Young male finches with stuttering coach (r).

Stuttering Finches

Zebra finches sometimes stutter when they sing, and if normal baby finches are raised by stutterers, more than half will grow up stuttering worse than their tutors do. This malleability, say researchers, suggests that finches might qualify as an animal model for human stuttering.

Among zebra finches, only the males have songs, and about one in 20 stutter—usually repeating sounds at the ends of phrases. Although there's clearly a genetic component to stuttering, behavioral neurologist David Rosenfield of Baylor College of Medicine and The Methodist Hospital in Houston, Texas, wanted to see how nurture contributes to the problem. So he and colleagues housed 30 male nestlings with stuttering males for 10 months as they grew up.

At the end of that period, a female was brought in to inspire the trainees to launch into their courtship songs. Half chirped normally, but the other half stumbled badly, stuttering at the ends of their songs or even breaking off without finishing, Rosenfield said. But when tutored stutterers were put among normal zebra finches for several months, their diction improved, although none has yet stopped stuttering completely.

All this suggests that stuttering not only can be learned but unlearned, Rosenfield says. "The extent to which the model truly mimics the central processes involved in human stuttering remains to be seen, but this is the best approach I've seen so far toward establishing an animal model for stuttering," says neurobiologist Steven Goldman of Cornell University.

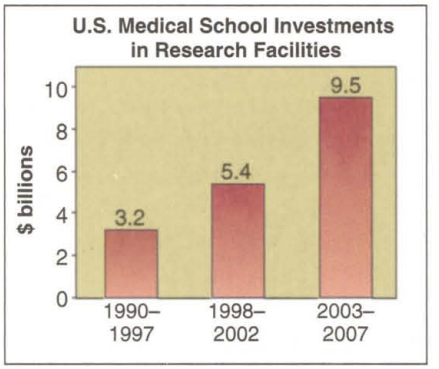
Rosenfield, who presented the findings in New York last month at the meeting of the American Neurological Association, says further bird experiments might help scientists distinguish and tailor treatments for different types of human stutterers.

Poor Man's Nobel

A new global prize for scientific achievement—nicknamed the "poor man's Nobel"—was unveiled by the Third World Academy of Sciences (TWAS) at its biannual meeting in New Delhi, India, late last month. The $100,000 prize will go only to scientists who live and work in a developing country. The Trieste Prize—so called because TWAS and prize backer Illy Co., a coffee importer, are based in Trieste, Italy—will alternate annually between the physical and biological sciences. The first one will go to a biologist next year. The award is designed to remedy the fact that almost no top-caliber awards go to researchers working in developing countries, says mathematician Mohamed Hassan, executive director of TWAS. In the century-long history of the Nobel, Hassan says only three winners have been based in the developing world: Argentineans Luis Leloir (chemistry, 1970) and Bernardo Houssay (medicine, 1947); and an Indian, C. V. Raman, for physics in 1930.

Building Boom

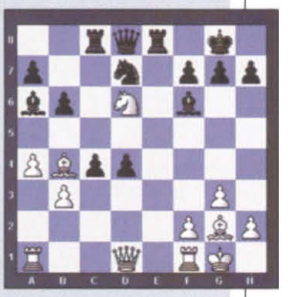
Anyone who has dodged bulldozers, dust, and cranes on a medical campus recently knows there's a building boom under way at U.S. medical schools. Indeed, investments in facilities grew precipitously in the '90s and will continue to climb rapidly in the next 5 years, according to a quick survey of 99 schools done by Jack Krakower of the Association of American Medical Colleges after National Institutes of Health (NIH) director Elias Zerhouni asked if AAMC had such data. The building boom dwarfs the growth in Ph.D. research faculty, which increased by 40% to 25,000 between 1991 and 2001.



This hand-over-fist construction—much of it financed by loans—might look optimistic in the face of a slowdown in NIH's budget growth and a sluggish economy, notes Krakower. But AAMC's Tony Mazzaschi says that new health services research and collaborations with drug companies are also fueling the boom: "It's not all NIH driven."

Draw in Bahrain

Computers don't get tired, crack under deadlines, or get psyched out, which makes them formidable opponents on the chessboard. Earlier this month, world champion Vladimir Kramnik and chess computer Deep Fritz drew the final game of their eight-game series, and their "Brains in Bahrain" match was declared a tie. But the draw was a substantial victory for the creators of Deep Fritz, who proved that computers can match the abilities of even the best human chess players.



Where the board stood just before Kramnik (white) made daring but futile knight sacrifice.

Deep Fritz is very much like other advanced chess computers: It has a vast database of openings and endings, and once the game is afoot, it relies on brute force—with some fine-tunings—to go through all the possible moves and decide on the best one. IBM's Deep Blue used a similar algorithm to defeat then-champion Garry Kasparov in 1997, but many chess fans argued that the match was unfair because Kasparov had never seen Deep Blue play—something that never happens at the Grand Master level. Kramnik was therefore allowed to practice playing with the computer for a few months before the match.

In Bahrain, Deep Fritz lost two of the first four games, but it put Kramnik under constant tactical pressure and wore the champion down. "We could see it in his face. It was rather ghastly," says Frederic Friedel of Hamburg, Germany–based ChessBase, who is part of the Fritz team. Kramnik lost game 5 through a blunder, and game 6 slipped away despite a brilliant and daring knight sacrifice that would have overwhelmed almost any human opponent. But an exhausted Kramnik quickly accepted draws in the last two games and expressed awe of the computer's abilities. Said Kramnik at a press conference after the match, "It plays like a very strong human. These are 'human moves.'"

Both sides are looking for a rematch. But although the man's brain will remain the same, the computer promises to get faster, enabling it to play an ever deeper game.

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