

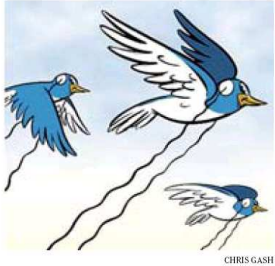
## HEALTH + SCIENCE

BRIEFLY  
Science

## WILDLIFE

Who you calling birdbrained?  
Pigeons show cognitive skills

Alexei L. Vyssotski of the University of Zurich and colleagues have studied the brain activity of homing pigeons as they fly over visual landmarks. How homing pigeons find their way back to a starting point is not completely known. The researchers developed tiny neurologgers to record electrical activity in the pigeons' brains as they flew. The birds also carried small global positioning system units to track position. By matching brain activity to location, the researchers could determine the effect



CHRIS GASH

of flying over a landmark. The birds' flights began over water and then continued over land to a homing point. This enabled the researchers to determine brain activity as the birds reached the coastline and then flew over other landmarks. They found that activity in both high- and mid-range frequencies occurred as the birds passed over a landmark. The researchers, who reported their findings in *Current Biology*, suggest that the mid-range frequencies are linked to the perception of visual information, while the high-frequency activity may be related to cognitive processing — perhaps the recognition of a previously seen landmark. The researchers also observed strong brain activity at two rural locations where there were no significant landmarks. On visiting, the researchers found that both had colonies of wild pigeons, which was probably what caught the homing pigeons' interest. HENRY FOUNTAIN

BRIEFLY  
Health

## AGING

## An active social life may slow the decline in motor skills

It is well known that older adults who remain socially engaged are more likely to keep their intellectual skills sharper. But new research suggests they may also be less likely to experience declines in motor skills like strength, speed and dexterity. Researchers who followed the health of about 900 people in retirement homes and elsewhere found that those who had the most social activity experienced the least decline in their motor skills. The report appears in *The Archives of Internal Medicine*. The researchers, led by Dr. Aron S. Buchman of the Rush University Medical Center in Chicago, examined each volunteer over a period of about five years. They gave them a series of tests to assess their motor skills, looking at the strength in their arms and legs and at their ability to walk and perform other tasks. The volunteers were also asked to give information about their social activities. While poor motor skills could make it harder for someone to take part in these activities, Dr. Buchman said the study found evidence that it worked both ways. ERIC NAGOURNEY

## ALCOHOL

## While U.S. binge drinking declines, college drinking remains

Writing in *The Journal of the American Academy of Child and Adolescent Psychiatry*, researchers said that binge drinking in the United States — which is defined as having five or more drinks — had declined more than 30 percent from 1979 to 2006 among 18- to 20-year-old men who did not attend college. But the rate remained steady among male college students and went up among female students. In 1984, the U.S. government decided to penalize by withholding federal money for highways from any state that did not have a minimum drinking age of 21. Over time, all fell in line. As a result, public health experts say, highway fatalities have gone down, among other benefits. But some college officials question whether the higher age has forced drinking underground and encouraged excessive alcohol use. For the study, researchers looked at information on binge drinking gathered over 27 years by the National Survey on Drug Use and Health. Over all, the researchers, led by Dr. Richard A. Grucza of the Washington University medical school, found that binge drinking had gone down — a change they attributed at least in part to the increased drinking age. But if that change has made it harder for high school students to get alcohol, it is less the case for college students. Living in close quarters with someone who can legally buy alcohol makes it more accessible, Dr. Grucza said. The study found that almost half the college men surveyed, and almost 40 percent of the women, had reported engaging in binge drinking. EN

## Taste can indeed triumph over the pocketbook

## Findings

JOHN TIERNEY

Could it be that humans are not quite as gullible as advertised?

For a couple of decades now, social psychologists and behavioral economists have been amusing themselves manipulating consumers into doing odd things. They've delighted in debunking the notion of *homo economicus*, that theoretical creature who rationally seeks maximum economic utility.

Old-fashioned cost-conscious consumers would react to a price increase by lowering demand for the product, but we sometimes do just the opposite. We want to buy more of it because we assume it must be a better product — and we're so thoroughly fooled that our bodies even respond differently to it.

If you give people a placebo and tell them it's a painkiller costing \$2.50, they can withstand painful shocks better than if they're told the pill costs a dime. Give them an energy drink at a discount price, and they'll perform worse on subsequent tests than if they pay full price. If you tell them the wine they're tasting costs \$90 a bottle, then the reward centers of their brains will light up more than if you tell them it's a \$10 bottle.

But suppose, instead of scanning people's brains as they're sipping wine in a laboratory, you tested them in a more realistic situation: a restaurant where they're spending their own money. That challenge was undertaken at an upscale restaurant in Tel Aviv by two behavioral economists, Ori Heffetz of Cornell University in New York and Moses Shayo of the Hebrew University of Jerusalem, who expected to be able to manipulate diners' choices by changing the prices on the menu.

