Eureka! Daily discoveries for the scientifically bent

by Scott_LaFee

WHAT IS IT? ANSWER

WHAT IS IT? - If you're afraid of spiders, be grateful you don't live in Australia. This is a red-headed mouse spider (Missulena occatoria), which actually reaches only about an inch in length. CNS Photo. PRIME NUMBERS - The number of people, on average, who are airborne over the United States in any given hour is 61,000. CNS Photo. VERBATIM - The creator of the universe works in mysterious ways. But he uses a base-10 counting system and likes round numbers. -- philosopher and (Dilbert) cartoonist Scott Adams. ELECTRON INK - The Virtual dinosaur dig Web site at paleobiology.si.edu/dinosaurs/interactives/dig/main.html allows you to excavate fossilized dinosaur bones, courtesy of the Smithsonian National Museum of Natural History. CNS Photo. ANTHROPOLOGY 101 - Farmers in ancient Greece who suffered from an infestation of mice in their fields were advised to write the rodents a letter and leave it under a stone in the affected field. CNS Photo. CONTROL YOURSELF - Drug abuse, crime and obesity wouldn't seem to have much in common, but all can be the result of a person's failure to control behavior in the face of temptation. CNS Photo. If you're afraid of spiders, be grateful you don't live in Australia. This is a redheaded mouse spider (Missulena occatoria), which actually reaches only about an inch in length. The spiders are quite distinctive, with bright red heads and bluish abdomens. They sport sizable fangs and, while the spiders are not normally aggressive, males will bite if provoked, which can be painful.

ELECTRON INK

Virtual dinosaur dig

paleobiology.si.edu/dinosaurs/interactives/dig/main.html

Help find and excavate fossilized dinosaur bones, courtesy of this interactive Web site sponsored by the Smithsonian National Museum of Natural History. Informative, fun and you won't get dirty.

BRAIN SWEAT

Three brothers share a family sport:

A nonstop marathon.

The oldest one is fat and short

And trudges slowly on.

The middle brother is tall and slim

And keeps a steady pace.

The youngest runs just like the wind,

Speeding through the race.

"He's young in years, we let him run,"

The other brothers say.

"'Cause though he's surely number one,

He's second, in a way."

What is this riddle talking about?

VERBATIM

The creator of the universe works in mysterious ways. But he uses a base-10 counting system and likes round numbers.

- Philosopher and (Dilbert) cartoonist Scott Adams

PRIME NUMBERS

20.6 - Length of a day, in hours, during the Cambrian period, 500 million years ago

61,000 - Number of people, on average, who are airborne over the United States in any given hour

90 - Percent of time that the average American spends indoors each day

Sources: "The Book of Useless Information" by Noel Botham (2006); "So Now You Know" by Harry Bright and Harlan Briscoe (2004); "Lore of Averages" by Karen Farrington (2004)

APPEND THIS!

The appendix - a small pouch located near the juncture of the large and small intestines - has long been denigrated as vestigial or useless, just something that occasionally bursts, sending its owner to the emergency room.

But new research by Duke University scientists suggests the appendix may actually be a safe house for beneficial bacteria living in the human gut.

In times of severe gastrointestinal distress, such as a bout of diarrhea, the human gut can be completely voided of bacteria needed for digestion. But bacteria tucked inside the appendix, protected by the body's

immune system, may ride out the illness, then sally forth to repopulate the intestines.

"The abundance of circumstantial evidence makes a strong case for the role of the appendix as a place where the good bacteria can live safe and undisturbed until they are needed," said William Parker, who helped conduct the study.

JUST ASKING If a word in the dictionary were misspelled, how would you know?

ANTHROPOLOGY 101

Farmers in ancient Greece who suffered from an infestation of mice in their fields were advised to write the rodents a letter and leave it under a stone in the affected field.

In the letter, the farmer would politely ask the mice to leave, suggesting another locale. If this was not acceptable, the farmer would say, the mice would be summarily torn to pieces.

CONTROL YOURSELF

Drug abuse, crime and obesity wouldn't seem to have much in common, but all can be the result of a person's failure to control behavior in the face of temptation.

Why is that? Why do human beings seemingly lose the ability to restrain their impulses, their self-control? Researchers at the University of Toronto have found a clue, based upon psychological tests and brain scans.

They asked a group of volunteers to suppress any emotions while watching an upsetting movie. The idea was that the volunteers would deplete their internal resources for self-control by trying to restrain their emotions.

After the movie, the volunteers were asked to rate their ability to suppress their feelings on a scale of 1 to 9, then take a Stroop test, which involves naming the color of printed words (i.e. saying red when reading the word "green" in red font). Doing so is difficult; it requires a significant amount of mental self-control.

The researchers found that those who most suppressed their emotions during the movie performed worse on the Stroop test, indicating that they had used up their mental resources holding back tears during the film.

An EEG, performed during the Stroop test, confirmed the results. Normally, when a person deviates from a goal (in this case, wanting to read the word, not the color of the font), increased activity occurs in a part of the brain called the anterior cingulate cortex, which alerts the person that he is veering off course.

But researchers found much weaker activity in this region for the volunteers who had suppressed feelings during the movie. In other words, after the volunteers engaged in one act of self-control (watching the movie), their brains weren't quite up to the next act.

BRAIN SWEAT ANSWER

The hands of a clock: hour, minute and second.

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