RANDOM SAMPLES

edited by RICHARD STONE

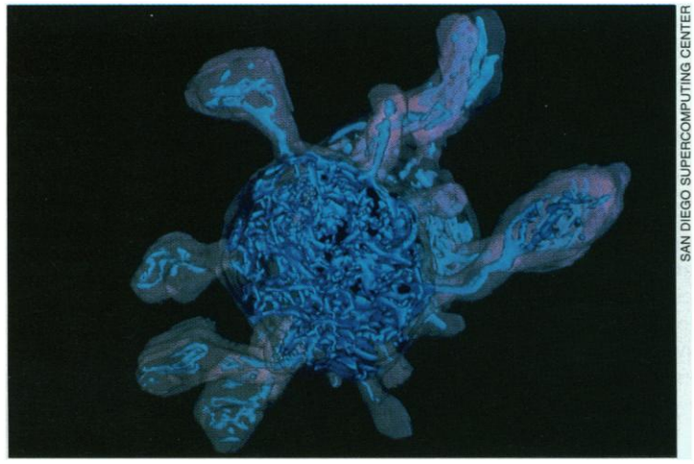
Gammas That Just Won't Quit

Ever since it was launched 15 months ago to probe a mostly uncharted part of the spectrum, NASA's Gamma Ray Observatory (GRO) has pursued one mystery after another. Gamma-ray bursts—seconds-long pulses of gamma rays from unknown sources that flash into the satellite's detectors several times a day—have been GRO's staple conundrum. But on 8 August, a new mystery in the constellation Perseus flared, and it has turned out to be no flash in the pan. Instead of fading, like a run-of-the-mill burst, it quickly became "the brightest [gamma-ray] source in the sky," says GRO project scientist Neil Gehrels.

And one of the strangest. Not that such long-lasting gamma pulses are unprecedented: In some ways, says Gehrels, the energy source resembles an x-ray nova, a days- or weeks-long surge of x-rays and gamma rays that many theorists think may originate when a black hole swallows a clump of material from a companion star. But if this is an x-ray nova, says Gehrels, "it has some features different from anything we've seen," such as the fact that "it flickers in a matter of seconds."

All of which made GRO scientists eager for a closer look. "It's such a bright and interesting object," Gehrels says, "that we begged and pleaded with the operations people" to reorient the GRO craft so that a new bank of instruments could study the object's spectrum and pinpoint its location. Repositioned in a record 12 hours, GRO set to work refining its observations.

The source's position is now known to .2 degree, allowing Earth-bound optical telescopes to home in on a star or other object that might be causing the gamma-ray powerhouse. Scopes at Mount Palomar, Kitt Peak, and elsewhere have already started hunting, says Gehrels, but "so far there's no likely counterpart." Meanwhile, nearly a week after it burst on the scene, the gamma-ray glow showed no sign of fading.



SAN DIEGO SUPERCOMPUTING CENTER

Dial-a-Microscope

Want to access an electron microscope without leaving the comfort of your own office? Soon you may be able to log onto a computer network and start collecting images (such as the neuron from the cerebral cortex shown above) on the 400,000-volt electron microscope at Scripps Research Institute in La Jolla, California.

The concept is called the Microscopist's Workstation, which amounts to some fancy software that enables a researcher with a computer workstation and access to Internet or NSFnet to control the microscope in real time. (A Scripps technician prepares the samples and puts them under the lens.) Project leader Mark Ellisman, a neuroscientist at the University of California, San Diego, unveiled his project at SIGGraph 92, an international conference on computer graphics held last month in Chicago. One session, which included Ellisman's and 34 other projects, focused on how high-speed computer networks might bring the lab to the scientists: In addition to hopping on the La Jolla scope, attendees previewed hookups that would allow scientists to use their computers to walk through the internal organs of a 7-week-old embryo, go on a tumor safari in a human brain, and interact with a developing thunderstorm, with all the images generated on a remote supercomputer. Ellisman says that the faster researchers lay fiber optic cables in the federal high-speed network initiative, the sooner his workstation will become more widely available. "This is just the first step in a long-term collaboration," he says, "to create a distributed laboratory that will make expensive national resources more widely available to the U.S. community."