Unbeknownst to the diners or to their waiters, the economists monitored the choices of people who ordered from the *prix fixe* menu.

The three-course meal cost included a choice of five entrees: shrimp gnocchi, pork shank, red mullet fillet, sausage or stuffed artichoke.

Listed next to each of these entrees on the menu, in parentheses, was what it would cost to order that entree from the à la carte menu. These prices didn't affect the cost of the *prix fixe* meal, which was the equivalent of \$30 no matter what the entree, but the researchers expected just the sight of the prices to make a difference. If the mullet were listed at \$20 and the other entrees were \$17, more people would presumably be enticed into ordering the seemingly more valuable fish.



VIKTOR KOEN

But after three months of testing various combinations of prices, the researchers found they couldn't sway the customers. Putting a higher price on the shrimp or any other entree didn't make people more likely to order it.

This same stubbornly independent streak was manifest in another food ex-

periment by the same researchers. This time they let people sample two kinds of candies — peanut butter bars and caramels — and varied the sticker prices for each one.

Superficially, the manipulation seemed to work, because people said they would be willing to pay more for a candy if it had a higher sticker price, but that was just in answer to a hypothetical question.

When people were given a chance to pick a bag of candy to take home, they

pretty much ignored the sticker prices and chose what they liked.

Why weren't people duped into favoring the high-priced candies and entrees? Why did they follow their own tastes?

"Maybe, sometimes, old-fashioned economics is just about right," Dr. Shayo says. "Maybe when it comes to food, people do have reasonably stable preferences. Some people like shrimp and some don't, even if it's worth a lot of money."

ONLINE: TIERNEY LAB  
The blog listing readers' responses about their most expensive and most enjoyable purchases. [global.nytimes.com/health](http://global.nytimes.com/health)

## Paleontologists take a quizzical look at Creation Museum

PETERSBURG, KENTUCKY

## A rare visit to an exhibit where Earth is just over 6,000 years old

BY KENNETH CHANG

Tamaki Sato was confused by the dinosaur exhibit. The placards described the various dinosaurs as originating from different geological periods — the stegosaur from the Upper Jurassic, the heterodontosaurus from the Lower Jurassic, the velociraptor from the Upper Cretaceous — yet in each case, the date of demise was the same: around 2348 B.C.

"I was just curious why," said Dr. Sato, a professor of geology from Tokyo Gakugei University in Japan.

For paleontologists like Dr. Sato, layers of bedrock represent an accumulation over hundreds of millions of years, and the Lower Jurassic is much older than the Upper Cretaceous.

But here in the Creation Museum in northern Kentucky, Earth and the universe are just over 6,000 years old, created in six days by God.

The museum preaches, "Same facts, different conclusions" and is unequivocal in viewing paleontological and geological data in light of a literal reading of the Bible.

In the creationist interpretation, the layers were laid down in one event — the worldwide flood when God wiped the land clean except for the creatures on Noah's ark — and these dinosaurs died in 2348 B.C., the year of the flood.

"That's one thing I learned," Dr. Sato said.

The worlds of academic paleontology and creationism rarely collide, but the former paid a visit to the latter last week. The University of Cincinnati was hosting the North American Paleontological Convention, where scientists presented their latest research at the frontiers of the ancient past. In a break from the lectures, about 70 of the attendees boarded school buses for a field trip to the Creation Museum, on the other side of the Ohio River.

"I'm very curious and fascinated," Stefan Bengtson, a professor of paleontology at the Swedish Museum of Natural History, said before the visit, "because we have little of that kind of thing in Sweden."

Arnold I. Miller, a professor of geology at the University of Cincinnati and head of the meeting's organizing committee, suggested the trip. "Too often,

academics tend to ignore what's going on around them," Dr. Miller said. "I feel at least it would be valuable for my colleagues to become aware not only of how creationists are portraying their own message, but how they're portraying the paleontological message and the evolutionary message."

Since the museum opened two years ago, 750,000 people have passed through its doors, but this was the first large group of paleontologists to drop by. The museum welcomed the atypical guests with the typical hospitality. "Praise God, we're excited to have you here," said Bonnie Mills, a guest service employee.

The scientists received the group admission rate, which included lunch.

Terry Mortenson, a lecturer and researcher for Answers in Genesis, the ministry that built and runs the Creation Museum, said he did not expect the visit to change many minds. "I'm sure for the most part they'll be of a different view from what's presented here," Dr. Mortenson said. "We'll just give the freedom to see what they want to see."

Near the entrance to the exhibits is an animatronic display that includes a girl feeding a carrot to a squirrel as two dinosaurs stand nearby, a stark departure from natural history museums that say the first humans lived 65 million years after the last dinosaurs.

"I'm speechless," said Derek E.G. Briggs, director of the Peabody Museum of Natural History at Yale, who walked around with crossed arms and a grimace. "It's rather scary."

