

CCD was built for a suite of 1-meter Air Force telescopes that track satellites and artificial debris orbiting Earth. But after NASA started pushing its asteroid goal, scientists realized the system was ideal for finding NEOs, too. "No commercially available CCD comes close to having these capabilities," says space-surveillance physicist Grant Stokes, manager of the Lincoln Near-Earth Asteroid Research (LINEAR) program.

The chip records more light than any other CCD and reads out 5 million pixels of data in hundredths of a second. When combined with fast Air Force telescopes, says Stokes, LINEAR can scour huge swaths of the heavens for faint, moving blips: "We're just about capable of covering the entire visible sky from a single site during 1 month."

LINEAR came online in late 1997 at Lincoln Lab's Experimental Test Site in Socorro, New Mexico, and hunts NEOs 10 nights per month. To date, it has unveiled 64 of them, more than all other search programs combined during the same period. A NASA effort at the Jet Propulsion Lab (JPL) in Pasadena, California, called NEAT (Near-Earth Asteroid Tracking), finds almost as many kilometer-sized NEOs, but LINEAR detects many more of the smaller objects, any of which could still wreak havoc if it struck Earth. LINEAR also has spied 10 comets and seven objects called "unusual" by Marsden's clearinghouse. "Whichever category you look at, the rate [from all search programs] has increased five- to 10-fold," says Gareth Williams, the Minor Planet Center's associate director.

So astronomers would like more of a good thing, and they're hoping the Air Force will consider asteroid hunting part of its "planetary defense" mission—and pay for it. The Air Force seems willing to contribute. It may build at least one more LINEAR system dedicated to NEO research, says senior scientist John Darrach of the Air Force Space Command in Colorado Springs.

Meanwhile, other veteran asteroid programs are forging ahead. Spacewatch, at the University of Arizona, will open an additional, larger telescope in 2 years. NASA's NEAT search has new computer equipment and 6 nights per month on an Air Force telescope in Hawaii. Researchers expect that the Air Force will agree to triple NEAT's telescope access at the next meeting between the Air Force and NASA, set for 19 August at JPL, says NEAT principal investigator Eleanor Helin. NASA also anticipates more contributions from NEO observers in the Czech Republic, Italy, Japan, and France.

This meteoric increase in detection rates will force scientists to collaborate more closely, says Donald Yeomans, director of NASA's new NEO Program Office at JPL: "We will want an efficient overall system

rather than a group of individuals all vying for the same prize." But principal investigator Robert McMillan of Spacewatch notes that NASA's competitive grants program has thus far not fostered cooperation among the groups. He also wonders whether today's asteroid fad will fall to Earth. "Ten years crosses three Administrations," sighs McMillan. "I'm somewhat skeptical that NASA's enthusiasm will last."

—ROBERT IRION

Robert Irion is a science writer in Santa Cruz, CA.

SCIENCE AND ETHICS

Tobacco Consultants Find Letters Lucrative

Scientists who consult for industry get a lot of grief for being "hired guns." Now, some critics of the practice are squeezing off a few rounds of their own in response to revelations that surfaced last week. The *St. Paul Pioneer Press* reported that several scientists received payments from the Tobacco Institute—the industry's public relations arm—in 1992 and 1993 for writing letters to journal and newspaper editors criticizing studies on the health effects of secondhand tobacco smoke. The information, mined from a mountain of documents assembled in Minnesota's lawsuit against the industry, indicates that nine individuals received as much as \$10,000 for a letter and that the letters were often reviewed by lawyers before being sent to publications such as the *Journal of the National Cancer Institute (JNCI)* and *The Lancet*.

To some industry critics, this is yet more evidence that tobacco companies tried to twist science to further their aims. "It's an even bigger perversion of the scientific process than I thought it was," fumes cardiologist Stanton Glantz of the University of California, San Francisco. He and others argue that such letters, which undergo less stringent review than journal articles, may have helped persuade a district judge last month to throw out a 1993 Environmental Protection Agency (EPA) report finding that environmental tobacco smoke (ETS) causes about 3000 cases of lung cancer per year. "They're basically building up a record they could use for political and legal purposes," says Glantz, whose own work has shown how the tobacco industry has funded research to try to debunk the scientific evidence against tobacco (*Science*, 26 April 1996, p. 494).

