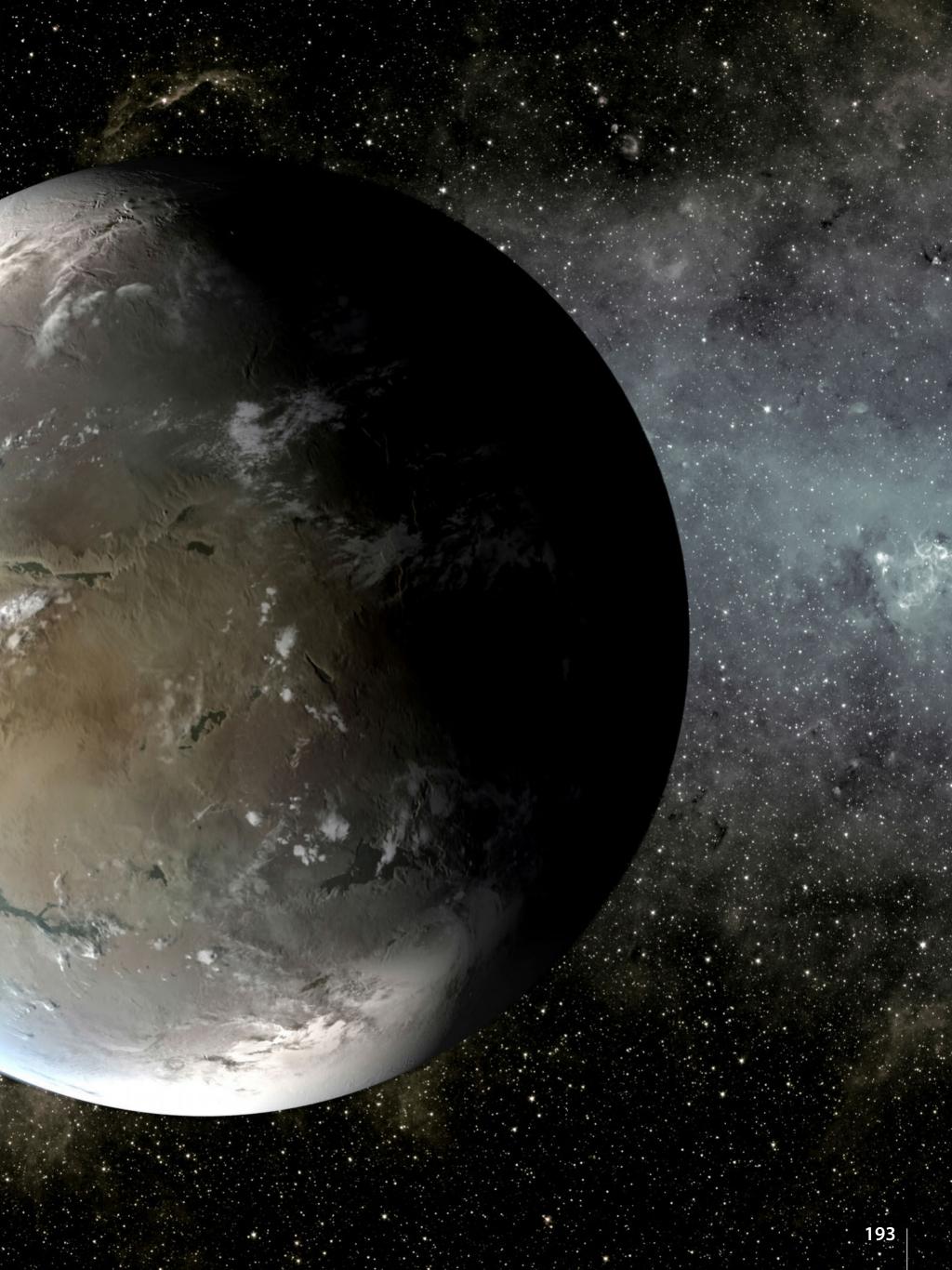
#### **HOW'S THE VIEW?**

Trappist-1, one of numerous ultracool dwarf stars out there in the galaxy, glows red. If you were to stand on one of the planets, the star might appear to be salmon-colored. Its planets are clumped so closely together, they would appear twice as big as our moon in the sky. The temperature could be pretty similar to Earth as well, at least on one of these planets.

