

**A** common thread—the emulation of biology—binds all the attempts to use evolvable hardware and to better understand its power (SN: 11/30/91, p. 361). Goldin's self-transforming spacecraft "sounds like an ambitious dream, but it could be possible if we effectively utilize biologically inspired technologies," the NASA chief asserts.

JPL researcher Eric Mjolsness presented results from a preliminary attempt to simulate, in a computer, growth of a tiny structure in flowering plants that gives rise to leaves, flowers, and stems. Such knowledge may one day prove important for developing "seed ships," Mjolsness asserts. These, too, would be small spacecraft thus affordable to launch, which could flower into full-blown craft or laboratories on other worlds.

NASA covets for its future space programs two abilities that living creatures long ago acquired: self-repair and adaptability to unforeseen circumstances (SN: 5/29/99, p. 347). As the space agency contemplates 100-year-plus interstellar missions, evolvable hardware promises—for electronics, at least—to bring both capabilities within reach. □

*Letters continued from p. 147*

That may divert attention away from the hen and young.

*I. Scott  
Columbus, Ohio*

### **MSG and type 2 diabetes**

Your article "Type 2 diabetes appearing in youths" (SN: 7/10/99, p. 31) is of special interest to me. I saw no type 2 diabetes in young people when I started medical practice in the early '60s. By the time I had retired in 1995, such patients were not uncommon in my practice. I believe monosodium glutamate (MSG) is the cause. MSG is an excitotoxin that works by overstimulating its nerve target. When MSG is fed to baby rats for the first 9 days of their lives and then discontinued, the MSG destroys the arcuate nucleus of the pituitary gland. For the rest of the life of the rat, it will be obese, hypothyroid, and lethargic when compared with controls not given MSG. Remember, MSG was released on the market in 1948. Just read your food labels.

*Ian D. Murphy  
Toledo, Ohio*

### **The eye of the tabby**

In your July 10 issue, the article "What color is your carnivore?" (p. 26) was of interest to me, since I share my household with carnivores who usually get their prey from cans.

I've noticed that tabby cats have false "eye" markings above their actual eyes, just like the tiger in the article's photo has. Because of these illusory eyes, my cats often appear to be awake when they're napping. Might these features provide an evolutionary advantage?

*Yvonne Lyerla  
Sonoma, Calif.*

**Alessia Ortolani speculates** that white markings under the eyes of nocturnal predators and dark muzzles on diurnal predators might have as their evolutionary purpose making it easier for other predators to read expressions and identify each other. A simpler explanation is that these markings help the predator's eyesight (almost always a plus for a carnivore). White under the eye would reflect into the eye the maximum amount of ambient light, helping nocturnal predators see in the dim light of night. Dark markings under the eye (such as on a muzzle) would help cut the glare from sunlight, useful to diurnal predators.

*Lee Stevens  
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All letters subject to editing.

## **Chemistry**

*From New Orleans at a meeting of the American Chemical Society*

### **Vitamin C lowers stress hormone in rats**

Large doses of vitamin C may help alleviate the body's response to stress, according to P. Samuel Campbell of the University of Alabama in Huntsville.

Campbell and his colleagues put laboratory rats under stress by immobilizing them in a wire cylinder for 1 hour each day for 3 weeks. For 15 minutes of that hour, the researchers turned the rats upside down. "It's more of an emotional stressor than a physical stressor," Campbell explains.

Stressed rats that had received a daily dose of 200 milligrams of vitamin C showed lower blood concentrations of a hormone called corticosterone when compared to rats that didn't get the vitamin. In people, scientists have linked chronic production of a related hormone, called cortisol, to heart disease and upper respiratory infections (SN: 5/23/87, p. 325). In the new study, vitamin C also appeared to increase the rats' production of IgG, an antibody that is a measure of immune-system function.

The amount of vitamin C given to the rats would correspond to a high dose—several grams per day—in people, says Campbell. In contrast, the current recommended daily allowance is just 60 mg. The study's results, Campbell says, provide additional information for U.S. policy makers who are trying to revise nutritional guidelines to reflect vitamin doses needed for optimum health (SN: 4/19/97, p. 237). —C.W.

### **Roaches don't go crazy over catnip**

A feline friend may go into ecstasy over a whiff of catnip, but the same odor will send a cockroach skittering away, according to entomologists at Iowa State University in Ames. Their finding may lead to new roach repellents based on an active compound found in the catnip herb, *Nepeta cataria*.

Chris J. Peterson and Joel R. Coats tested the reaction of German cockroaches to two forms of nepetalactone, the herbal compound that drives cats wild. The researchers gave insects a choice of walking on either a piece of paper

treated with nepetalactone or untreated paper. For driving away roaches, one form of the compound was 100 times as effective as deet, an ingredient found in commercial insect repellents. Removing roaches' antennas rendered them indifferent to nepetalactone, revealing that receptors on those structures, rather than on their feet or mouthparts, respond to the compound.

The researchers are now testing nepetalactone's effect on mosquitoes. An insect repellent based on catnip could be safe to use on people and have a more pleasant smell than the ones currently on the market do. The only obvious drawback, they note, is that although such a product would keep insects at bay, it might draw unwanted attention from cats. —C.W.

### **Sugar-based antifreeze for icefree planes**

An antifreeze derived from simple sugars prevents dangerous ice buildup on an airplane's wings and in its fuel system, researchers say. Unlike the deicing compounds now in use, the antifreeze is nontoxic and would break down into harmless components if it leaked into the environment.

The glycerin-based compound works much like salt does on a frigid road: It lowers the melting point of ice, says George W. Mushrush of George Mason University in Fairfax, Va., and the Naval Research Laboratory in Washington, D.C.

Airline personnel now spray planes with solutions of toxic ethylene glycol, the chemical used in car antifreeze, to prepare them for cold, high-altitude flights. "Large airports use tons and tons of the stuff," says Mushrush. Workers are exposed to the ethylene glycol, and it drips onto runways and soaks into the ground.

"What we made is a lot less toxic," Mushrush notes. If ingested, the new compound breaks down into glycerin—a substance often used as a laxative—and acetaldehyde, a product of the normal metabolism of alcohol. —C.W.