But authors contacted by *Science* defend their work, arguing that the letters, based on time-consuming analyses, constitute valid scientific communications. And editors have few qualms about publishing them, noting that in most cases the authors disclosed their industry ties. "This is a tempest in an ink pot," says George Lundberg, editor of the

ScienceScope

BIOMEDICAL LOBBYING ANGRERS KEY DEMOCRAT

One of the nation's leading biomedical research societies is seeking to mend fences with a key congressman. Last month, the Federation of American Societies for Experimental Biology (FASEB), which represents 56,000 researchers, angered Representative David Obey (D-WI) by pushing for passage of a House spending bill that includes a whopping 9.1% budget boost for the National Institutes of Health (NIH). Obey, the senior Democrat on the powerful Appropriations Committee, supports the NIH increase but was incensed because a 21 July letter from FASEB to lawmakers appeared to support a Republican plan for cutting welfare programs to pay for it—a strategy Obey called "selfish" and "myopic" in a 28 July reply. It's all a misunderstanding, according to FASEB President William Brinkley of Baylor College of Medicine in Houston, who says the society hopes Congress will find new welfare funds when it returns to work next month. Meanwhile, he wants to meet with the lawmaker. "Hopefully we can appease Mr. Obey and get out of his woodshed," he says.



Obey

COORDINATED ATTACK ON ECO THREATS?

The White House has asked federal ecologists to follow the lead of climate scientists and fashion a blueprint for working together and with academia. The idea is to better concentrate the government's scientific firepower on ecological problems involving "multiple stresses," such as a lake hit by both pollution and exotic zebra mussels. For starters, the "Integrated Science for Sustainable Ecosystems" initiative, expected to begin in 2000, would beef up research in four areas—harmful algal blooms, habitat conservation, invasive species, and data networks—say officials with the White House Committee on Environment and Natural Resources, which unveiled the plans last week. Its price tag, which still must win approval from White House budget officials, will be revealed in the president's budget request next February; the big question is whether Congress will agree to pay the bill.

Contributors: Andrew Lawler, David Malakoff, and Jocelyn Kaiser

ARCHAEOLOGY

Albanians Vie for Control of Site

About 2000 years ago, the Romans built a stunning theater in the coastal Albanian town of Butrint during their military conquests of the Balkans. Today the ruins are witness to another battle, this one between opposing political factions in Albania, for control of this internationally recognized archaeological site. Caught in the crossfire is a British foundation that hopes to protect the theater and other structures spanning nearly 3 millennia in a country trying to emerge from decades of global isolation.

The battle over Butrint pits Albania's Ministry of Culture against the Institute of Archaeology and the Institute of Monuments, both based in Tirana, the capital. Last month, Culture Minister Edi Rama, appointed in April, stripped both institutes of authority at Butrint after an international body criticized them for failing to work together. The ministry itself

took control, and Rama asked the London-based

Butrint Foundation to help manage the site. Rama says that

foreign support is critical

to saving the deteriorating site: "The [Butrint] Foundation will help us develop research and excavations."

But on 28 July, archaeologists at the two institutes petitioned Albanian President Rexhep Meidani to block the collaboration. The opponents, who include former Monuments Director Reshad Gega, charge that the Butrint Foundation intends to profit from rising tourism at the site and to control revenue from future exhibitions of Butrint artifacts. Legislator Limoz Dizdari, head of the Albanian parliament's Culture Commission, told a Tirana newspaper that Albania "risks losing its national culture" if the U.K. foundation, which has collaborated with the archaeological institute on research projects at Butrint since 1994, is given a management role.

However, Rama and others say the petitioners' real beef is with the new government. "They are hostile to reforms being taken in the country" to strengthen ties with the West, says Rama. "We'll show with concrete results that our decision is not against Albania's interests."

Archaeologists have traced Butrint's history to the 8th century B.C., when traders from Corfu are thought to have settled the site, on the tip of the

Hexamil peninsula in southwest Albania. The Romans took control of Butrint around the 2nd century B.C., and the remains of Butrint's theater—along with a row of remarkable statues that includes the beautiful "goddess of Butrint"—were unearthed by Italian archaeologist Luigi

Ugolini in 1920s.

His team later excavated the

Temple of As-

clepulus, an

Early Byzantine

palace, and a

baptistry with an

exquisite mosaic

floor featuring im-

ages of animals (see

inset illustrations).

