WHISTLE-BLOWING

More Monkey Business Alleged at NYU

A year after being ousted as director of New York University's (NYU's) Laboratory for Experimental Medicine and Surgery in Primates (LEMSIP), geneticist Jan Moor-Jankowski is suing the university and a federal agency for at least $17 million. The researcher alleges he is being victimized for blowing the whistle on the university's failure to meet federal guidelines for primate care. In his suit, filed on 8 August in U.S. District Court in New York, Moor-Jankowski also charges that the U.S. Department of Agriculture (USDA)—which regulates primate research—failed to investigate his charges adequately.

Hostilities began in December 1993, when Moor-Jankowski submitted a resignation letter from NYU Medical Center's (NYUMC's) animal-welfare oversight panel, protesting the treatment of some monkeys in experiments conducted by a non-LEMSIP NYU scientist. The studies had also attracted the attention of the USDA, which consulted with Moor-Jankowski after launching an investigation. By February 1995, Moor-Jankowski says he had filed his own complaint with the USDA, charging that the NYUMC officials obstructed his attempts to upgrade LEMSIP because of his earlier protests.

As the inquiry continued, NYUMC began trying to sell LEMSIP, and in August 1995 accepted a bid from the Frederick Coulston Foundation in New Mexico. Contending that Moor-Jankowski's position at LEMSIP was redundant as the foundation would assume the facility's management, NYUMC removed him from his LEMSIP post on 9 August 1995 and allowed his annual contract as a nontenured research professor to expire on 31 August.

The USDA's initial inquiry concluded, in April 1995, by charging NYUMC with 378 violations of the Animal Welfare Act, including water deprivation of monkeys; in a consent agreement last June, NYU agreed to pay $450,000 in fines. The agency was not so receptive, however, to Moor-Jankowski's whistle-blowing charges. Last May, agency officials informed Moor-Jankowski by letter that "the evidence does not support" a retaliation complaint.

Moor-Jankowski, however, asserts that he was being punished and also links his dismissal to his protests. He claims in his suit that the USDA denied him due process because it failed to enforce a subpoena against NYUMC Associate Dean David Scotch, his supervisor, that would have required Scotch to testify about the decision to end the geneticist's contract. And he's not the only one with a complaint against the school. The American Association of University Professors (AAUP) in 1990 put NYU on its list of "censured administrations," now numbering 52, that have failed to redress complaints of violations of academic freedom and tenure. AAUP Associate Secretary Robert Kreiser says his organization has "handled more complaints from individual faculty members at NYU than from any other university."

NYU officials declined to comment on the AAUP statements or the Moor-Jankowski suit; USDA also declined comment on the suit. In a September 1995 letter to USDA's general counsel office, however, lawyers for NYUMC claim that "NYUMC's course of conduct was not dependent on Dr. Moor-Jankowski's actions and opinions. . . ." Now it's up to the court to decide on the validity of that statement.

