oligosaccharide takes just minutes.

That simplicity is likely to appeal to biologists looking to study the role of oligosaccharides in cells, says Bertozzi. "The field of carbohydrate biology is the last frontier in a large part because we haven't had the tools to make and study these molecules," she says. The Scripps team still has some big gaps in their library of sugar building blocks, and they have not yet tried to combine the computer control with robotic synthesizers. But biologists may at last be nearing the day when they can cook up these sugars as easily as they can make their other staples.

–ROBERT F. SERVICE

SCIENTIFIC MISCONDUCT

Investigations on Trial In a Texas Court

Kimon Angelides didn't go quietly when Baylor College of Medicine found him guilty of scientific misconduct in 1995 and removed him from his lab. He sued everyone in sight: Baylor; its president, William Butler; seven faculty colleagues who sat on a panel that investigated him; and two junior members of his own lab who gave evidence against him. Angelides, a professor of molecular physiology, claimed that he had been slandered, his career ruined, and a decade's worth of scientific work destroyed. He demanded payment of damages, according to court records, "in an amount commensurate with Baylor College of Medicine's net worth and its outrageous conduct." These demands, and Baylor's finding that Angelides's scientific misconduct called for "the severest of sanctions," are now coming to a head.

Both decisions could affect the way misconduct in biomedical research is prosecuted in the future.

After a detour through the federal courts, Angelides took his complaint last year to the Harris County District Court in Houston, a state court. The trial began on 25 January, and—barring a last-minute settlement—the jury is expected to give its verdict in a week or two. In an entirely separate proceeding, a board at the Department of Health and Human Services (HHS) in Washington, D.C., has finished its own review of the misconduct findings, after an appeal by Angelides. The HHS Departmental Appeals Board reexamined the full record—including a 1997 decision by HHS's Office of Research Integrity (ORI) supporting Baylor and barring Angelides from receiving U.S. grants for 5 years. The chair of the HHS panel, Cecilia Ford, said the ruling will be out "shortly."

Both decisions could affect the way misconduct in biomedical research is prosecuted in the future. A verdict in either venue in favor of Baylor and ORI might strengthen a federal enforcement system that remains a bit shaky after several high-profile setbacks (*Science*, 28 February 1997, p. 1255). But a judgment against Baylor—which tried to follow HHS enforcement guidelines to the letter—might make other universities more cautious about pursuing new misconduct allegations. And a finding of slander against Baylor panel members would send a chilling message to researchers asked to serve on future investigation committees.

The case has its roots in experiments Angelides and his colleagues did in the 1980s on the biochemistry of nerve impulses, specifically in how signals are passed through sodium channels of rat brain cells. Their work seemed to surge ahead in a series of successful grants and papers in 1990 and 1991. But it hit a snag in July 1992, when the chair of Angelides's department at Baylor, Arthur Brown, raised questions about the source of data in a paper. (Brown and Angelides, according to HHS and court records, had clashed professionally and personally.) An initial panel at Baylor dismissed the charges, but a second, assembled after Baylor's president had announced no tolerance of scientific misconduct, made a more complete investigation. It also expanded the scope. After 2 years, this panel found that Angelides had falsified and fabricated data in five grant applications and five published papers.

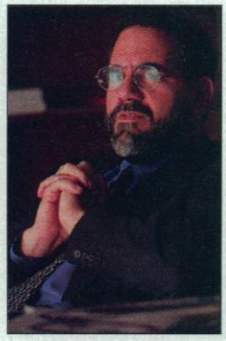
Angelides conceded that some of the data were wrong and some appeared to be falsified. But he argued that they were honest errors or the work of two junior members of the lab, whom he accused in 1993 of scientific misconduct. Baylor's investigators did not find evidence of scientific misconduct by the junior staff, however. And because Angelides refused to take responsibility, the panel said, "the severest of sanctions were warranted and necessary." Angelides was fired and, as his horrified students looked on, a maintenance crew hustled him out of his lab on 6 March 1995.

Angelides declines to comment on the case because it is in trial. But his attorney, James Pianelli of McGehee and Pianelli in Houston, says it has already cost his client and the university "millions" of dollars. To pay his legal bills, Angelides sold his house

CREDIT: RICK KOZAK

ScienceScope

Under the Microscope Psychiatric experiments will get greater scrutiny from funders at the National Institute of Mental Health (NIMH). On 5 February, an advisory panel gave NIMH head Steven Hyman (left) the go-ahead to form a special working group to examine proposed "challenge" studies, in which patients' symptoms are exacerbated by medication, and "drug washout" studies, in which medication is withdrawn. Such experiments have drawn intense criticism from some lawmakers and patient advocates (*Science*, 22 January, p. 464). The group—expected to number up to 10 ethicists and NIMH "outsiders"—may not have much work to do. Hyman estimates that just five of 250 grants made in a recent funding round would have gotten the special treatment. But he says NIMH has "to be proud of and ready to defend" the research it funds.