Reading Animal Rights Terrorists Their Rights

A bill that would make it a federal crime to vandalize facilities using animals for research is about to become law. The Animal Enterprise Protection Act of 1992 passed the House and Senate earlier this month, and is now awaiting the president's signature.

The new law establishes a 1-year jail term for anyone causing more than $10,000 worth of damage to an enterprise where animals are lawfully used. If the perpetrators injure someone during an attack the penalty jumps to 10 years, and if they kill someone, they could get life in prison.

Frankie Trull, president of the National Association for Biomedical Research, which lobbied hard for the bill, says: "[T]he nation's biomedical research enterprise... deserves federal protection." Although the Administration had reservations about the bill—the Justice Department felt that the "animal enterprise terrorism" covered in the bill was already illegal under existing statutes—the president is expected to sign the bill.

Heisted Laser Still at Large

"On March 16, five laser tubes were stolen in St. Petersburg... if you are contacted by anyone describing a laser with these characteristics," call Detective Steve Cureton in the St. Petersburg Police Department.

No, this isn't an excerpt from a Tom Clancy novel (at least not yet, anyway), it's an excerpt of an announcement buried in the July issue of the Material Research Society's *MRS Bulletin*. Did you guess from the detective's name that he's not a member of Russia's St. Petersburg police? Yes, the theft occurred in Florida, but the victim is a Russian, former Soviet military rocket scientist Andrei Nazariev. It was Nazariev's laser tubes that have vanished.

Nazariev has spent the past year in St. Petersburg trying to launch Alias Research Inc. The company wants to market lasers based on technology pioneered 10 years ago by a gas-laser specialist, Leonid Bukshpun, then at Rostov State University in Rostov-on-Don, Russia. Six years later, at Rostov's "Scientific-technical Cooperative Union" (alias ALIAS in Russian), Nazariev, Bukshpun, and colleagues built a prototype laser. The initial designs rely on metal vapor lasing media that emit blue, violet, and ultraviolet light. Alias' promotional materials tout the lasers as being able to pulse faster with more average power (about 1 Watt) and less beam divergence, and being of simpler design than its competitors. "This type of laser is like a hammer, you can use it in many places," Nazariev claims, including in defense and medical venues.

University of South Florida laser physicists Dennis Killinger and Nicholas Djeu, who saw "a non-working" version of the laser earlier this year, are skeptical of the laser's value. "It appeared to be a new, moderate-power UV laser" that could be useful for photolithographic work, Killinger recalls from a conversation with Nazariev, but he and Djeu remain dubious because Nazariev and Bukshpun re-

fused to reveal technical details. Nazariev, meanwhile, seems unconcerned that the alleged heist could nip his fledgling company in the bud, although he admits to a gnawing fear that some unscrupulous scientist could get ahold of the tubes, alter them, and apply for a new patent (or perhaps peddle them to a third country). "I would like them back for a clean feeling in my mind," he says. If you know something, Detective Cureton could use the help, too. "This is the first stolen laser case I've had," he says.

Zimbabwe Starts an Elephant Stampede

This week about 400 young African elephants are packing their trunks, heading for greener pastures and billing their moving expenses—$200,000—to the U.S. government. The funds will enable the Zimbabwe Department of National Parks and Wildlife Management to tranquilize the pachyderms and relocate them from drought-stricken Gonarezhou ("Home of the Elephant") National Park to nearby land where food and water are more plentiful. Zimbabwe appealed for funds under the U.S. African Elephant Conservation Act, which established a 1989 ban on ivory trade and provides grants to African nations for elephant population management and conservation.

The drought has been so severe that Zimbabwe officials, in order to prevent permanent damage to park wildlife, have resorted to killing dozens of the 5200-member herd and distributing their meat to local communities. But they want to save as many of the elephants as possible, so they're instructing local farmers on lands that surround the park to limit the area in which their cattle graze in order to allow elephants to repopulate.

