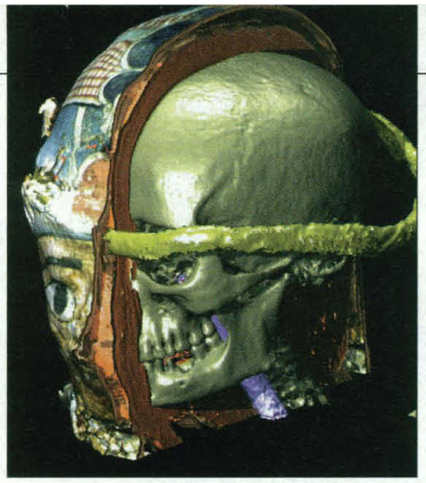
NETWATCH

edited by JOCELYN KAISER



COOL IMAGES

Mummy Unwrapped

Using computers rather than scalpels, a team of scientists at the University of Hamburg in Germany has dissected a 2300-year-old female Egyptian mummy (above). (The orange layers are linen, and the yellow cord is woven rush stems that symbolized having passed judgment.) A decade ago the group began sliding the mummy into computer tomography scanners, then combining and coloring the resulting image slices. At their Virtual Mummy site,* you can roll your mouse over the mummy's head and peel away layers, down to the resin that embalmers poured into the back of the skull. Also worthwhile, if grisly, are the team's vivid reconstructions of the Visible Human data set.

* www.uke.uni-hamburg.de/virtualmummy

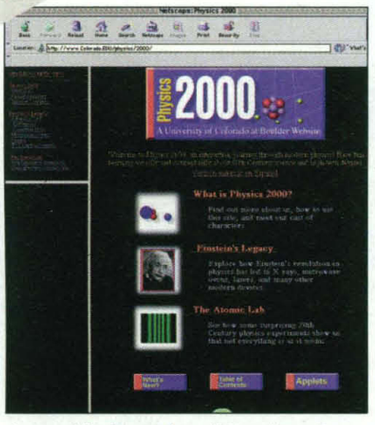
SITE VISIT

Applets of a Physics Prof's Eye

In books like *Mr. Tompkins Explores the Atom*, which was first published in 1944, the scientist George Gamow used dialogue, amusing scenarios, and his special brand of hand-drawn graphics to explain physics to a wide audience. If Gamow had access to Java applets—Web-based routines that allow for animation and interactivity—he might have come up with something like the Physics 2000 site.

Conceived by Martin V. Goldman, a physicist at the University of Colorado, Boulder (where Gamow worked for many years), the site is built around a number of clever Java "experiments" that students can adjust and set in motion. In one 3D experiment, for example, knobs control the magnetic-field strength and electron-beam intensity in a TV's cathode ray tube. Another shows how standing waves create "hot spots" in microwave ovens. There's even a series of applets that shows how laser cooling produces Bose-Einstein condensates—a bizarre, low-temperature state of matter that was first created in physics labs only a few years ago.

www.Colorado.EDU/physics/2000



A roster of cartoon characters then explains the physics. The sometimes wooden dialogue still can't match that of *Mr. Tompkins*, where a valence electron sings: "If you want a partner fair/Jump into chlorine and find one there." But then, Gamow didn't have Java.

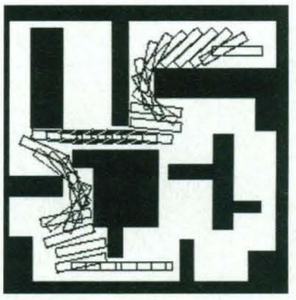
For still more advanced physics experiments using Java—but without the dialogue entirely—check out the site operated by astronomer Gregory Bothun of the University of Oregon, Eugene (jersey.uoregon.edu/vlab).

HOT PICKS

Genes and their jobs. Hoping to speed genome breakthroughs to the clinic, the American Physiological Society last week launched *Physiological Genomics*, an electronic journal on genes and function that will feature "large data sets" and "dynamic formats" not possible in print. (A paper version will later be published for archiving purposes.) Access is free until next February. Also debuting is a Web-based system for submitting manuscripts. www.physiolgenomics.org

Menacing mold. Causing everything from asthma attacks to life-threatening growths in the lungs, *Aspergillus fumigatus* is one of the world's most pernicious fungal health threats. This site aimed at lab scientists and clinicians offers aspergillus lab protocols, a reference database, and info on genes and drug trials. www.aspergillus.man.ac.uk

Shape of things to come. The patterns of snowflakes, soap bubbles on a wire frame, and etchings on silicon computer chips can all be described by numerical techniques for tracking moving boundaries. A Berkeley math professor uses Java applets and movies to show how such algorithms can be used to extract a liver's shape from a medical scan, guide a robot through an obstacle course, and more. www.math.berkeley.edu/~sethian/level_set.small.html



SITE VISIT

School for the Stars

Like two giant galaxies passing in the dark, scientists and schoolteachers often go about their work without ever making contact. For astronomy and astrophysics at least, the education Web page of the Astronomy Society of the Pacific (ASP) powerfully bridges this gap.

Although valuable for anyone with an interest in the cosmos, the site connects best with college astronomy instructors and precollege educators, who may be a bit nervous about teaching the subject. It offers links to the society's flagship education efforts: ASTRO, which brings teachers and astronomers together in classrooms for grades 4–9; and SOFIA, which hooks teachers up with NASA's Stratospheric Observatory for Infrared Astronomy project. The ASP pages also provide a galaxy of links to teacher resources and hands-on project ideas. Among the most popular parts of the site are a newsletter for teachers and a section debunking astronomical pseudoscience, such as astrology and the "face" on Mars. "There is a lot of nonsense on the Web, especially about outer space," notes former site director Andrew Fraknoi. "The ASP site prides itself on being a source of reliable information."

www.aspsky.org/subpages/education.html