ence the flow of water through a material. And plants are full of hydrogels, in the form of pectins that glue cell walls together. Could pectins regulate the xylem's water flow? They injected the xylem with solutions of varying pH and polarity, factors known to activate hydrogels. Low pH and nonpolar solvents did, indeed, spur immediate increases in xylem flow rate—a similar effect, the researchers say, to the xylem's uptake of salty water from soil.

Further experiments localized this activity to the xylem's "pit" membranes—a sievelike mesh of cellulose fibers and pectins. Water flowing up the xylem must pass through these membranes. As a plant soaks up soil minerals, the researchers suggest, the pectins can either swell or shrink. When pectins swell, pores in the membranes are squeezed, slowing water flow to a trickle. But when pectins shrink, the pores can open wide, and water flushes across the xylem membrane toward thirsty leaves above.

Now Holbrook's team wants to figure out how, exactly, plants put the xylem's water-control system to work. Zwieniecki suggests that the xylem preferentially waters branches or leaves most in need of a drink. The membrane mechanics may also help the xylem deal with drought. But the scientists are ready to be surprised—again. "It had never occurred to me that the xylem could have these inner controls," remarks Pickard. "There must be a lot more to learn here."

–KATHRYN BROWN

Kathryn Brown is a writer in Alexandria, Virginia.

NATIONAL SCIENCE FOUNDATION

Transition Rumor Targets Colwell

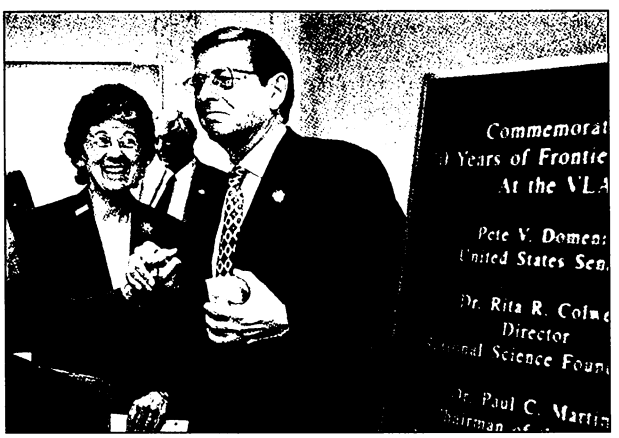
It was a classic Washington rumor. The incoming Bush Administration had told Rita Colwell, the director of the National Science Foundation (NSF), to hit the road. The supposed evidence? The head of the transition team for NSF, Richard Russell, had held a brief, get-acquainted meeting with Colwell that, according to some sources, "was a disaster." Russell, it was noted, has been a staffer on the House Science Committee, whose chair, Representative James Sensenbrenner (R–WS), had sparred publicly with Colwell and last year drafted a reauthorization bill with language intended to curb some of her powers. The message allegedly was being conveyed by former Energy Secretary James Watkins, who has been advising the new Administration on science and technology issues.

With the scientific community already nervous about the new president's commitment to basic research, the rumor spread last week like wildfire. No matter that Colwell is in the midst of a 6-year term that runs until 2004, that she had told colleagues the meeting went well, and that transition officials deny that any mention of Colwell's tenure was ever raised. Another complication is that the outgoing Clinton Administration had explicitly exempted Colwell and other presidentially chosen agency heads with "term appointments" from the need to submit their resignation—a move that makes it easier for the new president to clean house—and that Colwell has said repeatedly that she hopes to complete her term. In addition, there is little evidence that the new Administration so far has focused on science policy at all, much less on who should lead a low-profile agency like NSF.

Indeed, it may have been the absence of real news that caused things to snowball in the 48 hours preceding last weekend's inauguration ceremonies. Members of the National Science Board, NSF's presidentially appointed oversight body, contacted friends in high places to trumpet the danger of "politicizing" NSF by replacing its director in midterm. Although the board issued no public statement, Watkins, who sources say was "extremely upset" by rumors of his involvement, sent its 24 members an e-mail applauding them "for taking such a strong, timely position." Scientific societies began collecting signatures on a letter that urges the new president to maintain the "independence of the director's office" as the best way to protect the "integrity of basic research."

By Monday, the fire seemed to be subsiding. "Dr. Colwell is enthusiastically looking forward to completing her term," says her spokesperson, Curt Suplee. However, because it's impossible to disprove, and because nobody has stepped forward to claim responsibility for starting it, the rumor may continue to smolder at least until the new Administration signals its intentions toward NSF.

