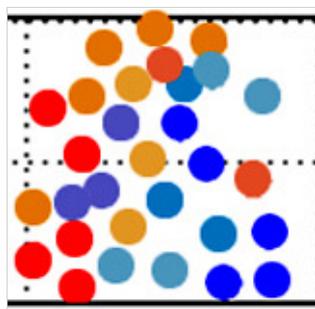




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ScienceShots



Buzzed. What happens when you get a bunch of computer-generated particles drunk? They stagger and bump into each other like any crowd outside a pub. The researchers who provided the virtual booze—documented in the November-December issue of *Aggression and Violent Behavior*--say the [simulation](#) demonstrates real-life triggers of alcohol-related violence. It could even help police direct mobs of drunkards around popular nightspots. (*Illustration: Simon Moore/Cardiff University, U.K.*)



Pucker Up. Bonnie the orangutan knows how to whistle. All she does is put her lips together and blow. While primates can be trained to make such vocalizations, Bonnie is the first to ape a human without prompting: Taking a cue from her keeper at the Smithsonian National Zoo in Washington, D.C., she appears to [whistle](#) for the sake of whistling, scientists report online 11 December in the journal *Primates*. The finding hints that apes might be more flexible in monkeying around with mimicry than originally thought, and it could even shed light on the evolution of human language. (*Photo, Video: Smithsonian National Zoological Park*)



What's in a name? Last seen in the 1980s, Hawaiian honeyeaters have long been considered descendents of like-named birds from Australia or elsewhere in the South Pacific. They look, act, and live quite similarly—with extendable tongues that roll into a tube at the tip, and long, curved bills for sipping nectar. Even their songs sound alike. But studies of DNA from museum specimens have revealed that the islands' five species are more closely related to waxwing birds common in the temperate Northern Hemisphere and silky flycatchers from South and Central America, which feast on fruit and insects. As such, these Hawaiian birds constitute their own songbird family, and, sadly, an extinct one, researchers report online 11 December in *Current Biology*. Their ancestor likely came from South or Central America about 15 million years ago, predating other Hawaiian bird lineages by millions of years. (*Photo: Adapted from an illustration by John C. Anderton*)



Exhale. Instruments aboard the Hubble Space Telescope have detected carbon dioxide in an exoplanet's atmosphere for the first time. Earlier observations of the planet, called HD 189733b, located

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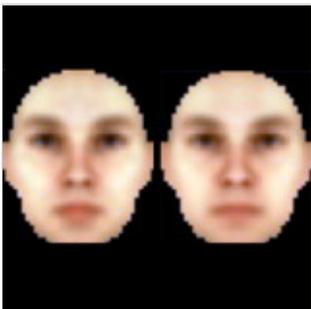


63 light-years away, had detected methane and water vapor. But NASA shouldn't plan on sending astronauts just yet. For one thing, the alien world is truly alien: a gas ball bigger than Jupiter that orbits so close to its parent sun that it's practically skirting the star's outer atmosphere. The real achievement, Hubble scientists report 9 December, is that Earth-based instruments can tease out such information about other worlds. That means when the more powerful James Webb Space Telescope begins operations in 2013, the chances are even greater that life's irrefutable chemical signatures could be spotted elsewhere in the galaxy. (Image: ESA/NASA/M. Kornmesser (ESA/Hubble)/STScI)

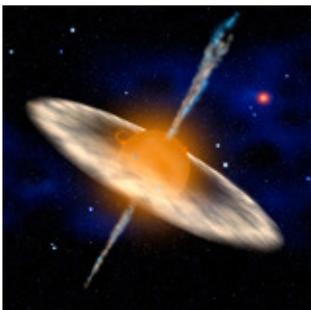
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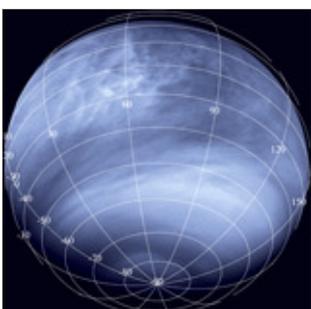
Persistence. What can you learn by watching 28 stars orbit the center of the Milky Way for 16 years? For one thing, astronomers have calculated the exact distance from Earth to the galactic center: 27,000 light-years, a figure key to measuring the true size of our galaxy. The researchers--reporting 9 December in *The Astrophysical Journal*--have also found that the stars are circling a very massive object, most likely a giant black hole. They've determined that the black hole accounts for 95% of the mass holding onto those stars, meaning there must be very little of the mysterious substance called dark matter lurking in the Milky Way's heart. What they still don't know is how such stars can form so close to a monster black hole without being ripped apart by its immense gravity. Hopefully the answer won't take another 16 years. (Photo: ESO/S. Gillessen et al.)



