PALEONTOLOGY

Temple, Tourism May Sink Chinese Museum

NANJING, CHINA—City officials have asked one of the country's most decorated research institutions to relocate a science museum already under construction. The surprising request has pitted scientists at the Nanjing Institute of Geology and Palaeontology (NIGP) against community leaders and triggered a heated debate over urban redevelopment.

NIGP, created in 1951 at the dawn of the modern Chinese state, has never had a public outlet to showcase its fossils and other discoveries. So, scientists were elated last June when city authorities, after a 4-year review, approved plans for a $3.6 million, three-story museum on land near NIGP's offices, research labs, library, and collections. Ground was broken in December 2001, and NIGP officials say the project is about 40% complete.

But their joy turned to sorrow on 22 February when a vice mayor of Nanjing told them to suspend construction. The official said the museum would obstruct the view of the Cock Crowing Temple, a 1400-year-old Buddhist nunnery and tourist attraction that sits on a nearby hill. Last month, city officials unveiled three designs intended to boost tourism by enhancing the temple vista. One would convert NIGP's two oldest buildings into a park, and another would tear down the library and specimen buildings to create more open space. All would uproot the museum and splinter the institute's lush campus.

Craning their necks. Buddhist leaders at the Cock Crowing Temple in Nanjing worry that construction of a paleontological museum (top left) could detract from the historic site.

CREDITS: (TOP TO BOTTOM) C. SLAYDEN; MA GUIHUA

"We were very much surprised to hear this," says NIGP Professor Jin Yugan. "It's not right for the government to make the decision [to halt construction] without first consulting the Chinese Academy of Sciences [CAS, which operates NIGP] or the institute. After all, the project has gone through all legal formalities." He and five other academicians fired off a letter asking city officials to reconsider the renovation. Moving the museum, they claimed, "will affect not only scientific research and popular science, but also international exchange." The letter has gone unanswered. But another missive—this one from a grade-school student to the local newspaper—has become a rallying cry for those who feel the museum should be moved.

Indeed, things are not looking good for NIGP. The minutes of a town meeting on 18 April, called to discuss the issue, noted that the museum "will certainly affect the visual effect of the landscape and make the space look more crowded. People from all walks of life have responded strongly to this. It is thereby proposed that the museum should move to a new site and that the construction be stopped." NIGP official have raised objections to the minutes, which stand as the only public record of the controversy.

Nunnery officials say that they are watching the debate from the sidelines because the land belongs to the state, although they support the city's proposal. "It's not our idea. It's the government who wants to do it," says Abbot Lian Hua. At the same time, a nun in the abbot's office notes that moving the museum would provide the temple with "more green land, a pool to set free captive fish, and more room for citizens to worship and rest."

That's not how the local scientific leadership sees it. Yan Shouning, head of the Nanjing Branch of CAS, says that the nunnery shares blame with the media. "The municipal government supports the museum," he insists. "But [it must accommodate] the different opinions from the local religious circle and the press." Zhou Xuebai, vice mayor in charge of city construction, declined to comment on Yan's analysis of the dispute; he says that he is merely "coordinating the matter" by acting as a mediator.

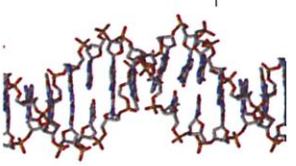
Prominent researchers hope to break the deadlock by appealing directly to the central government. The day after the 18 April meeting, 33 academicians of CAS and the Chinese Academy of Engineering in Nanjing signed a letter to top Chinese leaders urging the government "to care more about scientists and the future of the country's research institutes than tourism or local development." That letter has so far gone unanswered, however, leaving institute officials wondering about the museum's fate.

–XIONG LEI AND MA GUIHUA

Xiong Lei and Ma Guihua write for *China Features* in Beijing.