–JEFFREY MERVIS



Hearing whispers. Rita Colwell, with Senator Pete Domenici, hopes for more opportunities to celebrate NSF facilities like the Very Large Array (VLA) radio telescope.

CREDIT: MATT BERNHARDT/AP

CLINICAL MEDICINE

FDA to Release Data On Gene Therapy Trials

Moving to allay public concerns over the risks of gene therapy experiments, the U.S. Food and Drug Administration (FDA) last week proposed publicly releasing much of the safety and protocol data from clinical trials that it now keeps confidential. The agency wants to apply the same policy to animal-to-human transplants, another controversial experimental procedure.

Several gene therapy researchers praised the decision. "We think public fears should be assuaged, and one way to do it is to make the information available," says Inder Verma of the Salk Institute for Biological Studies in La Jolla, California, president of the American Society of Gene Therapy. Phil Noguchi, director of the cellular and gene therapy division at FDA's Center for Biologics Evaluation and Research, agrees that the proposed rules are important symbols: "It's the perception of something being hidden that's the scary part." Biotech industry officials, however, are not pleased; they worry that releasing clinical data could stifle drug development and that the public may misinterpret the safety reports.

The changes come in response to the 1999 death of 18-year-old Jesse Gelsinger in a gene therapy trial at the University of Pennsylvania in Philadelphia. The incident triggered a flurry of reports and congressional hearings on whether safety problems from this and other trials were being fully disclosed by sponsors, whether academic or commercial (*Science*, 12 May 2000, p. 951). It also revealed the confusion over current government reporting requirements.

Under the proposed rule, FDA would make public much of the information that sponsors now submit in confidence to the agency on their gene therapy clinical trials, including preclinical toxicity data, protocols, informed consent forms, ongoing reports of adverse events, and records of any FDA investigations. Under FDA rules, for example, companies must report within 7 to 15 days serious events that are unexpected and possibly related to the therapy. Companies themselves would remove personal and confidential business information from these documents, which FDA would then post on the Internet.

The Biotechnology Industry Organization (BIO) says the FDA proposal sets a "trou-

bling precedent" by carving out an exception to its confidentiality policy. BIO officials are concerned that confidential patient and business data may inadvertently be released. What's more, says BIO bioethics counsel Michael Werner, releasing data on all adverse events before they can be investigated could "be misleading or misunderstood or taken out of context" by patients and the public, as many of these problems are related to a patient's underlying disease and not the therapy. But Noguchi disagrees, noting that the only events that sponsors have to report immediately are those possibly related to treatment; the rest are summarized in an annual report.

Federal officials say this new body of information will "complement" the work of the Recombinant DNA Advisory Committee (RAC), which advises the director of the National Institutes of Health (NIH) on the ethics and safety of gene therapy trials. The RAC already releases protocols and safety reports on NIH-funded trials (www4.od.nih.gov/oba/rdna.htm). (Those few investigators with no direct or indirect NIH funding can submit information voluntarily to the RAC but would be obliged to follow the FDA rule.) The RAC now wants to analyze those adverse event reports for trends and recently proposed establishing a new working group to do so. Amy Patterson of the NIH Office of Biotechnology Activities, which runs the RAC, explains that the FDA proposal will satisfy the public's desire for access to safety information right away, while the RAC will continue to provide an open forum for analyzing the reports.

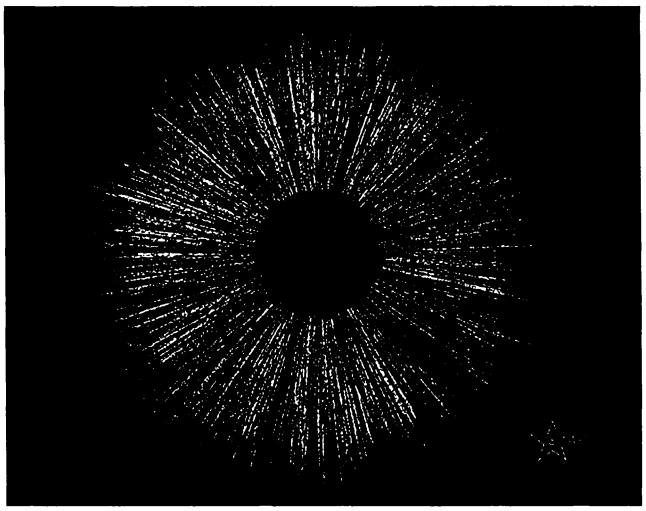
The rules also cover the rapidly evolving field of animal organ and tissue transplants. FDA plans to release data from such xenotransplantation trials, while the Department of Health and Human Services (HHS) is finalizing more stringent guidelines for trials as part of a broader effort to reduce the risk of introducing new viruses into the population (*Science*, 30 January 1998, p. 648). A new HHS xenotransplant advisory committee—similar to the RAC—will hold its first meeting in late February. **–JOCELYN KAISER**

