Mosaic from Ur, Iraq, circa 2600 B.C. (detail)

Creative Destruction

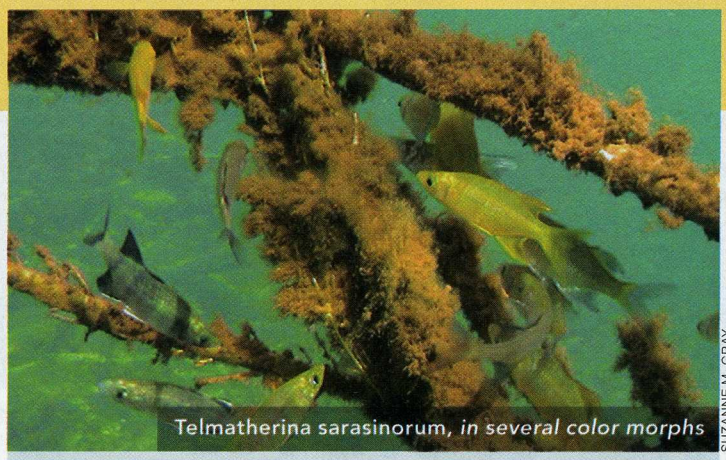
The seats of ancient civilizations were great meeting places. Trade routes, ideas, and cultural currents converged there—as did tectonic plates, says archaeological geologist Eric R. Force of the University of Arizona in Tucson.

On a map of the Eastern Hemisphere, Force overlaid the locations of plate boundaries and the founding cities of thirteen ancient civilizations. He discovered that eleven of the thirteen fell within 120 miles of the Eurasian plate's southern boundary—too many, and too close, to be just coincidence. (Among the eleven cities were Rome, Corinth, Mycenae, Jerusalem, Ur in Iraq, and Hastinapura in India; the two exceptions were Memphis in Egypt and Zhengzhou in China.)

The great plates of the Earth's crust collide at tectonic boundaries, which often feature active volcanoes, earthquakes, and large water springs, and which parallel seacoasts for long stretches. Some of those features would seem to obstruct cultural advancement, others to help; whether any, alone or in combination, can explain why civilizations tend to arise near tectonic boundaries remains subject to speculation.

Force points out one intriguing possibility: that frequent shake-ups by earthquakes, tsunamis, or other natural disasters destroy the old, making way for improved infrastructure and new customs. The seats of civilizations that sprang from older civilizations hugged tectonic lines more closely than the seats of self-generating societies, he found. Similarly, the farther a civilization was from a boundary, the longer it endured. (*Geoarchaeology*)

—Stéphan Reebs



Telmatherina sarasinorum, in several color morphs

SUZANNE M. GRAY

Games Fishes Play

He's quite handsome and he's got all the right moves. He looks foreign, but his courtship is intoxicating. You decide to spawn with him—oh, yes, I forgot to mention, you're a female fish—and then, the horror! Instead of fertilizing your eggs, the little devil eats them!

Such are the games sailfin silversides play. Several species of the small, brightly colored fishes inhabit the Malili Lakes of Sulawesi, Indonesia. Suzanne M. Gray, now at Queen's University in Kingston, Ontario, went to Indonesia in 2003 and 2004 to study one of them, *Telmatherina sarasinorum*, which lives only in a single lake. Now she and three colleagues report four sightings of *T. sarasinorum* males that each followed a courting pair of the closely related species *T. antoniae*, and that eventually chased off the courting male, took his place, enticed the female to spawn, and then devoured her eggs.

An unrepentant cannibal, *T. sarasinorum* regularly eats eggs of its own species, as well as those of others. Some males even gobble up eggs they may have fertilized themselves, especially when their paternity is in doubt (cuckolders abound in this decidedly sneaky species). So perhaps the false courtship is nothing more than a misdirected innate behavior followed by a normal caviar meal. It's tempting, however, to see the dastardly deed as a Machiavellian attempt by one fish to deceive another to get food. (*Journal of Fish Biology*)

—S.R.

How to Harvest a Harvester

Harvester ants are among the most aggressive and venomous stinging insects known. Although their stings, in quantity, can kill, the horned lizard captures harvesters by the dozen—in a typical lizardlike manner. What comes next, however, doesn't conform to typical lizard table manners.

Mucus-bound harvester ant from a horned lizard's stomach

WADE C. SHERBROOKE

Most lizards bite and chew their prey before swallowing, but after nabbing one of the nasty ants with its long tongue, the horned lizard rolls its snack straight into its esophagus, merging intake, transport, and swallowing into a single thirty-millisecond move. Using high-speed videography, Wade C. Sherbrooke of the American Museum of Natural History's research station in Portal, Arizona, and Kurt Schwenk of the University of Connecticut in Storrs revealed that remarkable process. But if horned lizards don't kill harvester ants with their teeth, how can they possibly avoid getting bitten and stung as their pugnacious meals go down the hatch?

The lizards' stomach contents provided the answer. Sherbrooke and Schwenk found the ants enveloped in mucus—their mandibles, limbs, and stingers completely immobilized. The goo, the scientists discovered, is produced in specialized cells distributed on the reptilian ant eater's tongue, larynx, trachea, and pharynx.

The horned lizard's feeding mechanism and anatomy are unique among lizards—as is its taste for harvester ants. You've got to get creative to deal with food that fights back. (*Journal of Experimental Zoology*)

—Graciela Flores

Texas horned lizard