Which hue are you? Here's another gender cliché to add to the list: men are red, women are green. But this one apparently has some scientific grounding. Researchers asked volunteers to assign a gender to 20,000 different pictures of the same androgynous face, artificially assembled from 200 male and female images. The pictures were blurred with different patterns of random visual noise, which added extra green (left) or red (right) hues. Volunteers were more likely to classify greener images as female, according to results published online 8 December in *Psychological Science*, suggesting that we associate gender with color on a subliminal level. (Credit: Michael J. Tarr/Brown University)

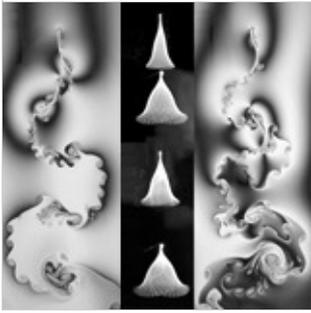


Oddballs. What's up with brown dwarfs? Too big and hot to be planets but too small to be stars, they've confounded astronomers for years. Now researchers have discovered an important clue to their nature. Reporting in the 20 December issue of *The Astrophysical Journal Letters*, radio astronomers say that they have spied faint jets of carbon monoxide shooting out of a brown dwarf called ISO-Oph 102, about 500 light-years away. Stars emit similar jets when they form, as they dump rotational energy while condensing from a gaseous cloud. So the find suggests that brown dwarfs are just would-be stars that couldn't gather enough mass to pass the 75-Jupiters threshold, considered the minimum needed to ignite their nuclear furnaces. (Image: David A. Aguilar/Harvard-Smithsonian CfA)

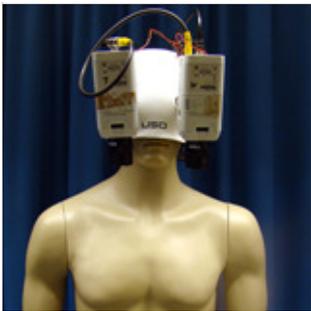


Evening star. Fabled in story and song, Earth's nearest neighbor, Venus, often graces our skies after sunset, as it did 1 December when it formed a spectacular triangle with Jupiter and the crescent moon. But that yellow twinkling object holds quite a few secrets. New images from the European Space Agency's Venus Express spacecraft, taken in ultraviolet (UV) light, reveal an atmospheric complexity that exceeds Earth's. The dark patches are zones of high temperatures, while the lighter parts are much cooler. Both of those features, researchers report today in *Nature*, aren't supposed to be detectable in UV light, but an as-yet-unknown chemical appears to be making them visible. The same process doesn't happen in Earth's atmosphere, so it appears that our planet's twin in size has

developed at least one chemical process of its own. (Image: ESAMPS/DLR/IDA)



What a drag. Could Lance Armstrong be wrong? Like most cyclists, he spends most of each race behind his teammates, a strategy called drafting that allows him to conserve energy while the others fight air resistance. But a new study, published 7 November in *Physical Review Letters*, suggests that Armstrong might do better to stay out front. When researchers examined the fluid dynamics of groups moving through air and water, they discovered that shape-shifting actions by group members, such as pumping bike pedals, actually chops up wind resistance and shoves it behind the group. (In the photo's center panel, the leader (top) shows a noticeably smaller drag profile than the others). So, as Armstrong prepares for yet another go at the Tour de France, he might want to brush up on the scientific literature. (Image: *Physical Review Letters*)