During the Cold

War, when Albania was shuttered from the outside world, Butrint was developed into a tourist attraction for Albanians. In 1992, after Albania opened its borders, the United Nations Educational, Scientific, and Cultural Organization (UNESCO) added Butrint to the list of World Heritage sites, making it eligible for U.N. assistance and a measure of oversight to help ensure its preservation. But during fighting early last year, thieves made off with artifacts from the Butrint museum, pumps for draining

the water-logged site,

and even interpre-

tive signs. "We

were lucky:

Nothing su-

pervalueable

was stolen," says

Auron Tare, Alba-

nian representative

of the Butrint Foun-

dation. Last April a UNESCO-supported

conference in Saranda, Albania, convened

to devise a plan to save Butrint, decried a

recent "history of rivalry and a conspicu-

ous lack of cooperation" between the two

institutes, and urged that one entity be cho-

sen to run the site.

Despite the petition to the president, the

Butrint Foundation hopes next year to

launch a 5-year research and renovation

program at the site. "Rama is under con-

siderable fire for going forward, not back-

ward," says Butrint Foundation scientific

director Richard Hodges, head of the

Institute of World Archaeology

at the University of East

Anglia in Norwich, U.K.

"The dispute is the po-

litical consequence of

an effort to make

Butrint a major na-

tional asset."

—RICHARD STONE

BUTRINT FOUNDATION

Journal of the American Medical Association (JAMA), which published two letters. Other observers say what's really eye-catching is the fees the authors fetched. "Anybody who thinks the amount doesn't matter has been holed up in the ivory tower for a very long time," says bioethicist Arthur Caplan of the University of Pennsylvania. "They would have been hard pressed to take the time to write if there hadn't been a \$10,000 prize out there," he asserts.

It's clear that EPA was the target of the letter campaign. Apparently in response to the EPA's secondhand smoke report, the Tobacco Institute set up the "ETS Consultant Program Project," according to documents from a Web archive* created by tobacco companies last February as a result of the Minnesota lawsuit. Documents marked "attorney-client communication" describe letters written by the consultants, including one submitted to *Science* that was never published. A few sentences in one document describe what the Tobacco Institute was looking for: "Senior cardiologists being contacted to determine interest in a review of relevant literature. ... Ideal are people at or near retirement with no dependence on grant-dispensing bureaucracies." The scientists who wrote letters included several private consultants and some academic researchers, such as Paul Switzer, a statistician at Stanford University.

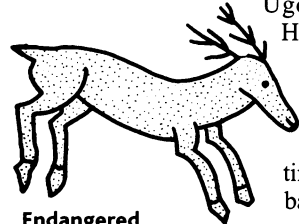
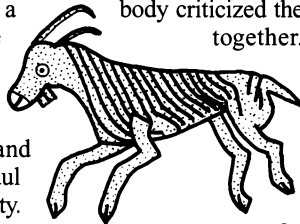
Several of the published letters did, to varying degrees, tip readers to their sponsorship. For example, a 17 March 1993 *JAMA* letter from Chris Collett of Theodor D. Sterling and Associates Ltd. in Vancouver stated that "This comment was supported by the Tobacco Institute." Others were less forthcoming. In a 6 July 1993 letter to *JNCI* by statistician Gio Batta Gori, a statement notes that Gori is a former deputy director of NCI's Division of Cancer Causes and Prevention, then adds: "On occasion, Dr. Gori has consulted for the Tobacco Institute."

Gori, a consultant in Bethesda, Maryland, says he spent "several hours" on the letters and defends the payments, which included \$3555 for the *JNCI* letter and \$6000 for a letter in *The Wall Street Journal* that apparently wasn't published. "Do you think scientists live out of air? Everybody gets paid by somebody," he says.

Although editors contacted by *Science* were unfazed by the payments, at least one journal is quietly changing its disclosure rules. *JNCI* Editor-in-Chief Barnett Kramer says his journal plans to modify its rules to make ties more explicit. But "as long as it meets the criteria for publication, we may still publish it," he says. Lundberg agrees: "If the content is solid, that's what matters."

—JOCELYN KAISER

* www.tobaccoinstitute.com



Endangered animals. Water cult's 6th-century mosaic at Butrint celebrated birth and life.

