Playing the Odds As a Newt

A male slithers into a bar looking for a date. He spies a female surrounded by three suitors. What should he do?

Well, if he's a red-spotted newt, he'll back off in a hurry. This common salamander knows when there's too much competition. But it's not arithmetic that the newt goes by; rather, he's sniffing an antimale pheromone produced by other males, Daesik Park of Northern Arizona University in Flagstaff reported last week at the annual meeting of the Society for Integrative and Comparative Biology in Atlanta.

Although some insects are known to emit odors repellent only to males, no such substance in a vertebrate had ever been described, Park says. But his team thought newts might be armed as such because the pond dwellers are known to exude odors for use as long-distant lures and short-distance seducers. Besides, the males need all the help they can get: They outnumber the females in breeding ponds.

Male smell foils competition.

With Northern Arizona reproductive endocrinologist Catherine Propper, Park, a graduate student, used a Y-shaped chamber to test whether a male would approach a new newt couple. He found that the lovelorn male is just as likely to go for a female consorting with one or two males in one arm of the Y as he is to choose one on her own in the other arm. But if a female has three suitors, the stag newt will usually opt for the lone female. In other tests, Park found that a male close to a female emits a repelling compound into the water. The more courting males, the more potent the smell—to the point where three stinkpots will put off an aspiring newcomer, Park suggested.

The work "provides us with one more mechanism by which males may compete with other males to enhance their reproductive success," says David Pfennig of the University of North Carolina, Chapel Hill. As Park observed, if a newt decides to hit on a perhaps less desirable but more available female, "the reproductive success of both the pheromone-releasing and -receiving males may be increased."

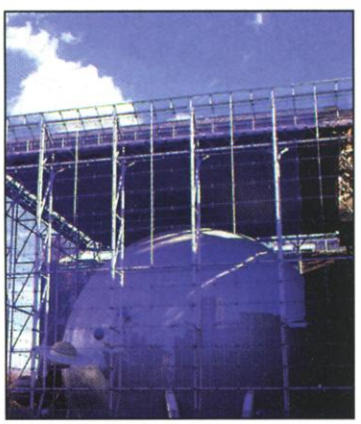
Eugenics: Time to Talk

"... [P]ublic dialogue hasn't even begun to seriously consider how radically genetic technologies will alter human life and society. ... My bet is that feasible technologies to retool human life will put us face to face with the basic dilemma of deciding what it means to be human within two decades."

—Steven Quartz, philosophy professor at Caltech, in the online publication *Edge*.

Galactic Treat

Shuttered for 3 years for a major redo, the Hayden Planetarium of New York City's American Museum of Natural History will reopen with a splash next month in its latest incarnation: a 23-meter sphere encased in a seven-floor glass box. The top half of the new $210 million Rose Center for Earth and Space will house a galaxy-mimicking theater, which the museum calls "the largest and most powerful virtual reality simulator in the world." The bottom half will feature a Big Bang Theater, where the first moments of the universe will be played out. Other wonders include a "cosmic pathway" taking viewers through 13 billion years of cosmic evolution; a "hall of the universe" demonstrating discoveries of modern astrophysics; and a "hall of planet Earth" complete with model volcanoes and ancient ice cores.



New dawn for planetarium.

Spotting Bad Seeds

A few youngsters start a career of antisocial behavior early in life—destroying property, being cruel to animals, or getting booted out of grade school for fighting. At least some troublemakers, it seems, have a flawed biological response to stress that may help set them on the wrong path: A new study has found low levels of the stress hormone cortisol in persistently aggressive boys.

Scientists have found several clues that there are biological aspects to entrenched antisocial behavior. For example, psychologist Adrian Raine of the University of Southern California in Los Angeles has found that boys with low levels of physiological arousal as teenagers—as indicated by both heart rate and brainwaves—are more likely to commit a felony later in life.

The latest evidence comes from the University of Chicago, where psychologist Keith McBurnett and colleagues followed 38 boys aged 7 to 12 diagnosed with conduct disorder, a cluster of behaviors such as stealing, fighting, and sexual aggressiveness. Earlier work had hinted at a link between antisocial behavior and low levels of cortisol, a hormone that rises with stress levels. Probing this further, McBurnett's group tested the boys' saliva twice over a 4-year period and rated social behavior from interviews with parents, teachers, and classmates. The really bad actors and those who started misbehaving earliest, it turned out, also had the lowest cortisol levels, the team reports in this month's *Archives of General Psychiatry*.

Raine says the findings fit with research showing that people with aggressive antisocial personalities often have sluggish nervous systems. Why the link? Researchers say it means they need to go to extremes to achieve stimulation, and also that they don't experience normal feelings of inhibition and fear of giving in to destructive impulses.

Measuring cortisol levels, McBurnett says, might help identify which troublemakers are just going through a phase and which have a persistent aggressive streak. The task now, he adds, is to sort out to what extent a dampened response to stress is ruled by genes and to what extent by early emotional trauma, which can permanently alter the hormonal system that generates cortisol.

CREDITS: (TOP) JOE MCDONALD/ANIMALS ANIMALS; (BOTTOM) DENIS FINNIN