# SCIENTIFIC AMERICAN

# **CONTENIDO**

## VOLUME 303 No. 4 OCTOBER 2010

### **FEATURES**

#### **EVOLUTION**

## 40 How We Are Evolving.

Human evolution may be taking a different course than biologists expected. *Jonathan K. Printchard.* 

#### **ASTRONOMY**

# 48 Origami Observatory.

NASA's replacement for the Hubble Space Telescope will need to unfold perfectly in deep space.

Robert Irion.

#### **EXCLUSIVE POLL**

#### 56 In Science We Trust.

In our Web Survey, readers show strong support for science — with some notable exceptions.

### **MEDICINE**

# **Revolution Postponed.**

The medical miracles of the Human Genome project have yet to appear. Biologists are divided.

Stephen S. Hall.

#### **PHYSICS**

### The (Elusive) Theory of Everything.

Physicists searched for a single theory. Instead they found several. *Stephen Hawking and Leonard Mlodinow*.

### **ROBOTICS**

## 72 Robot Be Good.

Independent-minded machines will soon live and work among us. It's time they learned how to behave.

Michael Anderson and Susan Leigh Anderson.

## **BIOLOGY**

# 78 Sensational Sucker.

No mere suction cup, the octopus sucker can fell, taste, grip — and act of its own accord.

Frank W. Grasso.

#### **MIND**

# 80 Desperate for an Autism Cure.

Diagnoses have skyrocketed, but valid treatments are virtually nonexistent. *Nancy Shute*.

#### **ENERGY**

# **Reinventing the Leaf.**

The ultimate liquid fuel may come not from corn or algae but directly from the sun itself.

Antonio Regalado.

### **INFORMATION SCIENCE**

# 90 Digitizer in Chief.

U.S. information czar Vivek Kundra wants to put all the government's data on the Web.

Michael Moyer.

# **DEPARTAMENTS**

#### **8** From the Editor

#### 10 Letters

# 14 Science Agenda.

A simple way to improve Internet service.

The Editors.

#### 16 Forum.

The national smart grid is shaping up to be dangerously insecure. *Melissa Hathaway*.

### 18 Advances.

Giant supernovas. Shrunken protons. Why squid Fly. Saving the cocoa crop. Eluding clocked GPS signals. A sniff controller for the disabled. Rice paddy art.

### 34 The Science of Health.

Expanding primary care may be the best way to resolve chronic disparities in health care.

Christine Gorman.

# 38 TechnoloFiles.

To find the best answers, digital services are turning to actual humans. *David Pogue*.

#### 96 Recommended.

Mummies of the world. What technology wants. *Kate Wong*.

## 98 Skeptic.

Physics shows that cell phones cannot cause cancer. *Michael Shermer*.

# 100 Anti Gravity.

Why hurricanes like cities. *Steve Mirsky*.

# 102 50, 100 & 150 Years Ago.

# 104 Graphics Science.

The skinny on obesity's consequences. *Mark Fischetti*.

# On the Cover

Humans are still evolving, but apparently not always the classic way not as quickly as some recent finding have suggested. Scientists say that we are thus more likely to combat the problems of the coming millennium with culture and technology than to evolve biological defenses against them. Photograph by *Craig Cutler*.