#### **NOW WHAT?**

Scientists need to study the atmospheres of these almost assuredly rocky planets before jumping to any conclusions about water and life. The Hubble Space Telescope already is on the case. The still-under-construction James Webb Space Telescope will join in once it's launched next year. The Webb will search for gases that might be a byproduct of life: oxygen, ozone and methane. Scientists say it should take five years to get a handle on all these atmospheres, and figure out whether water - and maybe life - are present. Altogether, astronomers have confirmed close to 3,600 planets outside our solar system since the 1990s, but barely four dozen are in the potential habitable zone of their stars, and of those, just 18 are approximately the size of Earth.









### SCIENTISTS HOLD RALLY IN BOSTON PROTEST THREATS TO SCIENCE

Hundreds of scientists, environmental advocates and their supporters held a rally in Boston on Sunday (19) to protest what they see as increasing threats to science and research in the U.S.

The scientists, some dressed in white lab coats, called on President Donald Trump's administration to recognize evidence of climate change and take action on various environmental issues.





Geoffrey Supran, a postdoctoral fellow at Harvard University and the Massachusetts Institute of Technology who studies renewable energy solutions to climate change, said scientists are responding to the Trump administration's "anti-science rhetoric."

"We're really trying to send a message today to Mr. Trump that America runs on science, science is the backbone of our prosperity and progress," Supran said.

The "Rally to Stand Up for Science" in Boston's
Copley Square was held outside of the
American Association for the Advancement of
Science annual meeting, one of the first major
gatherings of scientists since Trump was elected
in November.

Protesters held signs that read "Science Matters," "Scientists Pursuing Truth, Saving the World" and "Make America Smart Again."

Some of those who turned out criticized Trump's appointment of Scott Pruitt as head of the Environmental Protection Agency over the objections of environmental groups.

During six years as the attorney general of Oklahoma, Pruitt filed 14 lawsuits challenging EPA regulations. He previously expressed skepticism about scientific evidence showing the planet is heating up and that humans are to blame. However, during his Senate confirmation hearing last month, he said he disagreed with Trump's past statements that global warming is a hoax.





### SUPERCOMPUTER AIDS CLIMATE RESEARCH IN TOP COAL STATE

A new supercomputer in the top coal-mining state has begun critical climate-change research with support from even some global warming doubters, but scientists worry President Donald Trump could cut funding for such programs.

The \$30 million, house-sized supercomputer named Cheyenne belongs to a federally funded research center. It got to work a few weeks ago crunching numbers for several ambitious projects, from modeling air currents at wind farms to figuring out how to better predict weather months to years in advance.





It's the fastest computer in the Rocky Mountain West - three times faster than the 4-year-old supercomputer named Yellowstone it is replacing and 20th-fastest in the world. Capable of 5.34 quadrillion calculations per second, Cheyenne is 240,000 times faster than a new, high-end laptop.

Located in a windy business park near the city of Cheyenne, the National Center for Atmospheric Research-Wyoming Supercomputing Center that houses the water-cooled machine continues to enjoy support even from Wyoming's coal cheerleaders who doubt humankind is warming the Earth.

"Before we start making policy decisions on this, the science has got to be good," said Travis Deti, executive director of the Wyoming Mining Association.

The vast majority of peer-reviewed studies, science organizations and climate scientists have found the Earth is warming and that the warming is man-made and a problem, but Wyoming's relationship with climate science is complicated at best.

The University of Wyoming in 2012 removed a campus artwork made of charred logs after the fossil fuel industry objected to the piece's climate-change-awareness message. The state also has vacillated on whether and how K-12 students should learn about climate change.

Gov. Matt Mead, who is suing to block Obama administration efforts to limit carbon emissions from power plants and other sources, calls himself a climate-change skeptic. Still, he supports the supercomputer's role in driving Wyoming's small technology sector, spokesman David Bush said.