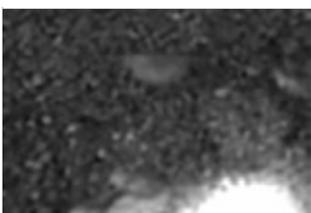
Body swap. Want an out-of-body experience? Scientists at Sweden's Karolinska Institute can create one for you. First, strap on a video screen headset that's linked to video cameras on the head of a mannequin--so that you see what the dummy "sees." Then, have a researcher touch your stomach and the mannequin's stomach at the same time. Sure enough, you'll feel like you're inside the dummy's body, according to experiments carried out on volunteers and reported 3 December in *PLoS ONE*. Just keep the researcher away from sharp objects: When scientists held a knife to the mannequin's arm, volunteers started to sweat. They claimed they feared for the plastic appendage as if it were their own. (Photo: Staffan Larsson)



Anybody there? Try to catch someone's eye in a badly lit nightclub, and you'll have a feel for the communication challenges that face the yellow-chinned anole. The Puerto Rican lizard lives in a densely-vegetated forest, yet it must attract the attention of enemies and potential lovers alike when defending its territory and trying to mate. The solution? If visibility is especially low, the lizard adds four energetic push-ups to the start of its typical head bob display. The extra motion seems to help: When researchers programmed anole look-alike robots to act out different types of displays, they found that onlookers responded more promptly when push-ups were inserted before the message, the team reported online 24 November in the *Proceedings of the National Academy of Sciences*. (Photo: Terry J. Ord)



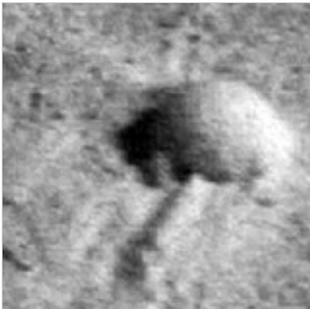
Inferno. Astronomers have seen our future, and it's a hot one. An international team has spotted a planet orbiting so close to its parent star, a red giant called HD 102272, that it's actually grazing the sun's outer atmosphere. They believe that the star--located about 1,200 light-years away in the constellation Leo--expanded out to meet the planet. Now for the bad news: HD 102272 is the same type of star as our sun, but much older. So, about 5 billion years from now, after our sun enters its own red-giant phase, it will vaporize the four inner planets, including Earth. Studying HD 102272 will help astronomers understand the processes at work, the team reports in an upcoming issue of *The Astrophysical Journal*, but it's unlikely to help us avoid Armageddon. (Photo: NASA)



Splish-splash. Planetary scientists may have snapped the first direct, close-up picture of a liquid on the surface of another world. Most of the blurry spots (arrows) seen in this [shot](#) from the Huygens Probe, which landed on Saturn's moon Titan in 2005, turned out to be electronic noise created by cosmic rays. But a study accepted for publication in the journal *Icarus* now claims that one splotch was, in fact, a dewdrop made of methane (long arrow, bottom left). It's too big



and too close to the camera to be a cosmic ray, the team reports. Rather than forming in the clouds, scientists think the drop must have dripped off Huygens itself, when the probe's heat made humid, methane-rich air rise and condense on the probe's cold edge. (Photo: NASA/JPL/University of Arizona)



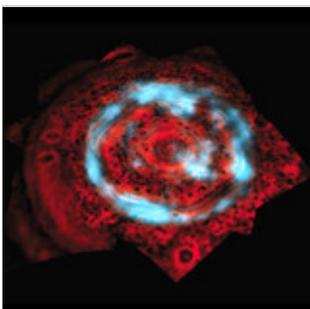
False impression. A good hunter identifies its prey by its tracks. But sometimes those tracks are misleading. Take the case of a giant amoeba known as *Gromia sphaerica*. As the 3-cm-long creature rolls along the sea floor, it leaves behind groove marks with a central ridge, which are suggestive of a mirror-symmetric--or bilateral--organism. That's of concern to palaeontologists, who have ascribed similar-looking fossilized tracks to the evolution of complex sea life 500 million years ago, researchers reported online 20 November in *Current Biology*. As a result, the evolution of mirror-symmetric organisms might be more recent than previously thought. (Photo: Mikhail Matz/NOAA/Harbor Branch Oceanographic Institute)



