

er hurricane or not to allow people to build in areas that are subject to natural calamities while expecting the taxpayers or insurance companies to help them rebuild after every devastating storm.

Harold A. Climer
Department of Physics, Geology
and Astronomy
University of Tennessee at Chattanooga

NEW LOOK AT ANCIENT GENES

After reading the article by John S. Matick—"The Hidden Genetic Program of Complex Organisms"—I have come to believe the attitude toward noncoding sequences in the human genome must change. Although it might take much effort and time to decipher rules governing RNA shape and function, the fact that at least some noncoding regions are preserved during evolution might help. These regions should be checked in persons who have an increased risk of some types of cancer or other chronic diseases of uncertain etiology. It is possible that some genetically unexplained diseases result from a combination of defective genes and defective noncoding genomic regions.

Sven Kurbel
Osijek Clinical Hospital
Croatia

BETTER VOTING?

In his article "Fixing the Vote," Ted Selker discusses the danger of fraud in touch-screen voting machines. The problem is that the voter has no way of knowing whether his or her choices shown on the screen are the ones the machine registers. The remedy urged by most computer scientists is a printout, which, after verification by the voter, drops visibly into a ballot box.

Selker criticizes this and offers as a "better option" an auditory verification heard through earphones. But this suffers from exactly the same defect as the touch screen: How do you know that the message you hear is the same one recorded on tape? Answer: you don't.

Frank W. Sinden
Princeton, N.J.

SELKER REPLIES: The illustration of the audio-verification scheme fell just short of showing an ideal version of that system. The earphone wires should come from the tape recorder, which should be visible to the voter. That arrangement allows the voter to visually verify that the audio he or she hears is the same as that recorded on the tape. The off-the-shelf nature of the recording device eliminates the possibility of a fraudulent voting record.



ELECTRONIC VOTING MACHINE—Diebold Election Systems's AccuVote TSX—was decertified in California.

CLARIFYING TRANSPARENCY

I imagine it isn't often that the very first sentence of a *Scientific American* article contains a factual error. Nevertheless, it occurs in "Dying to See," by Ralf Dahm, who writes, "The lens of the eye is the only transparent tissue in the human body." Isn't the cornea, the tissue through which light must first pass before it enters the lens, also transparent?

Greg Martin
via e-mail

DAHM REPLIES: It is correct to say that the cornea is transparent (as I pointed out later in the article). Yet with a thickness of only about half a millimeter, the cornea is considerably thinner than a lens. Most important, the transparency of the cornea is not cellular, as in the lens. The cornea comprises only about five layers of epithelial cells, including the outer surface, a monolayer of cells inside and a few scattered fibroblasts between these two. This compares with the

1,000 or so cell layers in a lens. As a consequence, cornea cells do not have to develop any of the radical specializations found in lens fiber cells.

Nevertheless, the cornea's transparency is not trivial. The bulk of the cornea is made up of collagen fibers, with complex sugar molecules filling the spaces in between. The fibers have a very regular diameter and are precisely aligned to minimize light scatter. Moreover, the amount of water in the cornea is tightly controlled to ensure its transparency.

FAITH-BASED GENES

Carl Zimmer's analysis of *The God Gene*, by Dean Hamer [Reviews], was refreshingly commonsensical and humorous, just as the book deserves. Science often suffers in journalism, with radical scientists' ideas getting most of the attention. Between the skeptics' view that all theories that challenge established science must be rejected and the tendency of others to rush to press with preliminary results, it is easy to lose sight of the largely unrecognized diligent work of ordinary scientists. The search for knowledge usually does not lead to fame.

Lisa Michels
Vancouver, Wash.

ERRATA In Francis Crick's obituary on page 41, the title of his and Christof Koch's September 1992 *Scientific American* article was incorrectly identified. The actual title is "The Problem of Consciousness."

In "The Myth Is the Message," by Michael Shermer [Skeptic], the distance from Athens to the ruins of Helice, Greece, was given as 40 miles. They are about 100 miles apart.

In an unfortunate oversight, India was excluded from the world map in "Energy Geopolitics," by Rodger Doyle [By the Numbers]. With natural gas reserves of 30.1 trillion cubic feet, or 0.5 percent of the world total, it would have been an unhighlighted country.

In the "Brief Points" about cinnamon oil's ability to kill mosquito larvae, the nonlethal insect repellent DEET was incorrectly identified as an insecticide.