Briefings

edited by DAVID P. HAMILTON

NSF Watchdog Plays Up Misconduct

The National Science Foundation's inspector general, Linda Sundro, apparently has a taste for high drama. At first glance, her most recent semiannual report* suggests that fiscal year 1990 was a banner year for reports of research misconduct, contract improprieties, and criminal investigations. For instance, Sundro reports that her office received 41 misconduct complaints this year—seven times as many as it did last year.

But a closer look at the report might justify second thoughts about the extent of NSF's misconduct problem. The most disheartening case summarized in the report involves the "sexual misfeasance" of a biological researcher at a foreign field site, who allegedly was involved in 16 incidents of misconduct with female graduate and undergraduate students "at the research site, on the way to the site, and in his home, car, and office." (The inspector general found these actions to be "a serious breach of research practices" and recommended denying the researcher NSF funds for 3 years.) Other examples mentioned in the report involved minor plagiarism and "alleged noncompliance with recombinant DNA guidelines."

The inspector general did receive 14 new allegations of criminal behavior or regulatory violations over the last 6 months—including two instances of suspected forgery, a case of alleged grant fraud, and possible conflict-of-interest violations. But even these turn out to be relatively mundane. The forgery cases, for instance, involved not data fabrication or financial chicanery, but "alleged forgery of NSF letterhead."

The inspector general's office is similarly zealous in pursuing its own interests. The first section of the report complains that NSF's 25-year-old building is "deficient in many respects"—including elevators so slow that "access to upper floors [where the IG's offices are located] is routinely delayed." Facilities must be improved "if we are expected to continue to manage our programs and operations effectively," the report states.

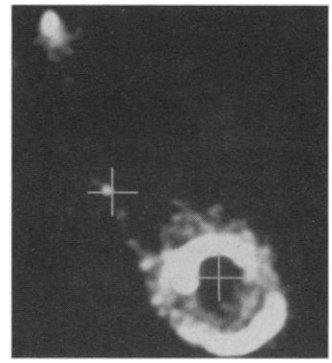
*Semiannual Report to Congress, No. 3, April 1, 1990—September 30, 1990. Office of the Inspector General, National Science Foundation.

Gazing Through a Gravitational Lens

Just 2 years ago, astrophysicists discovered the first "Einstein ring"—a distant arc of light predicted more than 54 years ago by Einstein's theory of relativity. Now scientists have found a second ring, and are using it to measure the mass of a distant galaxy.

Einstein rings are a rare type of gravitational lens, created when light or radio waves coming from a distant source are bent into a ring by the gravity of a massive object—such as a galaxy or black hole—on their way to Earth. The gravitational lens magnifies the image, allowing astronomers to see the original light source more clearly.

That's just what Glen Langston, an astronomer at the National Radio Astronomy Observatory, banked on when he and his colleagues used the radio observatories in Arizona and New Mexico to survey the sky. Not only did they discover the second ring, but they were also able to get a glimpse of its light source—a bright blue quasar some 2.8 billion light-years away.

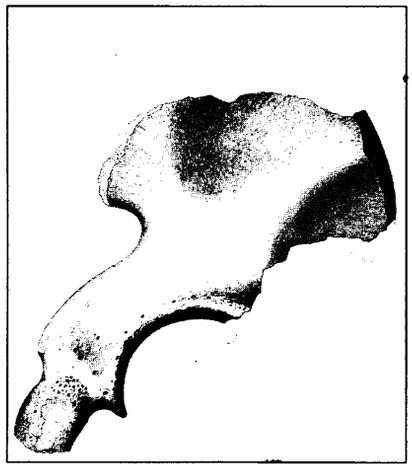


Ring around the galaxy. *A radio image of an Einstein ring.*

The object that bent the light coming from the quasar is an intervening galaxy that appears to have a mass of about 300 billion suns. Because that mass is between 8 and 16 times greater than the mass of the galaxy's visible stars, Langston's team suggests that the galaxy must contain a substantial amount of "dark matter"—invisible mass estimated to make up more than 90% of the universe.

Natchez Man Gets Younger

Ever since its discovery in a Mississippi River bayou in 1845, the battered pelvis of a 16-year-old male, known as "Natchez man," has puzzled anthropologists. Physician Montroville W. Dickeson found the fossil along with the bones of extinct mammals, including ground sloths, mastodons, horses, and bison, prompting him to declare that it was a Pleistocene pelvis. That put humans on the map in North America some 15,000 years ago—3000 years before most scientists thought likely.



Natchez pelvis. *From an 1889 illustration.*

In the last century, many scientists tromped down to the bayou to study the pelvis, including the famed British naturalist Sir Charles Lyell, who thought the bone had fallen into the swamp from nearby Indian graves. But tests of fluorine content conducted in 1895 showed that the pelvis was as mineralized, and therefore probably as ancient, as the bones of the Pleistocene ground sloth found nearby.

Most anthropologists "didn't know what to make of it," says Ted Daeschler, collections manager in vertebrate biology at the Academy of Natural Sciences in Philadelphia, now home of the pelvis. It remained forgotten until this year when an inquiry from University of Pennsylvania anthropologist John L. Cotter prompted Daeschler to dust off the pelvis and send it, along with the ground sloth bone, to the University of Arizona Accelerator Mass Spectrometer for radiocarbon dating. The results, completed last month: ground sloth, 17,840 years old (±125 years); Natchez man, 5580 years (±80 years). Says Daeschler: "It sort of puts the issue to rest. Natchez man's archaic, but not paleo."

What Next for the Energy Labs?

Militarily speaking, the Soviet Union has packed up its toys and gone home. The rationale for the Strategic Defense Initiative has largely collapsed. And even the threat of war in the Persian Gulf doesn't seem likely to create a need for new strategic nuclear weapons. So what's a conscientious secretary of energy to do with a $6-billion laboratory system built in part to ensure that weapons of mass destruction use up-to-the minute technology?

The answer: Seek a "strategic vision" for the labs. Last month, the Department of Energy named an 8-member task force to figure out how best to make use of what Energy Secretary James Watkins calls "the tremendous intellectual resources" in federal facilities such as the Los