Even so, scientists worry Trump, who has called climate change a hoax perpetrated by the Chinese to harm U.S. economic interests, could cut such projects. About 70 percent of the supercomputer's cost comes from the National Science Foundation, an independent federal agency with a \$7.5 billion budget.

Traditionally the foundation has had bipartisan support, but some Republicans have suggested redirecting the agency away from the earth sciences - and from climate change research in particular.

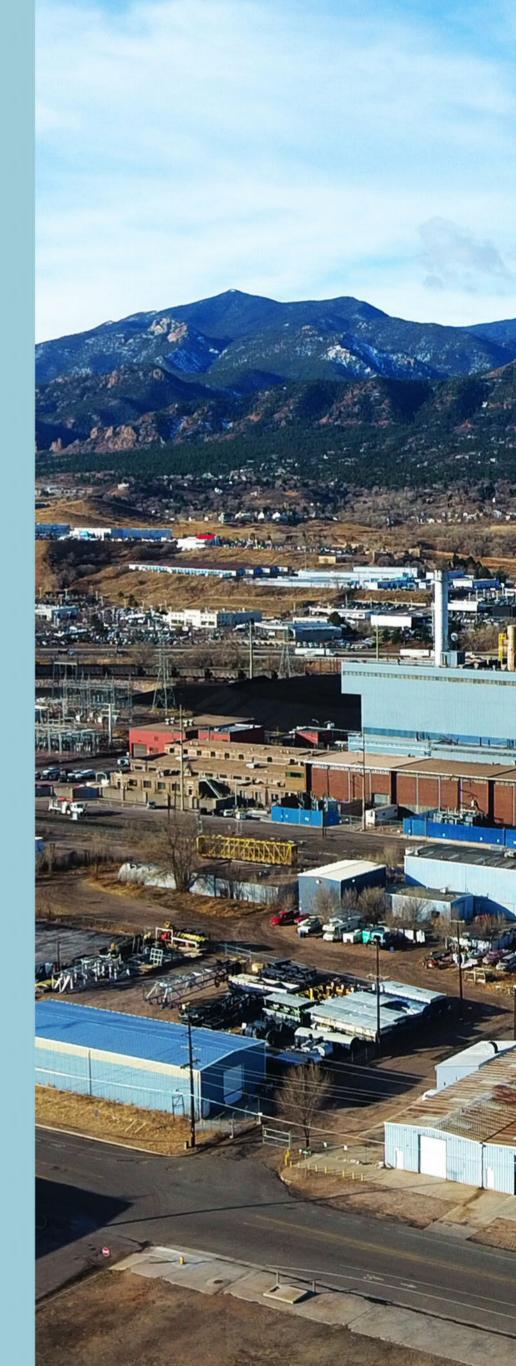
In December some 800 U.S. scientists, including 23 affiliated with the University of Wyoming and three at the organization that runs the supercomputer, signed an open letter urging Trump to take climate change seriously.

"To be ignorant doesn't really prevent it from happening," said Shane Murphy, a University of Wyoming assistant professor and climate researcher who signed.

