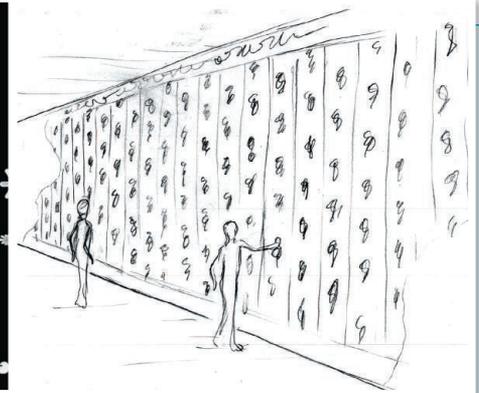


Random Sample

Wallpaper as Art and Science

The studio of Pittsburgh artist Natalie Settles is located in the lab of evolutionary geneticist Stephen Tonsor at the University of Pittsburgh in Pennsylvania. Her art—painting Victorian era wallpaper—has also taken an unusual turn since she and Tonsor received \$35,000 last year from the Heinz Endowments and Pittsburgh Foundation. The grant is spawning an interactive exhibit with a computer program that carries out digital evolution experiments.

Settles has modified her wallpaper approach to include motifs that, like organisms, evolve by changing in space and over time. The motifs have 80 genes that build upon simple geometric designs to create thousands of unique designs. If a viewer touches a motif, that motif's "fitness" will increase; when it comes time to reproduce, the fitter motifs will



generate more offspring. Over time, the wallpaper will take on ever more inviting motifs. In addition, Tonsor hopes that other researchers will use the program to explore additional parameters of evolution.

Settles discussed the project last week at Evolution 2013 in Snowbird, Utah, and art museum directors and potential funders will get a glimpse of it this fall. Tonsor and Settles hope to have the work on display by early 2014.

>>FINDINGS

The wires are still too small to be used in computers. But the scientists say that they may be useful for touch screens and novel magnetic sensing devices.

Monarchs Medicate Their Young

For the monarch butterfly, milkweeds are a multipurpose plant. When ingested, their toxins not only make the insect unpalatable to birds and other predators, but they also fight infection, says Jacobus de Roode, an evolutionary biologist from



Overloaded. An overly infected monarch can't emerge from its cocoon.

Emory University in Atlanta.

De Roode discovered that different milkweed species reduce protozoan growth in caterpillars to varying degrees in proportion to the amount of toxin they produce. Caterpillars don't seem to know this, but the adults do, De Roode reported last week at Evolution 2013 in Snowbird, Utah. By a 2-to-1 margin, infected adult butterflies choose to lay eggs on the milkweed that will most retard protozoan growth, thus medicating their young. "Just the idea that they are selecting plants to fight the parasites of their offspring is really cool," says evolutionary biologist Curtis Lively of Indiana University, Bloomington.

Map Offers Millennium Of Earthquake Records

Researchers meeting last week in Pavia, Italy, were presented with a new worldwide seismic database based on tens of thousands of earthquake records stretching back more than 1000 years. The Global Earthquake Model (GEM) Foundation, which supported the research largely with contributions from insurance companies, says that the database is part of a push to make the long-fragmented field of earthquake forecasting more open and systematic.

"Everyone knew we needed to do this," says GEM's co-founder, Ross Stein, a seismologist with the U.S. Geological Survey. "No one was willing to put the money up.

BY THE NUMBERS

32% Fraction of global biodiversity in the 40 countries with the greatest shortfall in conservation funding, according to an analysis in the *Proceedings of the National Academy of Sciences* online this week that estimates the world spent about \$21.5 billion a year on global biodiversity last decade.

\$977 billion The economic burden of childhood lead exposure in low- and middle-income countries. The toll represents 4% of the gross domestic product for African countries and nearly 2% for Asian nations, according to a paper by New York University researchers in *Environmental Health Perspectives*.

GEM did." Other GEM projects include a global map of tectonic strain and socioeconomic studies aimed at estimating potential casualties and damage from future quakes.

While geoscientists welcomed the effort, some cautioned that no amount of data can overcome the deep uncertainties inherent in Earth faulting processes. <http://scim.ag/GEMseismic>