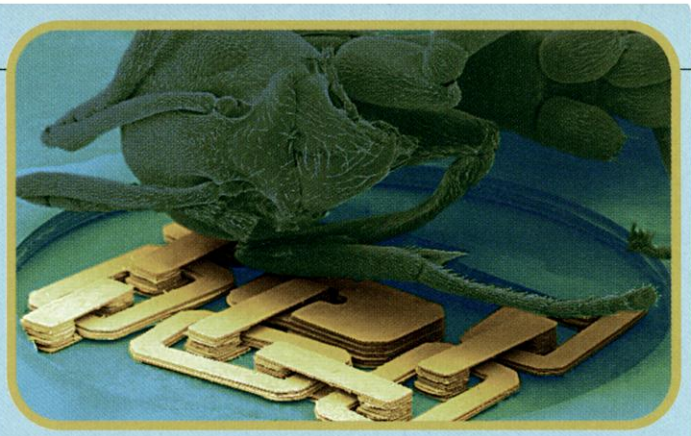
NETWATCH

edited by JOHN S. MACNEIL



RESOURCES

The Skinny on MEMS

MEMS, or microelectromechanical systems, have traditionally performed such vital automotive functions as measuring engine oil pressure, antifreeze temperature, and even triggering an air bag in the event of an accident. To find out what's new in the MEMS field, such as how one company is developing a microdevice that can monitor the eye pressure of patients with glaucoma, visit the MEMS Clearinghouse.

In addition to industry news, compiled from press releases by Web master Peter Will at the Information Sciences Institute (ISI) of the University of Southern California, the clearinghouse also carries meeting and job announcements, and even allows job seekers to post their résumés. Researchers and graduate students may wish to look up dielectric constants or densities in the MEMS Material Properties Database or subscribe to the MEMS-EDG e-mail discussion group. To find contact information for companies, tools, research centers, and other MEMS services, search or browse the "yellow pages."

The site also links to images, such as this ant (yes, it's dead) lying on top of a nickel chain fabricated by electrochemical plating at ISI. Although the device has no function, says Adam Cohen, a former project leader at ISI, it demonstrates how three-dimensional MEMS with independently movable parts can be built in a single process.

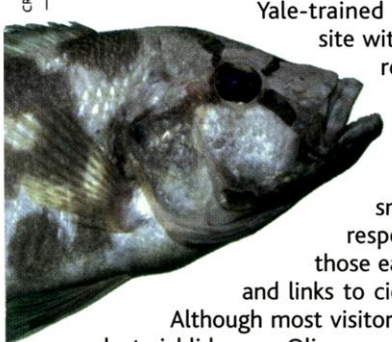
mems.isi.edu

CREDITS: (TOP LEFT) A. COHEN/USC; (BOTTOM LEFT) M. K. OLIVER

FIELD TRIPS

Malawi's Cichlids

When naturalists first dipped into Africa's deep rift lakes in the mid-1800s, they were amazed to find scores of fish species that were closely related yet varied wildly in size, color, and eating habits. Find out more about these wonders of evolution at the Cichlid Fishes of Lake Malawi, Africa. Curator Michael Oliver, a Yale-trained cichlid biologist, has stocked the site with taxonomic lists of Lake Malawi's roughly 335 cichlid species, along with hundreds of photos and descriptions of such intriguing adaptations as a species that pretends it's dead, then eats the small fish that swim by to pay their respects (left). You'll also find info on those early taxonomists, maps of the lake, and links to cichlid researchers and related sites. Although most visitors are aquarium hobbyists who collect cichlids, says Oliver, many scientists also use the site, particularly for the up-to-date bibliography.

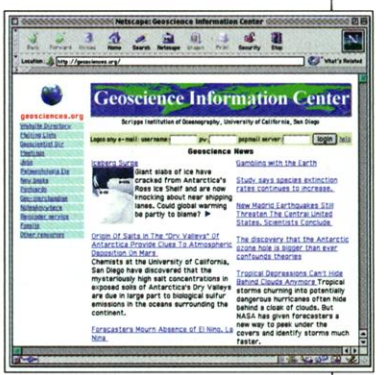


www.connix.com/~mko

LINKS

Geoscience Central

Searching for the latest in geoscience news, geomerchandise, or a fossil postcard to e-mail a friend? The Geoscience Information Center offers these services, plus a searchable job database and subscriptions to hundreds of geoscience e-mail discussion groups. Maintained by the Scripps Institution of Oceanography, the site is also the home of *Palaeontologia Electronica*, a free, peer-reviewed journal published twice a year by Coquina Press. Check out the animation of the breakup of Pangea, listed under Other Resources, illustrating how Earth's continents waltzed across the globe over 200 million years.



geosciences.org

EDUCATION

Old-School Navigation

Modern seafarers are equipped with charts, radar, even satellite mapping systems—and still their ships sometimes sink or run aground. Now, with the help of Rice University historian Patricia Seed, imagine sailing the high seas in the early days of navigation, when even bold Vikings rarely ventured far from sight of land.

"Latitude: The Art and Science of Fifteenth-Century Navigation" tells the story of how navigation opened the world to European explorers and colonizers.* The site is comprehensive; Seed describes early ships, charts, and sailing methods (as far back as the Vikings) and delves into how the navigators of the day used the sun's position and star charts to work out their position. Primers and links inform cybersailors about some of the other obstacles that tended to keep the Europeans close to home, such as wind patterns and contrary currents. Other links lead to treatises on the science of mapmaking and to the Great Globe Gallery, a clearinghouse of hundreds of maps and images, ranging from depictions of continental drift to the worldwide distribution of coral reefs.

For an in-depth look at how sailors get their bearings, try this step-by-step tutorial from Purdue University.† It navigates briskly through the arcane vocabulary and mathematics of fixing your position by the stars. The know-how could come in handy if your Global Positioning System receiver breaks down.

* **www.ruf.rice.edu/~feegi/index.html**

† **peck.ipph.purdue.edu/al/Space.html**

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