"An operation of this magnitude has never before been attempted," says U.S. Fish and Wildlife Service director John Turner, "but these are desperate times for Zimbabwe's elephants. We must try...to help African countries manage and sustain their elephant populations." Zimbabwe national park officials have previously moved only a few elephants at a time, says an FWS spokesperson.

The mass relocation is not entirely an elephantophilic gesture: Zimbabwe officials hope to preserve the beasts in order to attract hunting and photographic safaris, says biologist Doug Crow, an assistant to Turner. Zimbabwe gaming officials plan to regulate these types of activities to maintain elephant population levels, he says.

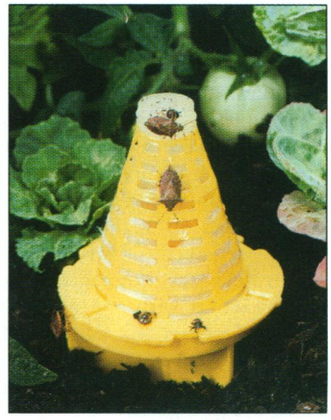
Wanted: A Few Good Soldier (Bugs)

If your neighbors have been seeing too much of you through your gypsy-moth-defoliated treeline or you've been losing two-thirds of your backyard corn crop to those pesky corn earworms, head down to your local gardening emporium and ask for science's latest "Rescue." That's the name of a highly attractive invention developed by Jeffrey Aldrich, an entomologist at the U.S. Department of Agriculture. It's a sex-pheromone cocktail that insect-munching insects (the good guys) find irresistible. Put out some lures and both males and females will hustle over to your property, mate, proliferate, and off your pests.

Aldrich got the idea while working with *Podisus maculiventris*—soldier bugs—back in the 1970s. One day he noticed what he characterizes as "enormous" dorsal glands on the males, and immediately suspected these were sex glands. Aldrich then spent years extracting, purifying, and testing the volatile chemicals that the glands secrete—only to discover, in 1987, that 2-hexenal and alpha-terpineol are the most potent constituents and happen to be available in bulk from chemical companies.

Enter Sterling International of Veradale, Washington. The company couldn't resist the chemicals any more than female soldier bugs: It licensed Aldrich's recipe and began selling "Rescue" lures—they look like small yellow shuttlecocks—in garden stores in February. So far, says a Sterling spokesman, the firm has sold 17,835 lures and racked up $41,409 in sales.

Now Aldrich is investigating how the lures might help farmers. "It may be possible to lure soldier bugs to potato fields early enough in the spring to suppress potato beetles, which are increasingly resistant to insecticides," he says. If so, it will be up to farmers, like home gardeners, to take the bait.



STERLING INTERNATIONAL INC.

Soldier-bug barracks. The odor of sex pheromones draws a crowd.

Make That...1002 Uses for Fungi

R. BLANCHETTE, *ET AL./MYCOLOGIA*

Various cultures have employed "magic" mushrooms as medicines or as substances to induce hallucinations for religious rites. But the shaman of the Tlingit, Haida, and other indigenous peoples who lived in the U.S.'s Northwest Coast appear to have used one kind of fungus to induce magic less directly: They carved them into spiritual figurines to cure the sick and protect the dead.

This novel mystical use of mushrooms was discovered when a team of botanists recently noted a peculiar piece of "wood" in a routine evaluation of wood deterioration in objects at the American Museum of Natural History. Plant pathologist Robert A. Blanchette of the University of Minnesota subsequently identified the material as a species of fungus called *Fomitopsis officinalis* that had been treated with a brownish grease. After the first find, Blanchette and several colleagues tracked down another 10 fungal figurines at museums throughout the nation. They describe their results in a recent issue of *Mycologia*.

The figurines adorned the graves of shamans and were meant to "relay a clear message to the people that the area was occupied by spirits and should never be approached," the researchers write. And these weren't the only supernatural powers attributed to the fungi: According to a Haida myth, the only way that the mystical hero Raven could paddle his canoe close to shore (in order to "capture female genitalia") was if Fungus Man paddled in the stern. According to the researchers, "only the Fungus Man had the supernatural powers to successfully bring Raven to his destination."