Small Dog Story

Mexico may claim the Chihuahua and Tibet the shih tzu, but a new genetic study indicates that all small dogs have their origins in the Middle East.

Mitochondrial DNA studies suggest that dogs—descendants of gray wolves—were first domesticated in East Asia between 5000 and 16,000 years ago. But it's a matter of debate, as dog remains as old as 31,000 years have been found in Europe and the Middle East.

Now, a team led by evolutionary geneticist Melissa Gray of the University of California, Los Angeles, has examined different versions of a gene called *insulin-like growth factor-1* (*IGF-1*)—which is strongly associated with canine skeleton size—in big dogs, small dogs, and wild canids from around the world. The team found that the small dogs share an *IGF-1* variant very similar to that found in Middle Eastern gray wolves. That means the common ancestor of all small dogs probably lived there and that the gene must have evolved shortly after dogs were first domesticated, the researchers reported last week in *BMC Biology*. It's a "strong indication" that the region "has played a significant role in the early history of domestic dogs," says Gray. She says farmers may have bred small dogs because they ate less and needed less room.

Geneticist Adam Boyko of Stanford University in Palo Alto, California, says the study "really pokes a hole in the argument of this relatively simple domestication in East Asia, … which people have been arguing based on mitochondrial DNA."

Mosquito Buzzer Won't Fly

A Dutch medical entomologist is crusading to stop airlines from selling an electronic gadget that promises to keep mosquitoes away. Bart Knols, who runs a Web site called MalariaWorld, discovered the €17 product, called MozStop, in KLM Royal Dutch Airlines's duty-free catalog while en route to a malaria meeting. Many travelers to malaria-infested regions "think they're buying protection from mosquito-borne diseases, but they're not," says Knols.

MozStop's manufacturer, Akita Electronics in Tokyo, claims it repels mosquitoes "by emitting a high pitch sound that is unbearable to mosquitoes but inaudible to the human ear and family pets." MozStop and similar devices are claimed to imitate the noise of male mosquitoes' wingbeat; that supposedly is a big turnoff for the biting females, which mate only once. But that idea is controversial because the females have poor hearing. A 2009 literature review by Paul Garner of the Liverpool School of Tropical Medicine in the U.K. showed that the buzzers have no effect on them. Nonetheless, Garner says, "people instinctively seem to like the pseudoscience behind it."

A couple of calls and e-mails were enough to persuade KLM—which was selling 1000 MozStops a month—to drop the product. Now, Knols is working on British Airways and Singapore Airlines, which also carry it. Akita did not respond to requests for comment.

Saying 'Om' Instead of 'Ow'

The pain-relieving benefits of meditation aren't merely in people's minds but in their brains, too, according to a new study.

Neuroscientists at the University of Montreal in Canada turned up the heat on a metal cube applied to the legs of 17 male and female Zen meditation practitioners between the ages of 22 and 57, and 18 matched controls. On average, the meditators, who had between 2 and 30 years of daily practice, tolerated an extra 2°C before saying they were in moderate pain. The team then took MRI scans of the subjects and measured the thickness of certain pain-processing regions in the cerebral cortex. The meditators had greater thickness in a region of the anterior cingulate cortex (ACC), an area thought to mediate pain's unpleasantness. Thicker ACCs were also correlated with less sensitivity to pain in the leg test, the team reported last month in the journal *Emotion*.

The study's lead author, Joshua Grant, says that although physical activities are known to change brains, "I don't know if it's ever been shown that a mental activity—placing your attention on something"—can cause physical changes in that organ. The study "demonstrates convincingly the impact of meditation practice on pain perception," says Bogdan Draganksi, a neuroscientist at University College London. "The idea of training the 'emotional muscle' … is very tempting."

A WORLD IN A GRAIN

Last month's winners of the U.K. Biotechnology and Biological Sciences Research Council's first science photo competition included this image of mites, springtails, and other insects collected from a soil sample—"the poor man's rainforest." The photo by Felicity Crotty, a Ph.D. student at North Wyke Research in Okehampton, U.K., won in the agriculture, food, diet and health category.

CREDITS (TOP TO BOTTOM): ROBERT WALLIS/CORBIS; SOURCE: AKITA ELECTRONICS; PHOTOS.COM; SOURCE: BBSRC/©FELICITY CROTTY