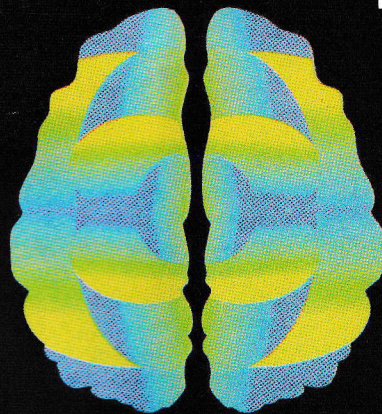
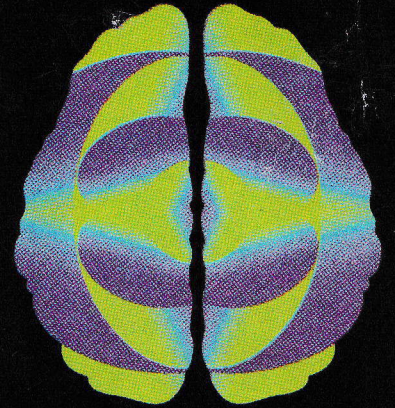
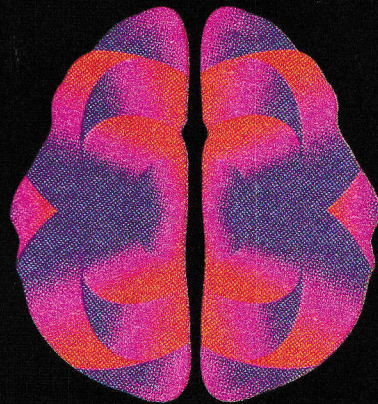
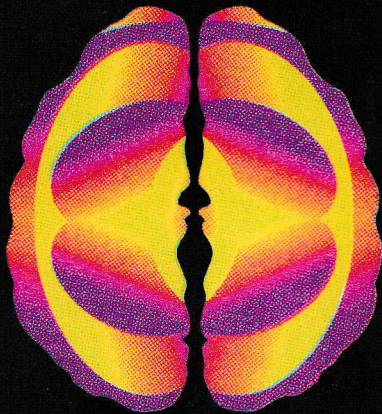


# SCIENTIFIC AMERICAN

Mirror Cells Could Destroy Life on Earth

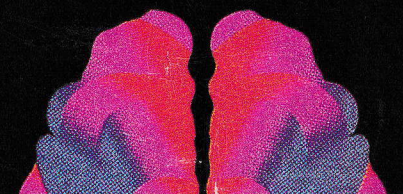
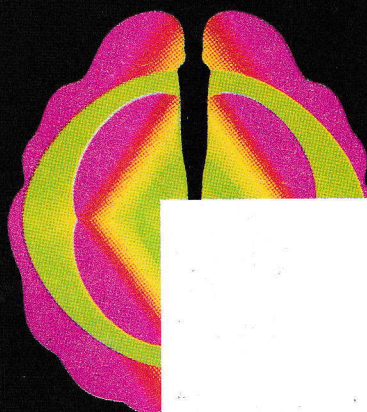
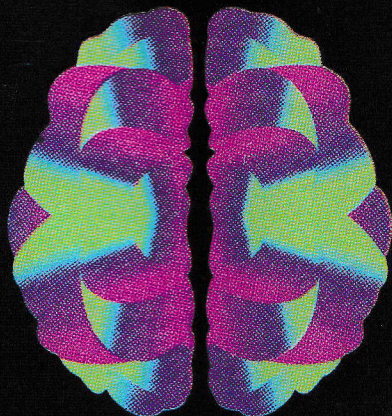
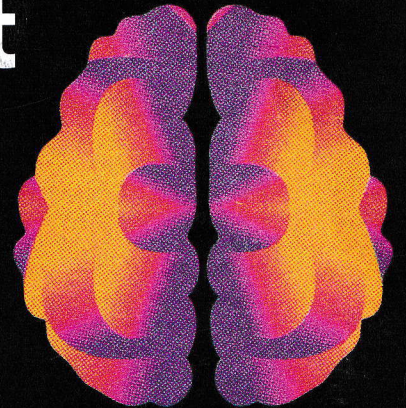
The Art World's Battle with Mold

The Search for the First Stars



## The Hardest Problem in Science

Will brain science deliver answers about consciousness or hit another wall?



ANIMAL BEHAVIOR

# Spider Illusionists

These webs appear to host their inhabitants' doppelgängers

## WHAT'S SCARIER THAN A SPIDER?

A really big spider, of course. A new-found defensive tactic takes advantage of this idea: researchers documented spiders building giant spiderlike silhouettes on their webs to ward off predators.

These decoys are an example of "web decorations" that some spiders are known to produce, often to prevent getting eaten, avoid bird strikes or attract prey. Such ornaments come in many shapes and sizes, but this is the first time scientists have documented spider-shaped decor.

From 2012 to 2022 a research team collected observations of these unusual webs in Peru, the Philippines and Madagascar, focusing on about 300 individuals from the genus *Cyclosa* that are typically only a few millimeters long. The researchers published their findings in *Ecology and Evolution*.

The spider doppelgängers are made of prey carcasses, plant debris, and other organic materials. They have a central structure from which "legs" branch out. The team proposes that the construc-

tions serve primarily as a defense from predators such as hummingbirds or helicopter damselflies. But different species might use them in different ways.

In Peru, the spiders seem to use the decoys "as puppets," says study co-author Phillip Torres, an entomologist and television host. "They will be on the top of the figure, and they shake the web, so they are pretending to be a bigger spider." Small predators might be scared by a larger spider, and predators that specialize in eating the real, smaller arachnid might want to avoid a supersized one. In the Philippines, the spiders seem to instead hide inside the structure and wait for the predator to go away.

Dinesh Rao, an ecologist at Veracruzana University in Mexico, who wasn't involved in the study, emphasizes that figuring out the constructions' precise function requires more research: "You need either careful observations or experimental conditions where you actually look at how [predators] respond to these structures."

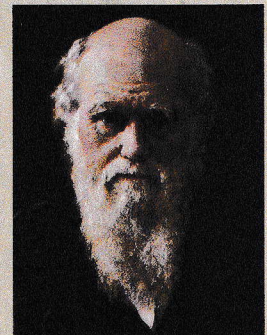
—Gennaro Tomma



This spiderweb structure presents the illusion of an intimidating bigger spider.

Richard Kirby

## IN SCIENCE WE TRUST



Charles Darwin

Born February 12, 1809

### Celebrate Darwin Day

Stand up for pro-science and evidence-based public policy.

Join the nation's largest association of freethinkers (atheists, agnostics, humanists) working to keep religion out of government.

Call 1-800-335-4021



Get a FREE trial membership & bonus issues of Freethought Today, FFRF's newspaper.

FREEDOM  
FROM RELIGION  
*foundation*

FFRF.ORG

FFRF is a 501(c)(3) educational charity.  
Deductible for income tax purposes.