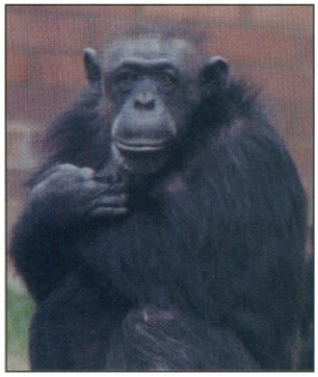
Chipper Chimps

Happiness in chimps, as in humans, is strongly influenced by their genetic makeup, according to researchers at the University of Arizona, Tucson. Scientists say such findings demonstrate the usefulness of nonhuman primates as models for human behavior.

The Arizona group has been looking at basic chimp personality dimensions similar to those in humans. To probe chimp contentment, psychologist James King developed a questionnaire to measure their "subjective well-being." Questionnaires on 135 chimps were then filled out by volunteers who work closely with the animals in 13 zoos in the United States and Australia. They assessed four factors: the amount of time a chimp was in a "positive" mood; how much the chimp found social encounters "enjoyable" as opposed to distressing; how well the chimp met its goals (such as social interactions or obtaining food); and finally, how happy the rater would be to actually be the chimp in question.



Aussie chimp Lulu feeling blue.

Researchers computed the genetic contribution to well-being based on every chimp's relatedness to every other chimp—a total of 9045 pairs in which relatedness ranged from zero to 75% (for siblings whose parents are related).

The researchers found that genes contribute about 40% to chimp happiness, putting them in the same ballpark as humans, reported grad student Alexander Weiss earlier this month at the meeting of the Behavior Genetics Association in Vancouver. That figure, says Weiss, is "pretty high. ... Most physical effects that cattle breeders breed for tend to be heritable at lower levels than that." Differences among zoos had no effect on differences in chimp well-being.

Psychologist David Lykken of the University of Minnesota, Twin Cities, says behavior genetic studies on chimps may also "help advance our understanding of human evolution." And there's a practical payoff, says Weiss: High happiness heritability means "we can breed a happier ape."

Glenn Commission Launched

It's another commission to study math and science education, but this one's focused just on teachers. Headed by retired astronaut-senator John Glenn, the effort was announced last week by Education Secretary Richard Riley. The high-profile panel, called the National Commission on Math and Science Teaching in the 21st Century, includes Intel CEO Craig Barrett, former National Science Foundation head Walter Massey, former Berkeley Chancellor Chang-Lin Tien, and Senator Edward Kennedy (D–MA). They have until September 2000 to figure out what kind of training science and math teachers should have.

Commission member Deborah Loewenberg Ball, a professor of education at the University of Michigan, says she hopes the group will be able to get the message across that "simple recipes like making everyone major" in science or math won't work. A physics major won't help you explain photosynthesis, she says, and "almost none" of what you learn as a math major "has anything to do with the K–12 curriculum."

The Brain: Use It or Lose It

Readers of *Science* will be gratified to learn of new evidence that intellectual activity helps stave off senility. The latest is from a brain scan study of older adults, showing that those with more education seem to be less affected cognitively by the brain shrinkage that accompanies aging.

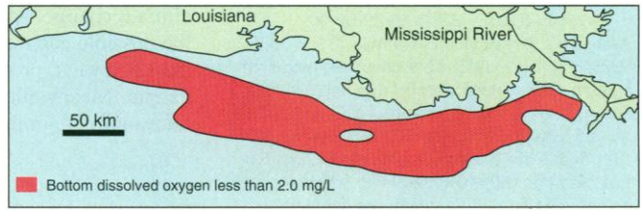
The study, headed by neuropsychiatrist C. Edward Coffey of the Henry Ford Health System in Detroit, looked at the brains of 320 cognitively normal men and women between the ages of 66 and 90 who had between 4 and 17 years of formal education. The researchers found that when they controlled for age, sex, and intracranial size, those with a college degree had 8% to 10% greater volume of peripheral cerebrospinal fluid—an indicator of brain shrinkage—than those with 4 years of schooling. What this means, says Coffey, is that the more educated people in the sample were still functioning cognitively even when their brains had reached a level of atrophy that would cause mental deficits in less educated people, driving them out of the study sample.

This research, he says, is "the first to provide direct neurobiological support" in healthy adults for the "reserve" hypothesis, the notion that mental activity provides a buffer against cognitive decline. Some theorize that it creates a richer and more redundant array of neural connections. "The brain really likes novelty," observes Coffey, whose study appears in the 13 July issue of *Neurology*.

Richard Suzman, associate director for behavioral and social research at the National Institute on Aging, says the study fits with other research showing that people with more education—including a sample of nuns—live longer and postpone the onset of dementia.

Grateful Dead Zone

The Gulf of Mexico's "dead zone" (in red) will benefit from a research infusion of $250,000 thanks to a new annual award, the Blasker Award for Environmental Science and Engineering, which has been given this year to R. Eugene Turner and Nancy Rabalais, a husband-and-wife oceanography team at Louisiana State University in Baton Rouge. The deoxygenated zone, which in hot weather can grow to the size of New Jersey, is the third largest in the world, surpassed only by the dead zones of the Black Sea and Baltic Sea, says Rabalais. Such zones are created by oxygen-depleting bacteria feeding on algae created by excess nutrients in areas where there is inadequate water mixing (*Science*, 10 July 1998, p. 190).



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