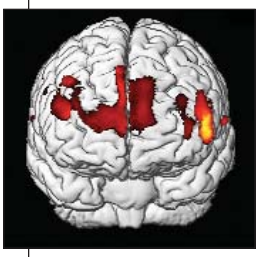
RANDOM SAMPLES

Edited by Constance Holden

The Matter With IQ

Scientists have long known that brain size is modestly correlated with IQ. Now, a group claims to be zeroing in on just where that special gray matter is.

A team led by psychologist Richard Haier of the University of California, Irvine, gave IQ tests to 47 volunteers aged 18 to 84. The IQ scores, which ranged from 90 to 155, were then correlated with brain scans that separate out cortical gray matter (the neural bodies) from the white matter (the axons and dendrites) through a method called voxel-based morphometry. The scientists found that in specific areas, the volume of gray matter correlated with "g," or "general intelligence," a basic reasoning function that psychometricians say underlies the abilities measured by IQ tests.



Frontal view of brain showing where "g" is concentrated.

Some scientists believe that the basis for g is the frontal lobe, but this study shows that it's distributed in other parts of the brain as well, says Haier. Nonetheless, the researchers reported online last month in the journal *Neuroimage*, the regions crucial for IQ differences account for only 6% of the total gray matter in an average brain.

"You wouldn't think something as complicated as IQ would have correlates in these very specific areas," says neuroscientist Paul Thompson of the University of California, Los Angeles. He notes that knowledge about normal IQ-related brain differences will allow scientists to better diagnose diseases that affect cognition.

Early American Brewery

The remains of liter-sized drinking cups have led archaeologists to uncover what may be the oldest large-scale brewery yet found—on a mountaintop in Peru.

At a settlement occupied by pre-Incan people called Wari between 600 and 1000 C.E., archaeologists from the Field Museum in Chicago last month unearthed what they believe is a production facility for chicha, a beerlike drink made from fruits and grain and spiced with pepper seeds. At a site used for banquets, P. Ryan Williams and his team found what they believe was a fermenting room and a brewing room with stone uprights that could hold 20 vessels over a fire. They also found pieces of 40- to 55-liter vessels, ash from llama dung fires, and pepper tree seeds. The two rooms covered about 200 square meters,

but traces of walls suggest that the brewery was much larger, says Williams.

The brewery is notable for its location as well as its size, says anthropologist Charles Stanish of the University of California, Los Angeles. Because it means that big feasts were held far from the Wari capital, it suggests that the Wari may have interacted more than had been supposed with another civilization, the nearby Tiwanaku.

Crayfish Catch Z's

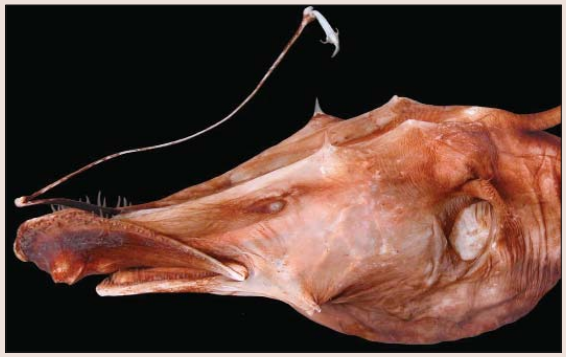
When crustaceans crash, their brains emit slow, regular waves of electricity much like those seen in the brains of slumbering vertebrates, a new study finds.

Until now scientists have not been able to identify slow waves in invertebrates such as fruit flies and bees that otherwise appear to be snoozing. Now, in a study published online last week in the *Proceedings of the National Academy of Sciences*, Fidel Ramón of the National Autonomous University of Mexico and colleagues report that around-the-clock monitoring shows that crayfish exhibit not only behavioral signs of sleep but also slow waves.

When the animals struck a particular pose—lying motionless while hanging onto the tank with one appendage—they also seemed almost comatose, responding little to vibration and not at all to a change in a pattern of flashing lights. The researchers also found that sleep-deprived crayfish made up for lost shuteye the next night. Brain electrodes confirmed the picture: Random patterns produced by active crayfish were replaced by slow waves in animals in the sleeping posture.

These results provide "important evidence for the universality of sleep," observes Ralph Greenspan, a neurobiologist at The Neurosciences Institute in San Diego, California. However, he notes that in mammals, slow waves originate in the cerebral cortex, which is absent in reptiles and amphibians. How crayfish, whose brains are even more primitive than reptiles, make these waves is a mystery, Greenspan says.

World's Ugliest Fish?



This anglerfish, caught 1300 meters deep in the eastern North Atlantic, has floated anonymously for more than 2 decades at the Natural History Museum of London. This spring, ichthyologist Theodore Pietsch of the University of Washington, Seattle, came across it while rummaging through unsorted deep-sea collections. "I am absolutely positive that it represents a new species," says Pietsch, who has studied anglerfish for 40 years. Like others of its genus (*Lasiognathus*), the female has a fishing rod equipped with a bioluminescent prey-attracting organ with hooks. But at 20 centimeters, it's unusually big and has unusually long jaws and teeth, says Pietsch, who has submitted a description to the journal *COPEIA*.

