

## Data Points

Take Two Pills  
and Don't Call Me  
in the Morning

Up to 58 percent of physicians in the U.S. regularly prescribe placebos, according to a survey of 679 rheumatologists and general internists conducted by Jon C. Tilburt of the National Institutes of Health and his colleagues. Even though placebos may contain no active ingredients, many ailments still respond positively to them [see "The Placebo Effect," by Walter A. Brown; SCIENTIFIC AMERICAN, January 1998].



Percent of physicians who believe prescribing placebos is ethical: **62**

Percent who have prescribed placebos that were:

Over-the-counter painkillers: **41**

Vitamins: **38**

Antibiotics: **13**

Sedatives: **13**

Saline: **3**

Sugar pills: **2**

Percent who told patients that the treatment is:

Potentially beneficial but not typically used for their condition: **68**

Medicine: **18**

A placebo: **5**

SOURCE: British Medical Journal, online October 23, 2008

## ENVIRONMENT

Climate Control of Dynasties SCI AM

In the late ninth century a disastrous harvest precipitated by drought brought famine to China, ultimately ending the three-century rule of the Tang Dynasty. Climate change may have been a cause, according to a stalagmite from northwestern China. Composed of calcium carbonate leached from dripping water, the stalagmite preserves a record of rainfall in this region. It shows that the vital rains of the Asian monsoon weakened at the time of the downfalls of the Tang, Yuan and Ming dynasties over the past 1,810 years. These times of strong and weak rains, when compared with Chinese historical records, coincide with periods of imperial turmoil or prosperity, as in the case of the expansion of the Northern Song Dynasty, when harvests were abundant. In the past 50 years, however, industrial soot and greenhouse gases are causing the rains to weaken. Perhaps that is why today's rulers of China are eager to act on climate change. The stalagmite analysis appears in the November 7 *Science*. —David Biello



WARRIOR STATUE from the Tang Dynasty was found at a remote Silk Road outpost. Climate change may have undone the far-flung dynasty (A.D. 618–907).

## NANOTECH

## Sounds like Thunder

Conventional loudspeakers produce sound by vibrating back and forth, but new speakers made from sheets of carbon nanotubes create music the way lightning generates thunder. When an audio-frequency electric current was applied to stretchable, flexible transparent films of 10-nanometer-thick carbon nanotubes, physicists at the Tsinghua-Foxconn Nanotechnology Research Center in Beijing unexpectedly discovered they could make sounds as loud as commercial speakers. The scientists reason that the electrified nanotubes heat and expand the air near them, producing sound waves. These loudspeaker membranes can be stretched up to twice their original length without breaking and with little change to sound intensity. These sheets could be placed over paintings, windows, video screens—even in clothing, the researchers say, as a means to keep a person warm. They even put their handiwork—described online October 29 in *Nano Letters*—on a waving flag. —Charles Q. Choi

## PERCEPTION

## Seeing on Faith

Religion might literally influence how you view the world. Scientists in the Netherlands compared Dutch Calvinists with Dutch atheists, looking for any effects potentially imposed on thinking by the neo-Calvinist concept of sphere sovereignty, which emphasizes that each sector of society has its own responsibilities and authorities. The researchers hypothesize that Calvinists might therefore not be as good as atheists at seeing the big picture. Participants were shown images of large rectangles or squares that each consisted of smaller rectangles or squares. In some tests, volunteers had to quickly identify the shapes of the smaller parts; in others, the larger wholes. The Calvinists scored slightly but significantly lower than atheists did in correctly identifying whole images. The investigators plan to study other religions for similar influences. See more in the November 12 *PLoS ONE*. —Charles Q. Choi

In Brief

X-RAYS FROM TAPE SCI AM

Peeling adhesive tape can create nano-second bursts of x-rays. The effect occurs when electrons from the stuck surface leap to the sticky side of the tape. They travel so fast that on impact with the adhesive side, they give off radiation. The x-rays appear only in near-vacuum conditions, however—air molecules slow down the electrons enough so that they produce just a faint glow. The discovery, which came to light in the October 23 *Nature*, could lead to inexpensive x-ray machines that do not require electricity. —Susannah F. Locke

PLAYING CHICKEN SCI AM

The world's 40 billion commercial chickens are susceptible to crippling disease outbreaks because they are genetically uniform. On average, farmed chickens lack 50 percent of the genes in the chicken genome. To avert mass deaths and preserve a reservoir of potentially useful genes, farmers could breed commercial varieties with other types of chicken—possibly at the expense of traits such as enhanced egg-laying, however. The study appears in the November 11 *Proceedings of the National Academy of Sciences USA*. —David Biello



FIELD EFFECT ON THE BRAIN

Strong magnetic fields might make the brain run slow. Scientists at Louis Pasteur University in Strasbourg, France, had repeatedly seen delayed response times during functional magnetic resonance imaging (fMRI) experiments, which generate a two-tesla magnetic field (30,000 times stronger than the earth's field at its magnetic poles). To investigate this phenomenon, the researchers had subjects press buttons when they saw a particular cue on a monitor, such as an "X" in a flow of consonants. As the scientists reported online October 29 in *Nature Precedings*, fMRI slowed response times up to 30 percent. Magnetic fields might be dampening the excitability of brain cells. —Charles Q. Choi

EPIDEMICS

Fungal Clue in Mystery Bat Deaths SCI AM

A novel fungus may be devastating bats in the northeastern U.S. In the past two years several species have displayed unusual behavior such as flying during the winter when they should be hibernating. Census counts in Connecticut, Massachusetts, New York and Vermont have revealed that populations have thinned by at least 75 percent.



WHITE NOSE SYNDROME is affecting bats.

A clue has been a white, powdery organism on the muzzles, ears and wings of the dead and dying bats, creating what is called white nose syndrome. In a report published online October 30 in *Science*, microbiologist David S. Blehert of the U.S. Geological Survey and his colleagues identify the white stuff as a type of *Geomyces* fungus, one of a group

of ubiquitous organisms that reproduce at refrigerator temperatures of four degrees Celsius—and a typical bat-cave reading.

Researchers remain unaware of the source of the fungus or even its exact role in the deaths. The pathogen may attack torpid bats and keep them awake, so that the mammals burn too much of their stored fat—most victims have been rail-thin, and some have been found outside their caves, perhaps after a futile attempt to catch

insects to eat in winter. Or the fungus may simply be an opportunistic infection following a more profound sickness sweeping the animals. The researchers plan to study the effect of this fungus on healthy bats in the lab this winter. —Larry Greenemeier

BEHAVIOR

Politics of Blank Looks

How we react to faces could be linked to our political affiliations. Psychologist Jacob M. Vigil of the University of North Florida had 740 college students look at 12 photographs of faces digitally blurred to not display any clear emotion. The volunteers were then asked if these faces expressed sadness, joy, disgust, surprise, fear or anger. The students who identified themselves as Republicans were more likely than those who identified themselves as Democrats to interpret these vague faces as more threat-

ening, as measured by anger or disgust, and less submissive, as conveyed by fear or surprise. These findings, which appeared online October 21 in *Nature Precedings*, are consistent with research linking conservative political views on military spending and capital punishment with heightened reactions to disturbing images and sounds. Vigil conjectures that the political ideologies we advocate could be linked with the way that we respond to ambiguous details.



ANGRY OR SURPRISED? Your view may depend on your political leaning.

—Charles Q. Choi



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COURTESY OF NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (bat); DAVID SILVERMAN/Getty Images (eggs and chickens); COURTESY OF JACOB M. VIGIL (face)