

be as undergraduates, before poor writing habits have become irreversible. Christopher Fasano of Francis Marion University, a liberal arts college in Florence, South Carolina, described a recently instituted requirement that all physics majors take a minimum number of "writing-intensive" courses there. That category includes certain offerings in the physics department itself, such as lab courses in which reports are stringently graded not just on content, but also on clarity, organization, and style. "Students get better [at writing]," said Fasano. "Practice helps dramatically." If such programs ever find acceptance at the large research institutions that produce most future physicists, Fasano thinks, the journals could see that same dramatic improvement.

What's needed most is "basic training," agreed Argonne's Nghi Q. Lam, editor of *Applied Physics Letters*. "We should have some kind of standardized textbook so that every [physics] student—not only in the United States, but also in other countries—receives the same fundamental training in this area." The text would cover everything from sentence structure and style to the proper organization of a good paper, said Lam.

The group has now distilled these discussions into a set of written suggestions for reform—watering down their recommendations in some areas of persistent disagreement, such as the proper role of journal abstracts. Although they expect a sympathetic hearing from AIP's publications board in November,

any proposal that requires new resources could face an uphill battle. For writing awards, for example, "there's simply not enough staff, not enough people to be able to judge," says Peter D. Adams, editor of *Physical Review* and the board's chair. Meanwhile, *Highlights* won't be launched until the right editor turns up, says Blume. "The best we could do is get started by the beginning of next year," he says.

To skeptics who say that the reformers' goal of markedly simplifying communication in an increasingly complicated field is unrealistic, Fano responds: "People are very much looking for this kind of guidance." A word from physicists who have seen better days, he says, could make all the difference.

—James Glanz

## ARCHAEOLOGY

### BLM Accused of Neglecting Clovis Sites

TUCSON, ARIZONA—Over the years, five classic excavation sites have made Arizona's San Pedro River Valley a world-famous source of information about the Ice-Age Clovis people—possibly the first Americans. Yet researchers say that archaeological renown hasn't been enough to secure adequate protection for at least two of the sites. They contend that erosion and vandalism are carrying away research material and limiting the sites' ultimate contribution to knowledge of the earliest Americans. "These sites are some of the most sacred in the New World, but they're being left to the wind. They're washing away in the rain," says Paul Martin, a geoscientist at the University of Arizona in Tucson (UA).

Martin and others lay the blame on the U. S. Bureau of Land Management (BLM), part of the Interior Department, which assumed control of the two most sensitive sites in 1988, when they were incorporated into the San Pedro Riparian National Conservation Area. BLM officials concede there are problems but say they are doing the best they can, given the tight funding imposed by U.S. budget problems.

The two sites that researchers are worrying about have proved a rich source of finds about the Clovis people. One of them is located on the ranch of Ed Lehner; it yielded, for example, the first radiocarbon dates of Clovis materials, as well as projectile points associated with mammoth bones. The other, the nearby Murray Springs site, revealed the first undisturbed Clovis "living floor"—an 11,000-year-old hunters' camp preserved in full stratigraphic context. In the 1980s, however, interest waned as excavation slowed.

Early in its tenure, BLM took steps to conserve the sites. The agency solicited a paper from C. Vance Haynes, the UA geoarchaeologist who excavated Murray Springs, on

how to protect and interpret the mammoth sites. And in 1990, BLM gave the Friends of the San Pedro, a volunteer group, \$5000 to improve access to Murray Springs with a path and two wooden bridges across Curry Draw, the dry wash that yielded the finds.

Since then, the bureau's efforts have faltered, say Martin and Haynes. At the Lehner plot—now only a series of sandy mounds and trenches overgrown with saltbush—Martin says there are signs in one arroyo wall of wildcat bonedigging. And at Murray Springs, ero-



**Better days.** Arizona's Murray Springs site, shown here in 1967, has yielded many Clovis artifacts.

sion has washed away a 10-meter swath of unexcavated ground that Haynes says is "potentially rich in Pleistocene material."

Haynes believes the Murray Springs site in particular would yield handsome discoveries with more excavation and the use of new analytical methods. So do others. "There's a potential for much more information," contends geologist Larry Agenbroad of Northern Arizona University. "Just last month, we found new mammoth bones at Murray Springs." But, he adds, "they've really let this place go to seed."

In May, the Tucson-based Southwest Center for Biological Diversity, an environ-

mental group, added its voice to the concerns. The group asked the U.S. attorney for Arizona to investigate BLM for violating federal archaeological and antiquities laws. It accused the bureau of failing to maintain the Clovis sites and claimed that grazing cattle were trampling Indian ruins in the area. The center's Robin Silver says that BLM is "doing nothing" to conserve the sites and because of that, "we're losing these resources."

BLM officials dispute the contention that their agency is "doing nothing." They note, for example, that BLM secured a \$10,000 heritage grant from the Arizona Parks Department to install an interpretative kiosk and signs for Murray Springs by 1998. The agency also created a photocopied brochure on the sites for visitors. Outdoor recreation specialist Dorothy Morgan admits, though, that the agency had to scrap plans for a visitor center, as well as conservation efforts—both of which have fallen victim to a tight budget. Tony Harrell, program manager for lands and resources, says that BLM's Tucson field office, which oversees the sites, is struggling to manage nearly 345,000 hectares with a staff of 23 and a budget of \$799,000 this year. "There's never any funding or staff," says Morgan.

Despite that, Haynes, Martin, and Agenbroad say that BLM should at least take steps to slow erosion and secure the sites from vandalism. They suggest, for example, frequent monitoring and the installation of a wing dam above the Murray Springs site on Curry Draw to divert rainy-season torrents—an intervention that BLM official Howard Kahlow terms "doable." As to the alternative of doing nothing, the scientists call it no option at all. "This [involves] origins, mammoth kills, critical knowledge about earliest America," exclaims Paul Martin. "It would be tragic to lose this."

—Mark Muro

Mark Muro writes for the Arizona Daily Star in Tucson.