HIGH-ENERGY PHYSICS

New Collider Sees Hints Of Quark-Gluon Plasma

STONY BROOK, NEW YORK—Ever since the Relativistic Heavy Ion Collider (RHIC) was turned on last June, physicists have been eagerly awaiting news from the newest, biggest particle accelerator on the block. The wait is over. The first results, presented at an international particle physics conference here last week,* hinted that scientists have finally managed to coax atomic nuclei to melt—creating a state of matter that hasn't existed since the big bang.

Inside RHIC's tunnels at Brookhaven National Laboratory in Upton, New York, gold nuclei accelerate to more than 99.99% of the speed of light and smash into each other head on. By analyzing the showers of particles that fly off the colliding nuclei, physicists are attempting to figure out how matter behaves when so much energy is poured into so small a space. Last year, scientists at CERN in Geneva implied that their collider had slammed nuclei together so hard that the individual particles that make up the atom melted into a liquid melange of the particles' components (*Science*, 11 February 2000, p. 949). When RHIC started up, physicists hoped that its data would show evidence of such a quark-gluon plasma. So far, the most tantalizing hints have come from what scientists *don't* see.



CREDIT: BROOKHAVEN NATIONAL LABORATORY

Nuclear shrapnel. In RHIC's STAR experiment, particles spray away from colliding gold nuclei, viewed face-on. Asymmetric explosions may bear witness to quark-gluon plasmas.

At low energies, a nucleus behaves something like a clump of hard wax pellets. Slam two into each other, and particles shoot in all directions, caroming off one another like hard billiard balls. By studying jets of particles spraying from the sides of these collisions, physicists can figure out what took place during the collision. At RHIC's higher energies, something different is happening. "The distribution of fast-moving particles is lower than one would predict," says Yale physicist John Harris, spokesperson for STAR, one of RHIC's four experiments. There seem to be fewer high-energy particles coming off the sides of the collisions than expected.

Just as someone counting wax pellets might explain such a deficit by saying that the wax had melted at high energies, particle physicists suspect that the particles in the nuclei might be melting into a sticky quark-gluon plasma that slows down particles shooting out the sides—quenching the jets. "It's a very exciting observation. It hasn't been seen before," says Tim Hallman, a physicist at Brookhaven working on STAR. "It's early enough that people are guarded, but it matches predictions pretty well of when you make a transition to the quark-gluon plasma."

Another line of evidence for a quark-gluon plasma has to do with how the wreckage of the collisions sprays away. Most often, the two colliding gold nuclei don't slam directly head on. Instead, the nuclei—flattened to pancakes by the extreme relativistic speeds at which they are traveling—strike each other off center, colliding only in an almond-shaped region where the disks overlap. To scientists' surprise, particles scattered off in an almond-shaped distribution, rather than evenly. Calculations showed that it would be very hard to preserve the almond shape if the subatomic particles were intact, but easier if the particles had broken down into a soup of components. "It seems to imply that something weird is happening," says Jim Thomas, a physicist at Lawrence Berkeley National Laboratory in California who is working on the STAR experiment at RHIC. "But more than that wouldn't be prudent to say."

Although the evidence is suggestive, nobody is willing to claim that RHIC has actually spotted a quark-gluon plasma. "It's a consistent picture if the quark-gluon plasma is being formed," says CERN physicist Carlos Lourenco. But Lourenco warns that the RHIC measurements don't show a sharp, well-defined transition between ordinary matter and a quark-gluon plasma: "What we're looking for is big—to see a phase transition."

That might happen during RHIC's next run, scheduled to begin in May, which will last longer, reach higher energies, and employ more sophisticated detectors. In the meantime, particle physicists are simply saying that interesting things are happening in RHIC's tunnels—not bad for a first run. "Something is going on that we don't understand," says Columbia University's Bill Zajc, spokesperson for RHIC's PHENIX experiment. "We expected to open up a new frontier, but this is too easy," he adds—and that "has some people a little concerned."

–CHARLES SEIFE

* Quark Matter 2001, 15–20 January.