

Little shop of horrors for protozoa

For the first time, botanists have found a carnivorous plant that preys on protozoa.

The discovery ends considerable puzzlement over lifestyles in the genus *Genlisea*. Discovered at the beginning of the last century, these rare plants form tiny rosettes of leaves on the ground and send up flowers that look like snapdragons. Darwin guessed that the wad of pale, rootlike strands trailing underground from the rosette might trap some kind of creature. "But it's underground—what could it catch?" asks Wilhelm Barthlott of the University of Bonn in Germany.

The plants can survive in soils so poor in nutrients they're practically glass, like Brazilian quartz sands. Yet even in these extremes, a *Genlisea* typically sports showy flowers, a bit like the tax cheat living too well for his or her known resources. "It has to have an additional source of income," jokes Barthlott.

These dainty beauties are actually specialized death traps for protozoa, Barthlott and his colleagues report in the April 2 NATURE. Y-shaped forks at the tips of the underground strands secrete chemicals that attract protozoa, say the researchers. They found that paramecia streamed to cubes of agar which had picked up the attractants from contact with the strand ends. This is the first example of a carnivorous plant secreting a chemical lure, says Barthlott.



A carnivorous *Genlisea* trails strands below ground that end in traps for protozoa.

—S.M.

The first of the ultraviolet lovers

There may be more to the sexual displays of the blue tit than meets the eye—the human eye, that is. Birds can see ultraviolet wavelengths that are invisible to humans, and that bird's eye view of feathers may help solve a mystery about mate selection in this European species.

Human bird-watchers have great difficulty distinguishing male from female blue tits, not to mention one individual from another. Their apparent similarity troubles ornithologists because female blue tits tend to pick out the healthiest males when nipping off for a break from their regular mates. Researchers have speculated on how females judge stud potential and whether males have some feature as sexy as a peacock's tail that offers clues.

Earlier studies suggested that females compare males' songs, but now two research teams report that plumage differences showing up mainly at ultraviolet wavelengths may also separate sought-after males from losers. The two plumage analyses appear in the March 22 PROCEEDINGS OF THE ROYAL SOCIETY OF LONDON B.

Under ultraviolet light, male crests may be a different "color" from female crests, report Sarah Hunt of the University of Bristol in England and her colleagues. Females do seem to pay attention to this bit of plumage. When seven females were offered a choice of two males in lab experiments, they picked the guy with the brightest ultraviolet crest.

Staffan Andersson and his colleagues at the University of Göteborg in Sweden found that wild birds seem to prefer mates whose high-ultraviolet plumage makes them stand out most clearly against a forest landscape. He calls ultraviolet differences in plumage "the first, but probably not the last, example of 'hidden' sexual dimorphism in birds."

—S.M.

Getting to the guts of a dinosaur

Italian paleontologists have identified a dinosaur fossil so well preserved that it displays the intestine, muscle fibers, and perhaps even the liver of a beast that died 113 million years ago.

An amateur fossil hunter found the specimen near Naples, mistook it for a bird, and tried to sell it illegally. After watching the movie *Jurassic Park*, he recognized it as a dinosaur and turned it over to authorities. Cristiano Dal Sasso of the Civic Museum of History in Milan and Marco Signore of the University of Bristol in England have studied the fossil and report their findings in the March 26 NATURE.

The specimen, only 24 centimeters long, represents a young dinosaur just hatched from its egg before it died. The animal was a bipedal carnivore from a previously unknown species, which the researchers named *Scipionyx samniticus*. It is related to a group of agile predators called maniraptorans.

The fossilization process normally preserves only hard body parts, such as bones and teeth. In the case of the Italian dinosaur, the animal died and was washed into oxygen-deprived waters, where sediment quickly buried it. The exceptional quality of the Italian find makes it one of the most important fossil vertebrates ever discovered, say the scientists.

From studies of the soft body parts that have been preserved, scientists may learn more about the physiology of dinosaurs. The specimen's gut is relatively short but wide, indicating that it may have absorbed nutrients quickly, in a manner similar to that of birds, Signore told SCIENCE NEWS.

In the future, he and Dal Sasso plan to take a closer look at the fossil with an electron microscope, possibly even probing inside the gut to explore its contents. The researchers also discovered a reddish, iron-rich patch behind the animal's sternum that they think is its liver.

—R.M.

On the line from dinosaurs to birds

Scientists who support the idea that birds evolved from dinosaurs are clucking over newfound fossils from Madagascar and Mongolia. These extremely primitive birds date from about 70 million years ago, in the Cretaceous period, and retain many characteristics of their dinosaurian ancestors, researchers say.

The Madagascan fossil, *Rahona ostromi*, has a mosaic of features belonging to birds and theropod dinosaurs, according to Catherine A. Forster of the State University of New York at Stony Brook and her colleagues. Although they had discussed their find at meetings (SN: 8/23/97, p. 121), the researchers named the species in the March 20 SCIENCE.

The raven-sized *Rahona* specimen has a perching-style first toe resembling that of other birds. Moreover, its arm bone has knobs where feathers were attached in life. Yet the animal also displays a large sickle-shaped second toe—a weapon that certain dinosaurs used for slashing their prey.

"This is clearly one of the most important documents of the transition from dinosaurs to conventional birds," says Lawrence M. Witmer of Ohio University in Athens.

The Mongolian bird, *Shuvuuia deserti*, was described in the March 19 NATURE by Luis M. Chiappe of the American Museum of Natural History in New York and his colleagues. They identify the animal as a close relative of the Mongolian creature *Mononykus*, which has aroused debate among researchers. Chiappe and his colleagues consider the dinosaurlike *Mononykus* a primitive bird, whereas opponents of the bird-dinosaur link identify it as a dinosaur wholly unrelated to birds.

Shuvuuia has a well-preserved skull, something missing from the known *Mononykus* fossils. The skull lends support to the theory that *Mononykus* is a primitive bird because it has many avian features, including a hingelike joint on its snout just in front of its eyes, report Chiappe and his colleagues.

—R.M.