

From Teflon to Velcro, from bandwidths to base pairs, the artifacts of engineering and technology reflect the broad scope — and frustrating limitations — of our imagination. Best-selling author James Adams takes readers on an enlightening tour of this exciting world, demystifying such endeavors as design, research, and manufacturing.

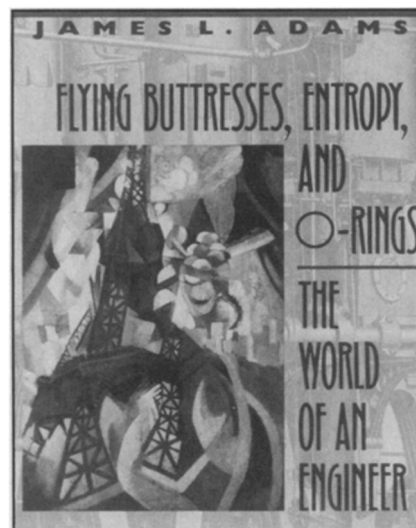
— from *Harvard U. Press*

"This text was written to provide a general audience with access to the subjects of engineering and technology. It is a superb book. . . . Discussions of the Challenger tragedy, the balcony collapse at the Hyatt Regency in Kansas City, a DC-10 crash . . . and other technical topics make the book readable, convincing, and enjoyable."

— Science Books and Films

To order by phone from
Science News Books, call:
1-800-544-4565
(Visa or MasterCard Only)
In D.C. Area: (202) 331-9653

*Harvard U. Press, 1993, 264 pages,
7 1/4" x 9 1/4" paperback, \$14.95*



Science News Books

1719 N Street, NW, Washington, DC 20036

FlyButtress

Please send me _____ copy(ies) of *Flying Buttresses, Entropy, and O-Rings*. I include a check payable to Science News Books for \$14.95 plus \$2.00 postage and handling (total \$16.95) for each copy. Domestic orders only.

Name _____

Address _____

City _____

State _____

Zip _____

Daytime Phone _____

(used only for problems with order)

RB1816

Letters continued from p.259

from the pathogens and collapses and kills them. If so, we must keep cutting boards dry (and for insurance possibly add a warmer).

Alexander L. Feldman
Novato, Calif.

During my initial interview with Cliver, I posed the dry-out hypothesis for wood's apparent antimicrobial properties. But he noted that to control for dehydration's potential effect, some of the studies maintained boards in humidified chambers. This moisture-saturated air kept wooden boards from drying out. Even under these conditions, he said, the bacteria disappeared from wooden boards.

— J.A. Raloff

All my life I've had nicks, cuts, and scratches that sometimes required antibiotics to heal. About three years ago I retired and now spend most of my time working with wood. The fine dust doesn't do much for my breathing, but I've noticed that, while I still get the nicks and cuts, I never get any kind of infection. Is this because there is an antibacterial in the lignin, or is it because the chemical affinity of cellulose and water causes the water to be pulled out of the nasty little beasties?

Robert A. Breed
Somerset, Calif.

Wood, especially hardwood, has a fairly large proportion of lignin, a well-known polyphenol. Molecules of a rigid, well-anchored polymer like this cannot move out of the way of a knife blade, which breaks molecules at random. In a shallow cut in the wood, quite a few

billion lignin structures are physically depolymerized. Some of their fragments may resemble thymol, menthol, or other active pherolic antiseptics, or they may contain stable (for a while) free radicals.

Robert Townend
Elkins Park, Pa.

Should we now be very careful about reusing plastic containers because simple washing with soap and water does not decontaminate them?

On a more scientific note, it seems reasonable that wood possesses antibacterial activity because trees don't have immune systems, as animals do. What happens if bacteria are incubated with sawdust or woodchips? What is the effect of heating or boiling the wood boards? Is the effect merely a surface phenomenon such as dehydration, or is there a chemical or enzyme in the wood? An enzyme might digest the bacteria; a chemical could destroy cells, hence no bacterial bodies are found.

If the effect is caused by a chemical or enzyme, then maybe this could act as a "natural" food preservative. Alternatively, the researchers may have found a new class of antibiotics.

Charles Davy
Phoenicia, N.Y.

Your questions mirror those that Cliver and Ak have posed themselves. While they don't have any answers yet, Cliver says they "are trying to figure out what's going on." For example, with the collaboration of the USDA's Forest Products Laboratory, on the University of Wisconsin-Madison campus, they're using an electron microscope to examine treated wood for microbes.

They have also begun incubating suspensions of the bacteria with ground wood. "Some of the initial results with these wood flours indicate that the bacteria won't be killed outright," he says. "But it sure takes some doing to get them back off the wood."

— J.A. Raloff

Confusing spin on Earth's orbit

Please tell me that my 1950s physics courses are not as out-of-date as "Photon drag: New spin on making a black hole" (SN: 2/6/93, p.86) indicates. The article states, "Just as Earth's rotation provides a centrifugal force that prevents our planet from falling into the sun. . . ." Maybe it is quibbling over semantics, but I thought that it was not Earth's rotation but Earth's orbital movement around the sun that causes the centrifugal force that counteracts the gravitational forces that would otherwise pull our planet into the sun. (It is true that this orbital motion is a rotation — around the sun — but that is not what was implied by the sentence.)

Samuel L. Vance
Huntsville, Ala.

In using the word "rotation," we did mean Earth's orbital motion about the sun, not Earth's spin. But we regret any confusion this wording may have caused.

— The editors

Address communications to:
Editor, SCIENCE NEWS
1719 N Street, NW
Washington, DC 20036
All letters subject to editing.