University of Calgary in Alberta notes, paleontologists can put a cap on ecological questions such as how much territory a tyrannosaur could patrol in a day and how many top carnivores an area could support. Hutchinson says the technique of calculating minimum muscle mass could be used to answer other questions, such as whether sauropods or pterosaurs could walk bipedally and which early tetrapods had the strength to walk on land. –ERIK STOKSTAD

ASTRONOMY

Solar System Kicks Up Its Own Dust

An alien civilization might be able to deduce the existence of planets in our solar system by examining the infrared light emitted by a ring of dust around our sun. A team of astronomers argues that the telltale dust could not have formed without planets, and they propose that stars surrounded by similar rings may be a good place to search for extrasolar planets.

Dust beyond the orbit of Saturn was first detected in the 1970s by NASA's Pioneer 10 and Pioneer 11 spacecraft. But no one knew whether it came from inside or outside the solar system. One clue came from the realization that the dust must get replenished—otherwise, it would get sucked up by the sun or ejected from the solar system.

Markus Landgraf of the European Space Agency (ESA) and colleagues suspected that colliding objects in the Kuiper Belt—a flat cloud of debris in the outer solar system probably left over from planet formation—might be kicking up the dust. Using measurements of interstellar dust recorded by detectors aboard ESA's Ulysses spacecraft, the team determined that the grains the Pioneers had observed were too coarse to have come from outside the solar system. The only possible source is the Kuiper Belt, according to computer simulations to be published in *The Astrophysical Journal*. Landgraf's team calculates that about 50 tons of dust are created each second inside the belt—enough to maintain a dust ring that should be bright at infrared wavelengths when seen from afar. Another key signal of planets should be a distinctive pattern of gaps and edges in the dust cloud, carved out by gravitational resonances with Jupiter and other giant planets.

"It's a very interesting report," says David Trilling of the University of Pennsylvania in Philadelphia. "Looking for gaps or structures in dust disks [around other stars] is a very compelling way to look for planets." Rings of dust that emit infrared light have been discovered around a number of nearby stars, and Trilling's team has been searching for dust around more than 40 others. So far, though, no one has found stars that have both planets and a dust ring.

–GOVERT SCHILLING

Govert Schilling is an astronomy writer in Utrecht, Netherlands.

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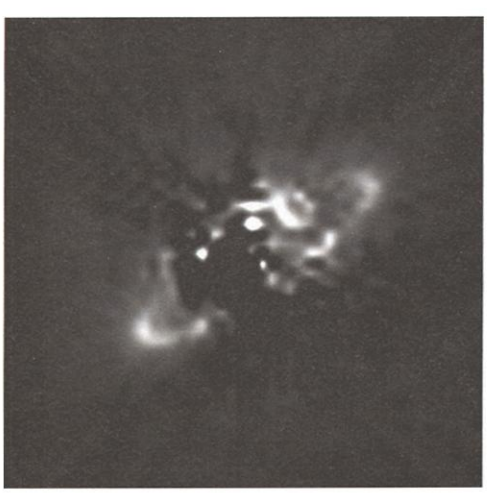

Dusty disk. Seen from afar at infrared wavelengths, our solar system might resemble star HR4796A, which also sports a bright dust ring.

JAPAN'S UNIVERSITIES

Reforms Would Loosen Bonds, Cut Safety Net

TOKYO—Japanese academics appear set to win new freedoms that would allow closer collaborations with private companies and greater autonomy in spending research grants. But they may have to pay a steep price: an end to the security of jobs for life and, perhaps, stricter evaluations of the quality of their work.

Last week, an advisory panel to the Ministry of Education, Culture, Sports, Science, and Technology recommended abolishing civil servant status for academics. The recommendation, expected to appear in a final report later this month, would grant administrators flexibility in hiring, including the option of putting staff on fixed-term contracts. If the change applies to current employees—now subject to legal debate—it could affect 60,000 faculty members and 58,000 staff at 98 national universities and 15 institutes.

As civil servants, academics enjoy lifetime employment, and the vast majority of researchers remain at one institution for their entire careers. Reformers have argued that this leads to a stagnant scientific environment. "The biggest problem of the university system is the lack of mobility [among academics]," says Shinichi Nishikawa, a molecular geneticist at Kyoto University's Graduate School of Medicine, who serves on the advisory panel.

The employment issue is the last major

ScienceScope

Patent Fight, Round 2 French, Belgian, and Dutch groups are opposing the second of three European patents awarded last year to an American biotech company for a breast cancer test. The test, marketed by Myriad Genetics of Salt Lake City, Utah, detects mutations in the *BRCA1* gene, which are responsible for more than half of all hereditary breast cancers. Opponents argue that the patents are too broad and would block the development of alternative tests. The challenge, filed with the European Patent Office in Munich on 22 February, is supported by the governments of the three countries.

Last fall, many of the same organizations—including the Curie Institute in Paris and Belgian and Dutch human genetics societies—filed a challenge to the first patent, which covers use of the gene's sequence to create diagnostic tests (*Science*, 14 September 2001, p. 1971). The second patent covers a list of specific mutations in *BRCA1* implicated in breast and ovarian cancers. The patents give Myriad "a monopoly on genetic testing anywhere and anyhow," says molecular geneticist Dicky Halley of Erasmus University in Rotterdam. Greenpeace protesters hung a banner on the patent office in Munich (above).

Myriad officials were not available for comment, but they have said that the patents are justified.

Loka Lucre Supporters of the Loka Institute are scrambling to save the nonprofit organization from a severe cash crunch. Founded in 1987, the Amherst, Massachusetts–based Loka is devoted to increasing grassroots involvement in science and technology. It has pioneered the U.S. use of "science shops," workshops designed to address local issues and attract input from community groups.

But executive director Jill Chopyak resigned last month, and the funding climate for nonprofits "has been brutal," according to a recent board statement, forcing the group to suspend operations.

Still, Chopyak believes the problems won't be "the death of Loka. The board is really committed to expanding the donor base." Directors say they want to raise $100,000 by 1 August. For the time being, Khan Rahi, who coordinates Loka's Community Research Network, will oversee the institute.

Contributors: Elizabeth Finkel, David Malakoff, Michael Balter, Andrew Lawler