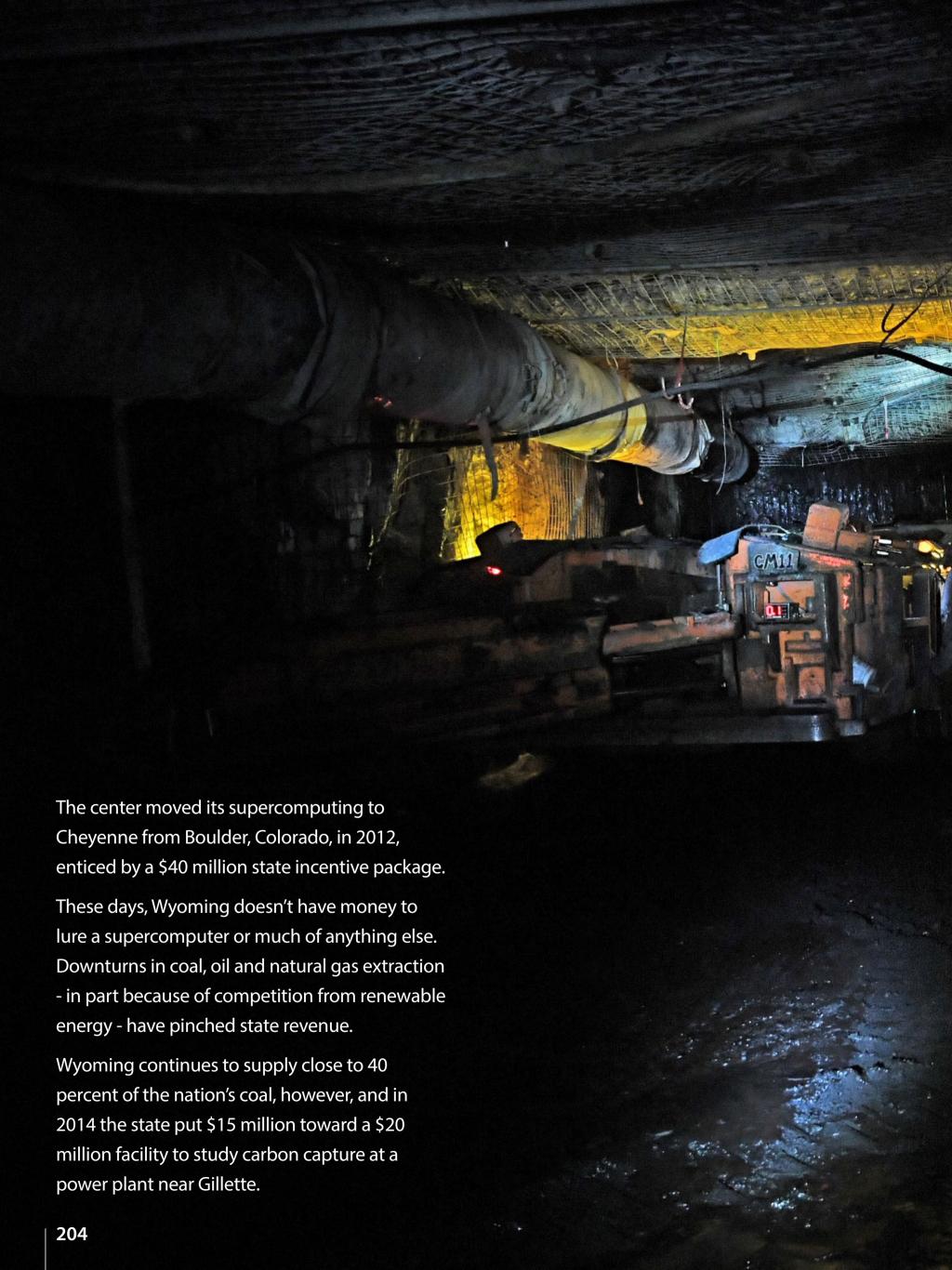
The White House didn't immediately respond to media request for comment on Trump's plans for funding the science foundation.