Skilled labor? Just because you know your job doesn't mean you're good at it. Even ants, renowned for their specialized workforce, seem to follow this rule. When researchers color-coded over 1000 rock ants according to their jobs as food foragers, nest builders or stone collectors, they found that professionals were no quicker or better at their tasks than colleagues specialized in something else. Often, they were worse. The reasons for this unproductive division of labor, reported 19 November in *PLoS Biology*, are still a mystery. But it seems that it costs a colony less energy to have inefficient experts than to breed a competent multitasking workforce. (Photo: Alex Wild)



Gotcha! If you can't kill 'em outright, trap 'em first. That's the idea behind a new technology designed to eradicate the dangerous strains of bacteria that kill over a million people each year in hospitals worldwide and that are becoming increasingly resistant to antibiotics and disinfectants. Reporting 24 November in *Applied Materials & Interfaces*, researchers say they have developed microcapsules that trap bacteria with a positive but irreversible electrical charge and then kill them with free oxygen atoms released by a light-activated polymer. The next weapons in the war against harmful bacteria may work just like roach motels: The bacteria go in, but they don't come out. (Photo: Queensland Government, Australia)



Light show. Take that, Jupiter! Along with its peerless rings, Saturn can now boast the largest auroral display in the solar system. This huge cloud, invisible to the naked eye, was snapped by an infrared camera aboard NASA's Cassini spacecraft. Hovering above Saturn's north pole, it dwarfs the area covered by similar displays on Earth and even Jupiter. The cloud may be caused by particles from the solar wind slamming into Saturn's magnetic field, as happens on Earth, researchers report in the 13 November issue of *Nature*. But beyond that, they have few clues, because no known process can produce something this big. It must be something unique to Saturn, scientists speculate. (Photo: NASA/JPL/University of Arizona)



Stealth extinction. The Sunda flying lemur might be declining in numbers, but it's not keeping conservationists awake at night. That's because the species isn't endangered. Or is it? A genetic analysis to be published in the 11 November issue of *Current Biology* reveals that the Sunda actually comprises three separate species. Treated independently, the losses of flying lemurs are much more dire than they appear on the surface--and simple shortfalls might camouflage real threats. (Photo: Norman Lin)



Savor the flavor. Twenty seconds after biting into a bell pepper, discriminating smellers will notice a hint of sulfur, which then lingers in their noses for a few minutes. Why the initial delay? Run-of-the-mill mouth bacteria turn odorless sulfur compounds naturally found in peppers, onions, and white Sauvignon grapes into volatile compounds--known as thiols--that travel to the nose, according to a paper to be published in the 12 November issue of the *Journal of Agricultural and Food Chemistry*. The study also found why the characteristic smell stays with us for so long: Saliva traps the thiols after they're produced and then controls their gradual release to the nose. (Photo: Creative Commons)



Nanobama. This portrait of the U.S. president-elect, about half a millimeter wide, was made out of 150 million carbon nanotubes last week by John Hart and his colleagues at the University of Michigan, Ann Arbor. Although an Obama supporter, Hart--who has produced many similar objects for his [Web site](#)--says he didn't pick the candidate to make a political statement. "I just wanted to draw attention to the importance of research for economic development and to promote public interest in science and technology," he says. (Photo: J. Hart, S. Tawfick, M. De Volder, and W. Walker)



Click, click, scam! There are many ways to impress rivals and potential dates. Lions grow large manes, peacocks flash their plumage, and bucks sprout elaborate antlers. African eland antelopes show off more subtly. They [click](#) their knees the same way people crack their knuckles, researchers report in the 4 November issue of *BMC Biology*. The sounds, which can be heard several hundred meters away, depend on the antelope's size and strength. The bigger the bull, the deeper the click--and the less likely another bull would want to mess with him. (Photo: Jakob Bro-Jorgensen, Cambridge University)

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