Dr. Mortenson and others at the museum say they look at the same rocks and fossils as the visiting scientists, but because of different starting assumptions, they arrive at different answers. For example, they say the biblical flood set off huge turmoil inside the Earth that broke apart the continents and pushed them to their current locations, not that the continents have moved over a few billion years.

"Everyone has presuppositions what they will consider, what questions they will ask," said Dr. Mortenson, who holds a doctorate in the history of geology from Coventry University in England. "The very first two rooms of our museum talk about this issue of starting points and assumptions. We will very strongly contest an evolutionist position that they are letting facts speak for themselves."

The museum's presentation appeals to visitors like Steven Leinberger and his wife, Deborah, who came with a group from the Church of the Lutheran Confession in Eau Claire, Wisconsin. "This is what should be taught even in



Paleontologists watching a video at the Creation Museum. Below, an exhibition of dinosaurs, which the museum says all died in 2348 B.C.



science," Mr. Leinberger said.

The museum founders placed it in the Cincinnati area because it is within a day's drive of two-thirds of the U.S. population. The area has also long attracted paleontologists with some of the most fossil-laden rocks in North America, where it is easy along some roadsides to pick up fossils dated to be hundreds of

millions of years old. The rocks are so well known that they are called the Cincinnati Series, representing the stretch of time from 451 million to 443 million years ago.

Many of the paleontologists thought the museum misrepresented and ridiculed them and their work and unfairly blamed them for the ills of society.

"I think they should rename the museum — not the Creation Museum, but the Confusion Museum," said Lisa E. Park, a professor of paleontology at the University of Akron.

"Unfortunately, they do it knowingly," Dr. Park said. "I was dismayed. As a Christian, I was dismayed."

Dr. Bengtson noted that to explain how the few species aboard the ark could have diversified to the multitude of animals alive today in only a few thousand years, the museum said simply, "God provided organisms with special tools to change rapidly."

"Thus in one sentence they admit that evolution is real," Dr. Bengtson said, "and that they have to invoke magic to explain how it works."

But even some who disagree with the

The researchers don't deny that consumers can be swayed by variations in sticker prices in laboratory experiments. But they question how significant that factor is in real-world settings where prices can't be inflated so extremely, like the Tel Aviv restaurant.

"Size is everything," Dr. Heffetz says. "Our findings remind us that knowing that 'A has a positive effect on B' is not enough. The effect may simply be too small to matter."

The size-matters effect seemed to show up in a much less rigorous bit of research conducted at my TierneyLab blog with the help of Geoffrey Miller, an evolutionary psychologist at the University of New Mexico. In his new book, "Spent: Sex, Evolution and Consumer Behavior" (Viking), he argues that humans often waste money because of the unconscious — and mistaken — belief that our costly stuff will signal our intel-

**"Knowing that 'A has a positive effect on B' is not enough. The effect may simply be too small to matter."**

ligence and sterling personality traits to potential mates and allies.

As an exercise, Dr. Miller asked readers of the blog to list the 10 most expensive things they had ever bought, and then list the 10 purchases that had brought them the most happiness. More than 200 responded. As we expected, many people rued spending lots of money for stuff that hadn't brought them joy. Boats seemed to have particularly low utility in delivering happiness per dollar; many cars fit that category, too, and so did many expensive weddings.

But we were struck by how much overlap there was between the most-expensive list and the most-happy list. People repeatedly included on both lists their homes, their college education, their vacation trips, their high-priced electronics (large-screen televisions, Blu-Ray player, audio equipment, computers) and certain models of cars (BMW 325, Audi A4, Jaguar, Subaru WRX, Toyota Prius, Honda Civic).

Indeed, the first trend that Dr. Miller identified was the match between the happiness and expense lists. Some of this may have been because of postpurchase rationalization, but a lot of buyers seemed to be suffering anything but remorse. As one reader, Janet Hubbs, put it:

"The three things (not necessities) I have spent the most money on in the past ten years are: my cottage at Cape Cod, my Lexus, and my Rolex — and I LOVE all three, in the order of their cost. And I don't care what that says about me."

information and message concede that the museum has an obvious appeal. "I hate that it exists," said Jason D. Rosenhouse, a mathematician at James Madison University in Virginia and a blogger on evolution issues, "but given that it exists, you can have a good time here. They put on a very good show if you can handle the suspension of disbelief."

By the end of the visit, among the dinosaurs, Dr. Briggs seemed amused.

"I like the fact the dinosaurs were in the ark," he said. (About 50 kinds of dinosaurs were aboard Noah's ark, the museum explains, but later went extinct for unknown reasons.)

The museum, he realized, probably changes few beliefs. "But you worry about the youngsters," he said.

Dr. Sato likened the museum to an amusement park. "I enjoyed it as much as I enjoyed Disneyland," she said.

Did she enjoy Disneyland?

"Not very much," she said.

ONLINE: MORE ON THE EXHIBIT

Adam and Eve in the land of the dinosaurs: A review of the Creation Museum. [global.nytimes.com/science](http://global.nytimes.com/science)