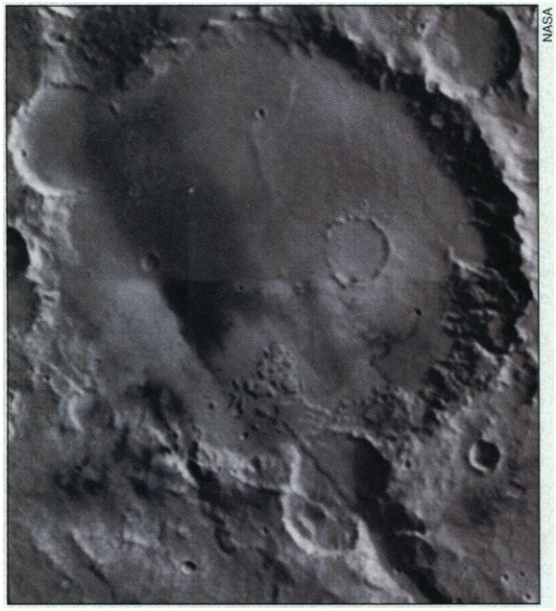
–Richard Stone

MARS MISSIONS

2003 Is Earliest to Retrieve Samples

A group of scientists wants NASA to keep its feet on the ground in planning future Mars missions despite the recent flurry of excitement over evidence of possible ancient life on the red planet. Meeting last week at NASA headquarters in Washington, D.C., the group said that NASA should not send a spacecraft to return samples of rocks until researchers have collected and analyzed data on possible landing sites and refined robotic technologies for gathering samples. That would mean a mission no earlier than 2003, just 2 years ahead of the schedule NASA was previously planning.

This down-to-earth advice contrasts with public expectations that scientists would quickly come up with more definitive evidence for or against life on Mars, following the dramatic announcement that an Antarctic meteorite consisting of a chunk of Mars rock bears tentative signs of ancient life (*Science*, 16 August, p. 864). The group did, however, begin looking at how NASA can speed up and modify its current plans for a five-mission, $1 billion program over the next decade to thoroughly analyze Mars's climate and geology with orbiters and rovers of various sizes before moving on to concentrate on finding evidence for past or present life. That program, called Surveyor, included a tentatively scheduled mission in 2005 to return samples. Now "we can step more quickly to the search for life," says Daniel McCleese of NASA's Jet Propulsion Laboratory in Pasadena, California, who heads the agency's Mars science effort and chaired the 2-day meeting of 30 scientists and engineers from NASA and several universities.



Choice location. Search for life on Mars may target sites such as Gustav crater, where a meteor impact and rivers have exposed ancient rocks.

In the course of their deliberations, NASA Administrator Dan Goldin made a surprise visit and told them not to worry about public attitudes toward future missions or the politics of funding them. He said to find "the right answer scientifically," McCleese recounted. Goldin also eased the fears of some scientists that NASA wanted a quick and simple answer by asking the group to organize its recommendations for return missions into three levels of activity—from "relaxed" to "fast"—and by telling them they should take as much time as necessary.

In particular, the group discussed how best to find more rocks that might yield chemical and fossil clues such as those in the 4-billion-year-old ALH84001 meteorite found in Antarctica. The scientists noted that deep digging won't be needed—at least at first—to find the two kinds of rocks that may contain evidence of ancient life. Natural processes such as meteor impacts and the action of rivers have excavated once-buried igneous and sedimentary rocks on parts of Mars's surface, particularly in its ancient cratered highlands. NASA can modify the Surveyor pro-

gram to move more quickly toward collecting rocks from such sites by shifting some resources from climate and mapping data and ramping up its plans to send rovers capable of characterizing sites and collecting the appropriate samples. Although some NASA officials had initially suggested pushing up a sample return mission to as soon as 1998, McCleese said even 2001 is probably too soon "at the present pace of planetary business. But we are seriously looking at a 2003 sample return," he said, contingent on funding. "If the public says move ahead [with a 2003 sample return], there's no scientific or engineering impediment. But there's definitely a resource issue."

The most important scientific and technical factors in planning the revamped program are site selection, rovers, and sample return. Orbiters and rovers should examine the mineralogy of rocks, the group said, and carry sensors that could detect signs of a "warm, wet spot" containing potential ingredients for extant life, such as methane or water vapor. Rovers should be able to do shallow digging, break open rocks, perform simple microscopy, and gather samples. The group also discussed how to prepare samples and avoid contamination, including keeping in quarantine any samples brought back. And they talked about the elements of a future mission to Mars by humans to do deep drilling and coring if it proves necessary.

To begin accomplishing these tasks, the researchers suggested that NASA tinker with its upcoming budget, now being debated by Congress. The scientists also expect help from overseas; Russia, for example, plans to send a rover to Mars in 2001 as part of a joint mission with the United States, and NASA hopes the rover can be designed to fit the new thrust of its exploration efforts. Finally, the group will recommend that NASA beef up its program jointly with the National Science Foundation to find more meteorites like ALH84001 in Antarctica.