CREDITS: (TOP TO BOTTOM) P. R. WILLIAMS; RICHARD J. HAIER (); T. PIETSCH

Edited by Yudhijit Bhattacharjee

JOBS

New Berkeley head. Tackling the thorny issue of women in science may bode well for your academic future. Five years ago, science dean Robert Birgeneau supported a ground-breaking internal study of the problems facing senior women researchers at the Massachusetts Institute of Technology (MIT). Soon after, he became president of the University of Toronto, his hometown. On 27 July, the 62-year-old Birgeneau was named chancellor of the University of California, Berkeley, the flagship campus of the largest university system in the United States.

"I think this sends a strong message that being fair to women scientists is good for your career," says MIT biologist Nancy Hopkins, who chaired the 1999 study.

MONEY MATTERS

Fueled by greenbacks. What really gets scientists going? Prize money, according to NASA, which would like $50 million a year to sponsor competitions for the space community.

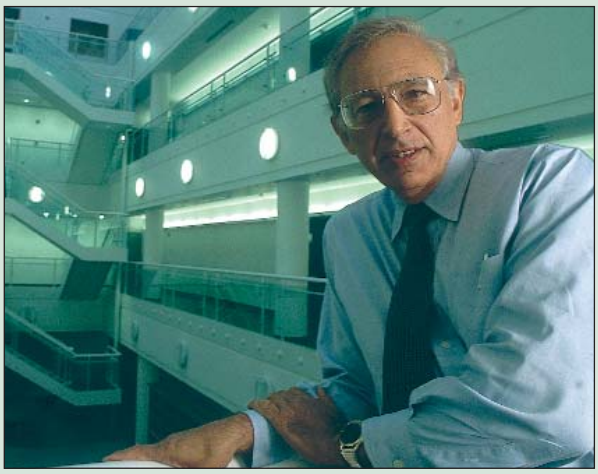
The agency's new Centennial Challenges program plans to award prizes of up to $10 million to companies and entrepreneurs that develop new technologies for space exploration. "[The idea] is to get people involved who would never dream of pursuing a government contract," former chair of the House Science Committee and space industry lobbyist Robert Walker told the Space and Aeronautics Subcommittee at a 15 July hearing to review the proposal. NASA planned to start Centennial Challenges this year by transferring $2 million from other programs, but the appropriations committee that oversees the agency's budget denied the request. However, Centennial Challenges program manager Brant Sponberg believes a new request for $20 million will survive in NASA's 2005 budget, which is currently making its way through Congress.

The NASA program takes its inspiration from the X Prize, a privately funded competition offering $10 million to the first group to send three people into suborbital space and repeat the feat within 2 weeks.

ON CAMPUS

Feeling cramped. Virologist Robert Gallo, the co-discoverer of HIV, is shopping for a new home for the basic and clinical research laboratory he started at the University of Maryland, Baltimore (UMB), 8 years ago. Gallo says he's waited 2 years for the university to find him more space, and "6 months ago I said this is crisis time." The Institute of Human Virology employs nearly 300 people and has an annual budget of $40 million.

The university has no comment, says a UMB spokesperson.



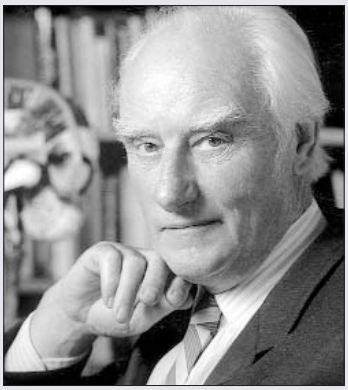
IN BRIEF

Side effect. University of Pittsburgh geneticist Robert Ferrell is no longer chair of the department of human genetics following a federal indictment on charges of illegally shipping microbes (*Science*, 9 July, p. 159). Ferrell is accused of mailing the microbes to Steven Kurtz, an art professor at the State University of New York, Buffalo, who used them for an art exhibit and was indicted along with Ferrell on 29 June. Ferrell's resignation last month was voluntary, says the university, and he remains on the faculty.

Got any tips for this page? E-mail people@aaas.org

DEATHS

Scholar incarnate. Francis Crick, who shared the 1962 Nobel Prize in physiology or medicine with James Watson and Maurice Wilkins for discovering the structure of DNA, died 28 July after a long battle with colon cancer. He was 88.



Born in Northampton, England, Crick met Watson as a graduate student at the University of Cambridge in 1951. Two years later the two men used their respective knowledge of genetics and x-ray diffraction, along with x-ray images from Rosalind Franklin and Maurice Wilkins, to determine the twisted ladder structure of DNA.

Crick left the United Kingdom in 1976 for the Salk Institute in La Jolla, California, where he began investigating the nature of human consciousness. "He is the living incarnation of what it is to be a scholar," says a Salk collaborator, Christof Koch, noting that the scientist was editing a manuscript on his death bed. A new Center for Computational and Theoretical Biology at the institute will bear his name.

CREDITS: (TOP TO BOTTOM) UNIVERSITY OF TORONTO; RICK KOZAK; SALK INSTITUTE