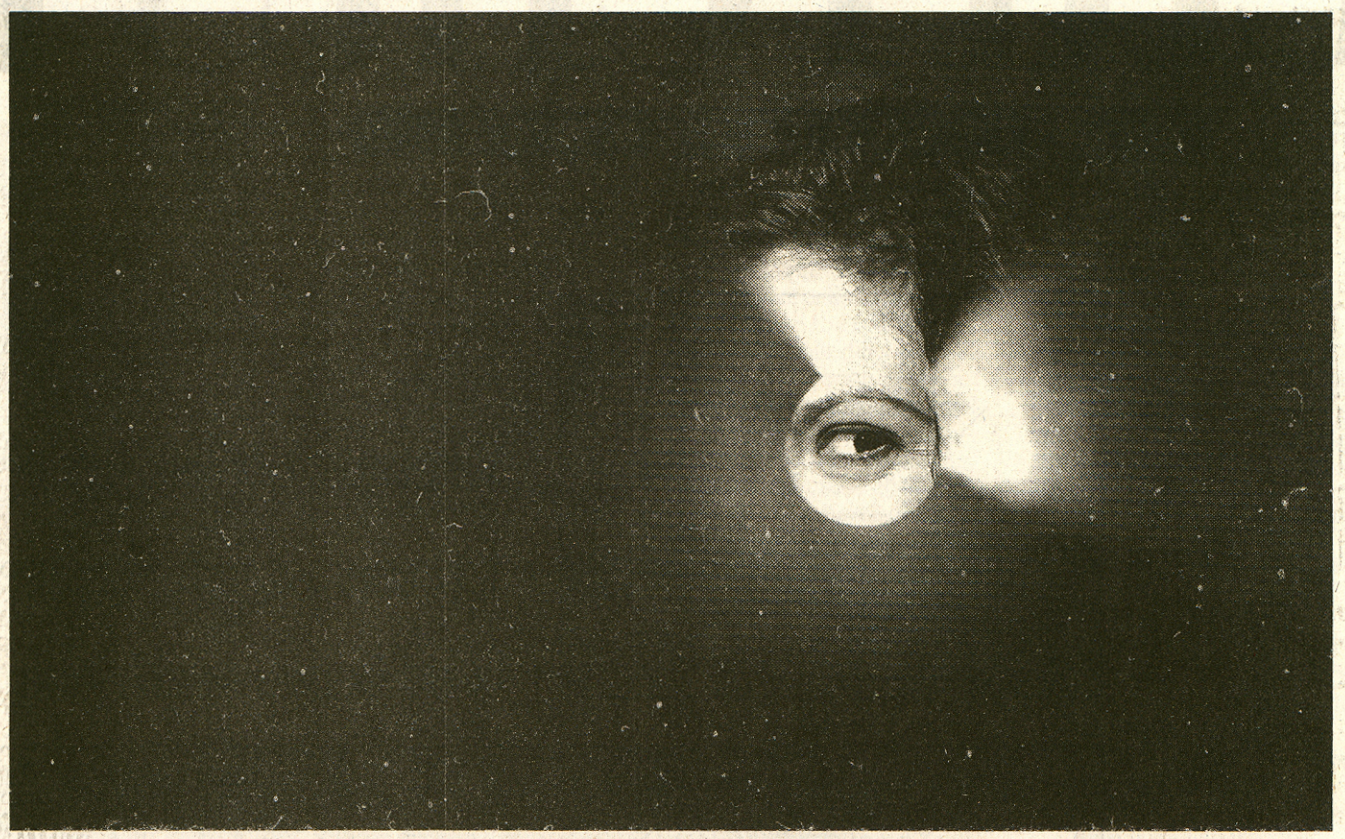
What a day...

EXTRAORDINARY MOMENTS IN ORDINARY LIVES



Attention, bees: Megan Eckles is keeping an eye on you and your "optic flow." *Howard Lipin / Union-Tribune*

How do you get from point A to point Bee?

By Peter Rowe
STAFF WRITER

The day? May 25, 2005

What happened? Megan Eckles tried to frustrate a band of bumblebees.

Why? Megan, who is earning a Ph.D. in animal behavior at UCSD, is studying how bumblebees discern distance.

Um, why? Suppose a bee finds some tasty pollen. After winging back to the hive, that bee has to remember how to return to that pollen.

Why is this so mysterious? Bees lack maps, compasses and odometers. "We didn't know how they knew how far to fly."

Terrific vision? No. "They have very poor depth perception. What they see is like a newspaper print with lots of pixilation."

OK, Ph.D. candidate, what's your theory? "Optic flow."

What's that? The bees recognize "the visual texture that pans below them."

Where do you test this theory? In a "flight arena."

Sounds big. Is it? No. It's a clear plastic Tupperware container, 28 inches long by 16 inches across and 24 inches deep. Inside, there's a tube that is lined with black and white squares.

Like a crossword puzzle? Yes. "But the pattern has been randomized."

Why is that important? "There are no landmarks for the bees to fixate on."

Except for some sugar, right? Right. For three months, the bees found a sucrose solution awaiting them at the same intersection of black and white squares. "The only input they get is the visual texture of the pattern."

Then what? She replaced the pattern with an identical one, only the squares are twice as large. "You would think that now they only go twice the distance."

And? "What's exciting, it looks like they really do!"

Is that it? No. She also shrunk the pattern to half its original size.

And what happened then? "They went half as far."

How great is that? In bee research circles, this is sweet. "These are significant results. It's publishable data."

That morning, what did Megan have for breakfast? "Coffee. Espresso, black. I'm not a breakfast person."

Have you had an extraordinary day? Contact **Peter Rowe** at (619) 293-1227 or peter.rowe@uniontrib.com