The odds of finding more evidence for past or present life in rocks and soil from Mars will depend on the right choice of samples, the scientists agreed. Indeed, University of California, Los Angeles, planetary geologist David Paige urged the group to wait until at least 2005 for a sample return and spend the extra time developing spacecraft better able to pick out a promising array of materials.

Over the next month the researchers will consult with other scientists and NASA engineers about how many rovers and launch vehicles should be sent, and when. At the end of September the group will present its recommendations to an outside panel that advises NASA's office of space science. This, in turn, will feed into a space summit the White House is planning in December.

–Jocelyn Kaiser

MEETING BRIEFS

Scientists Plan Mercury Probe and Earth Satellite Campaign

BIRMINGHAM, U.K.—Last month the international Committee on Space Research (Cospar) met here for its 31st annual meeting. The immediate show stealers were the latest results from NASA's Galileo spacecraft, currently touring the Jovian system, and Europe's SOHO spacecraft, now in orbit around the sun. But the conference also offered previews of projects that will eventually edge those widely publicized missions off the stage: a voyage to Mercury and a multinational campaign to study Earth's magnetosphere.

Return to Mercury

Unbowed by the loss of the Cluster spacecraft—destroyed when Europe's first Ariane 5 launcher blew up in June—the European Space Agency's (ESA's) science program is preparing to approve a billion-dollar mission to Mercury that owes more than a few debts to Cluster. The Mercury mission will draw heavily on technology developed for the ill-fated craft, and it too will target a planetary magnetosphere, a region in which a planet's magnetic field—in this case Mercury's—governs the behavior of charged particles. By comparing Mercury's magnetosphere with Earth's, which Cluster was meant to study, scientists hope for new insights into how the wind of particles streaming from the sun interacts with planetary magnetic fields.

In addition to rich pickings for space plasma physicists, the as-yet-unnamed mission will yield data about solar system evolution and planetary formation. By satisfying two large communities of space scientists, the Mercury mission has become a hot favorite to be the first cornerstone mission in ESA's Horizon 2000 Plus science program, a new round of large and medium-size missions due to begin around 2005. Physicist Hans Balsiger of the University of Bern in Switzerland, who became chair of ESA's Science Program Committee (SPC) last month, says that his committee is almost certain to endorse the Mercury mission at its next meeting in November. Had Cluster not been destroyed, forcing delegates to focus on a possible makeup mission (*Science*, 28 June, p. 1866), the SPC would have done so at its meeting last month, says Balsiger, who chaired a Cospar session on proposed future planetary missions.

The last mission to Mercury was the U.S. spacecraft Mariner 10 some 20 years ago. Scientists have exhausted Mariner's data and are now eager for fresh observations to help them answer questions raised by the mission. Physicist André Balogh of London's Imperial College first put forward the idea of a European return to Mercury in 1993. He led 19 European scientists in a feasibility study of the project that defined in general terms the scientific aims and technical constraints. "We initially were proposing that the mission be one of the agency's Medium missions [which have a price tag of about $460 million], but it soon became clear that a trip to Mercury would cost much more," says Balogh.

Technical challenges are what push the price tag into the billion-dollar bracket. Because Mercury is very close to the sun, a spacecraft visiting it will experience intense solar heating, requiring heavy insulation and some active temperature control. What's more, the sun is a powerful radio source that could swamp signals from the probe. To hold its own against the sun's radio noise, it will need sophisticated high-gain antennas.

Nor is it going to be easy to get there. Mercury's proximity to the sun means that its orbital velocity is much higher than that of the outer planets. As a result, the spacecraft will have to accelerate to great speed to catch the planet and then slow down drastically to enter an orbit around it—all of which will

ESA

In the hot zone. Artist's conception of Mercury orbiter.