ScienceScope

Genetic Outlaws Misuse of someone's genetic data should be a criminal offense, according to a British government advisory panel. The Human Genetics Commission this week issued a report on the use and storage of genetic data in research, law enforcement, and medicine. The government-appointed panel strongly endorsed national DNA data banks for use in law enforcement and biomedical research but called for independent oversight panels to prevent misuse—or any crossover between the two uses. The report also called for a law imposing criminal penalties on anyone who tests someone's DNA or looks at another's genetic data without permission.



Genetic theft "constitutes a fairly major intrusion of privacy" and should be specifically outlawed, says commission member Alexander McCall Smith, a professor of medical law at the University of Edinburgh. The government is expected to issue its own genetics report this fall before proposing any legislation.

Problem Child The streak of bad news for Lawrence Livermore National Laboratory continued this week with the release of a report showing wage gaps for its minority employees that are generally greater than those at two sister weapons labs in New Mexico. The California weapons lab has been in managerial limbo since the Department of Energy (DOE) last month put on hold plans to name a new director (*Science*, 3 May, p. 821). Now, a General Accounting Office report says that male Asian professional staff members at Livermore earn an average of 5% less than their white colleagues, and female Asian professionals earn 8% less; wages for female Hispanic workers are 10% lower. Male Hispanic professionals also got merit pay increases that averaged 51% less than those of their white colleagues.

"Livermore certainly looks like it has the potential of being the problem child of the three major weapons labs," says Representative David Wu (D–OR), who helped push for the study. DOE officials have agreed to look into the discrepancies, he says, and he hopes the next Livermore director will be aware of the issues. Some Livermore employees have already sued the lab for discrimination. The House Science Committee, meanwhile, plans summer hearings on race issues at the labs.

sult that light bends in the opposite direction. Veselago's speculation appeared to have been confirmed last year, when a group at the University of California, San Diego (UCSD), made a "metamaterial"—a microscopic lattice of circuit boards imprinted with copper "split ring resonators" and wire strips (*Science*, 6 April 2001, p. 77)—said to display a negative index of refraction for microwaves.

Their work was spurred by Pendry's calculation that these negative index media have an added bonus: They amplify so-called "evanescent waves." In most materials, parts of a light wave decay—the evanescent wave—and this ultimately limits the clarity of a lens. Pendry's insight was that these waves do not decay as usual when light is refracted negatively.

But some researchers think such a phenomenon is too good to be true. A team led by Prashant Valanju at the University of Texas, Austin, says in the 6 May issue of *Physical Review Letters* (*PRL*) that Veselago himself made a mistake in the direction of a light ray in a fundamental diagram. That purported error casts doubt over all subsequent research with these materials. Negative refraction "would violate two basic laws of physics: that no signal can travel faster than light, and that causality must be obeyed," says Valanju.

In the 20 May issue of *PRL*, Nicolas Garcia and Manuel Nieto-Vesperinas of Spain's Higher Council for Scientific Research in Madrid claim that it's Pendry, not Veselago, who's in error. For the evanescent waves to be sufficiently amplified, they say, the energy density in the material would have to be infinite—a physical impossibility. Valanju thinks the UCSD group did not see negative refraction in its metamaterial but rather "diffraction effects."

"Whatever our experiment was," says David Smith of the UCSD team, "the [critics] wouldn't be happy," because it conflicts with Valanju's theoretical predictions. Pendry stands by the UCSD data. He believes that Valanju errs in calculating the velocity of light in these negative index media and that the objections to the "perfect lens" are largely emotional. Pendry and Smith are submitting another paper to *PRL* that they believe answers Valanju's theoretical criticisms. But new experiments—at UCSD and elsewhere—may be the only way to bring this debate into sharper focus.