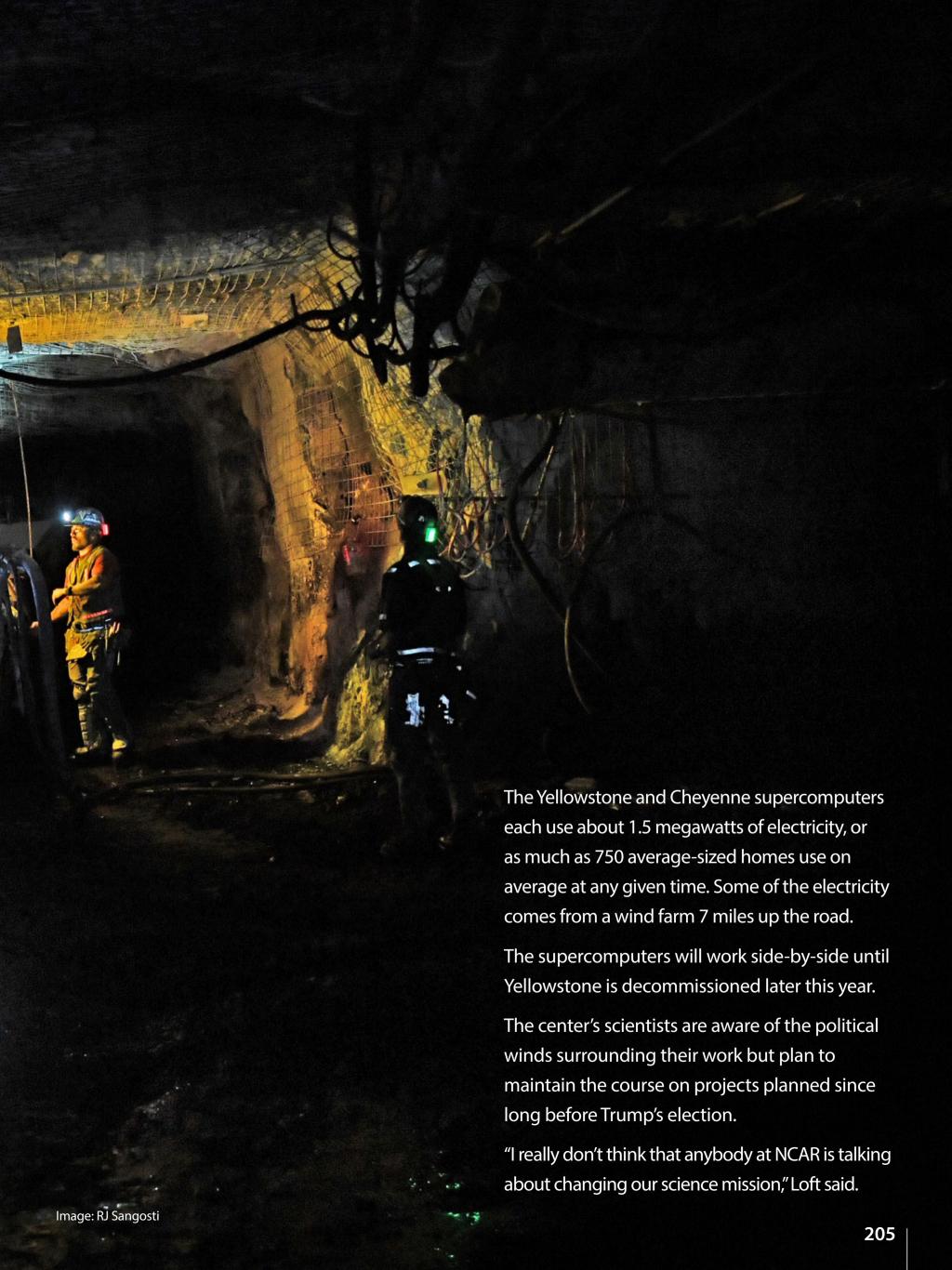
Like its predecessor Yellowstone, Cheyenne will help better predict weather and, over the long term, climate change.

"We believe that doing better predictions of those things have apolitical benefits - saving lives and saving money, and improving outcomes for businesses and farmers," said Rich Loft, a National Center for Atmospheric Research supercomputing specialist.









# ITALY CABBIES CLASH VVITH RIOT POLICE DURING STRIKE OVER UBER

Thousands of Italian taxi drivers protesting legislation they say will favor Uber clashed with riot police Tuesday, intensifying a weeklong cab strike that has crippled transportation in Rome, Milan and Turin.

The cabbies marched through Rome and protested in front of parliament, at the headquarters of the ruling Democratic Party and finally at the infrastructure ministry, where officials were meeting with union representatives to try to work out a settlement.

The six-day strike has stranded tourists at Italy's main airports and train stations, complicated daily commutes and raised alarms about Wednesday's start of Milan Fashion Week, when cabs are in high demand to shuttle fashionistas from show to show.











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