Reptile Time

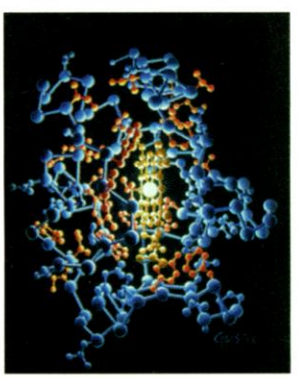
You've probably heard about the plight of the poor amphibians, which researchers fear are in worldwide decline due to pollution and habitat destruction. But what about the reptiles? The scaly ones have been badly ignored, according to herpetologists and others who held a daylong forum earlier this month in Nashville at the meeting of the Society of Environmental Toxicology and Chemistry.

"Reptiles are underrated and underexplored," says J. Whitfield Gibbons, a herpetologist at the University of Georgia, Athens. "Even biologists aren't that familiar with them." Bill Hopkins of the University of Georgia's Savannah River Ecology Laboratory, who is studying the effect of pollutants on aquatic snakes, says, "Of the thousands of studies on vertebrates in toxicology, less than 1% are on reptiles"—even though turtles, snakes, lizards, and crocodilians make up 20% of vertebrate species. Noteworthy exceptions are studies of pollution-caused alterations of sex hormones in alligators of Florida's Lake Apopka and effects of organic contaminants on snapping turtles around the Great Lakes.

Scientists are now pushing for more attention to reptiles. Some species live up to 60 years, so they could yield valuable information on cumulative exposure to toxins, says Hopkins. But they're harder to sample because they don't tend to congregate during breeding bouts, and many live underground. At this point, says Hopkins, "we really don't know anything about their responses to contaminants."

Contaminants around the Great Lakes affect snappers' sexual development.

Molecular Seer



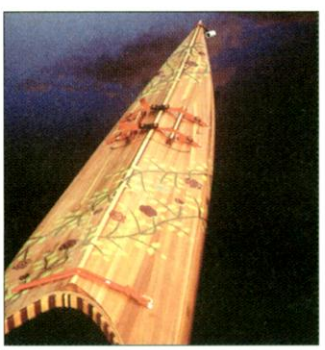
This drawing of a cytochrome C molecule—done without benefit of computer—is part of a collection of 700 illustrations by longtime biological illustrator Irving Geis that was recently purchased for $500,000 by the Howard Hughes Medical Institute (HHMI).

Geis plied his unique ability to visualize complex three-dimensional structures from the early '60s, when the first molecular structures were solved, until shortly before his death in 1997, producing hundreds of pictures of DNA, hemoglobin, myoglobin, and other key compounds. His work is now acclaimed not only for its accuracy and beauty but for its visionary quality. "Geis set standards for depiction of macromolecules that, consciously or unconsciously, influenced the design of the computer programs that are ubiquitous today," says protein crystallographer Richard E. Dickerson of the University of California, Los Angeles. "He was the Leonardo da Vinci of protein structure." Part of the collection is now on display at HHMI headquarters in Chevy Chase, Maryland.

Kayaking for the Cure

We march for breast cancer, we run for AIDS; now we can paddle for Rett syndrome. Clark Eid, whose daughter Amanda suffers from this devastating inherited neurological disorder, has organized what he claims is the world's longest kayak race—down the entire Mississippi River—to raise $1 million for research.

Eid, a medicinal chemist at Bristol-Myers Squibb in Stamford, Connecticut, has built a racing kayak with a double helix overlaid in wood winding around it. DNA bases are represented by 120 roses arranged into 20 codons that, when translated into their amino acids, spell out "Amanda's dreamkeeper." The 23-day race will start next May in Minnesota's Lake Itasca, ending 3600 kilometers later in the Gulf of Mexico. So far 14 U.S. and Canadian teams have signed up for the race with $2500 pledges to the Rett Syndrome Research Foundation (see www.dreamkeeper.org).

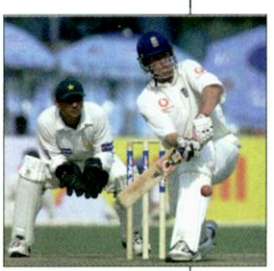


Eye Off the Ball!

To be a successful batter, a coach will tell you, always keep your eye on the ball. But that may not always be the best advice, at least in cricket, U.K. researchers have found.

Michael Land, a neuroscientist at the University of Sussex, Brighton, used a head-mounted camera to observe the eye movements of three cricket batters of varying skill. A bowling machine pitched balls, which usually bounce before batters take a swipe at them, while Land's team recorded the batters' eye movements.

All three batters made rapidly shifting, or saccadic, eye movements after watching the machine spit out the ball, switching their gaze to where they anticipated it would hit the ground. "They're essentially lying in wait for the bounce," says Land. The better hitters had more rapid saccadic eye movements, the researchers discovered. In other words, the faster they took their eyes off the ball, the more likely they were to make solid contact. The batters themselves had no idea what their eyes were doing and "were really quite surprised," Land says.



On the pitch.

Mary Hayhoe, a neuroscientist at the University of Rochester, New York, notes that batting skill is more than just a question of fast eye reflexes but also "how people learn to deploy their gaze."

CREDITS: (TOP) DAVID SCOTT/SREL; (MIDDLE LEFT) IRVING GEIS; (MIDDLE RIGHT) PHOTODISC; (BOTTOM) CLARK EID