–KONSTANTIN KAKAES

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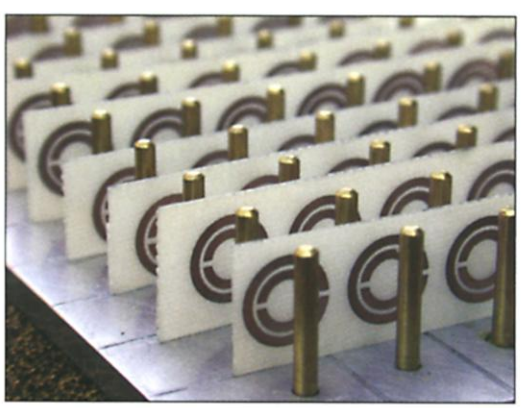

Weird stuff. Researchers say this "metamaterial" can refract microwaves the wrong way.

RUSSIA

Scientists Wary of New Academy Reforms

MOSCOW—A revolution appears to be under way at the Russian Academy of Sciences (RAS)—but it's unclear whether this is a genuine transformation of Soviet-style management at the country's research behemoth or a cynical attempt to thwart real reform.

At the RAS general meeting last week, academy members approved a sweeping overhaul that would merge several of the disciplinary fiefdoms, stripping power from top officials on RAS's governing board, the presidium. The academy's leadership portrays the reorganization—creating nine divisions out of the existing 18—as a way to steer more funding to the cream of its roughly 400 institutes. However, others view it as shuffling chairs on the deck of the *Titanic*.

In either case, observers agree that the academy has indeed hit an iceberg in the form of President Vladimir Putin. At a meeting of his top advisers last March, Putin declared that the state would no longer distribute research funding as a kind of welfare but instead focus it on several unnamed priority directions. That would be a radical change for RAS, which since the Soviet collapse has fiercely defended its system of doling out crumbs to each scientist, rather than conducting merit-based competitions. In the meantime, the unknown fraction of scientists who actually perform research has had to subsist on tiny Russian grants or team up with foreign labs.

The new system, which incorporates Putin's thinking, could strengthen areas such as mathematics that once commanded respect worldwide but have since lost scores of top minds to emigration. Merging RAS's two mathematics divisions, says Guriy Marchuk, who until 1991 served as president of RAS's Soviet predecessor, could resurrect the discipline. A single division will now be responsible for funding much of Russia's mathematics, with explicit instructions to funnel more money to the elite and eliminate redundant projects, says Gennady Mesyats, deputy to RAS presi-

ScienceScope

Favored Fauna Animals in Germany, which already enjoy some of the strictest legal safeguards in Europe, are about to be labeled a protected resource. On 17 May, the lower house of parliament, the Bundestag, voted overwhelmingly to amend the constitution to include animals in a phrase pledging the state to protect "natural resources" for "future generations." The vote—543 in favor, 19 opposed, and 15 abstaining—brushed aside objections from the country's leading research organizations. Next week Germany's upper house, the Bundesrat, is expected to go along.

Although the change is expected to have little immediate impact, many scientists worry that it will give activists new grounds on which to attack the use of animals in research. Another section of the German constitution that protects scientific freedom means researchers should win such suits, says Ivar Aune of the Gesellschaft Gesundheit und Forschung e.V. in Berlin, a research advocacy organization. But the resulting delays, he says, might mean "we could win the battle and lose the war."

Now Batting for NSF The House and Senate spending panels that oversee the National Science Foundation's $4.8 billion budget made it clear during recent hearings that they view the 5% boost proposed by President George W. Bush to be inadequate. Although it's impossible to predict NSF's budgetary fate before either panel gets its spending allocation for all the agencies under its jurisdiction, here are some educated guesses based on comments from influential members and their staffs:

- An overall increase of between 8% and 10%;
- More money for disciplinary research, especially in the physical sciences;
- More money for large new facilities already partially funded, such as a high-altitude airplane and a millimeter-wavelength astronomical array in Chile;
- More money for undergraduate research; and
- Full support for initiatives in nanotechnology and information technology.

Sadly, from NSF's perspective, legislators will also almost certainly include money for their pet research projects.

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