No Alien Nation Swiss biomedical researchers could soon face a ban on xenotransplants—the grafting of animal organs, tissues, or cells into people. On 7 February, Swiss voters approved by a wide margin a referendum giving Parliament the authority to regulate xenotransplants. After the vote, Swiss president and science chief Ruth Dreifus said that government leaders will ask Parliament to forbid alien transplants, except in special cases. Some scientists and biomedical companies worry that the new rules could begin a regulatory trend in Europe that would endanger proposed xenotransplant trials. Other experts, however, would welcome a ban: They fear the transplants could allow animal viruses to jump to humans, triggering new disease outbreaks.

Presidential Timber? Scientists took a drubbing in a straw poll that asked the public to decide which of 20 prominent women were most qualified to be U.S. president (*Science*, 2 October 1998, p. 21). Neither cardiologist Bernadine Healy nor psychologist Judith Rodin made the top five, although physician-astronaut Mae Jamison was a runner-up. Prominent winners included Hillary Clinton and Elizabeth Dole.

its rules for extramural grants such that "all data" collected using federal funds would be accessible under the Freedom of Information Act (FOIA). Until now, only data already in an agency's possession have been subject to FOIA. Shelby and others, backed by several business groups—including one that in 1997 tried unsuccessfully to get its hands on data from a federally funded air pollution study—argue that data paid for by taxpayers and used to craft regulations ought to be made available whenever a citizen demands it.

Many voices in the scientific community have registered deep concern about the new law, with organizations ranging from the National Institutes of Health (NIH) to the Association of American Universities citing worries over the law's apparent reach (*Science*, 15 January, p. 307). Among other things, these groups argued, the law could deprive researchers of the chance to analyze and publish their data before it becomes public; it might lead to invalidated clinical trails by allowing subjects to find out what treatment they are getting; and it could give companies access to privileged information. In a letter to OMB last month, Bruce Alberts, president of the National Academy of Sciences, argued that the law would bring "an enormous change in federal policy" that "will have serious, unintended consequences for the nation's research enterprise."

Some of those concerns were addressed in OMB's proposed rule, which appeared on 4 February in the *Federal Register*. The Administration's proposal would apply only to data from "published research findings produced under an award that were used by the Federal Government in developing policy or rules." Furthermore, agencies would have broad powers to withhold data under FOIA guidelines that aim to protect national security, proprietary information, and individual privacy. "They've taken a very constructive first step in drawing some boundaries," says Wendy Baldwin, NIH deputy director for extramural research.

The Administration acknowledges that the plan leaves many issues unresolved. "We're publishing our first cut," says an OMB spokesperson. Yet to be worked out is how to define "data"—whether to include lab notebooks, for example—and whether the term "published" should include, say, data described at a talk or in a press release. Another ambiguity is where to draw the line on data used to develop public policies: Could it include an entire "body of research?" Baldwin asks. The public has 60 days to submit comments on the proposal before a final version is hammered out. "The community needs to think very seriously about what the implications of this would be," Baldwin says.

Don't expect the final rule to be the last word. The Administration's narrow interpretation is likely to be challenged in court "by anybody who wants more information than they can get," Alberts told *Science*, a process that could drag out for months or years.

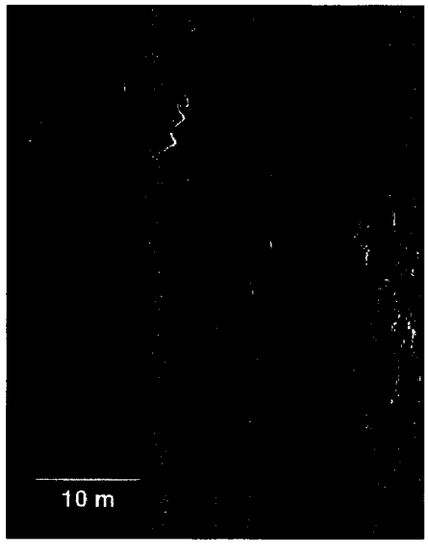
–JOCELYN KAISER

ARCHAEOLOGY

Black Sea Flood Theory to Be Tested

CAMBRIDGE, MASSACHUSETTS—Scientists plan to mount a major expedition this summer to look for remains of ancient settlements submerged in the Black Sea, a team including Robert Ballard, discoverer of the *Titanic* wreck, announced here on 30 January. The archaeological treasure hunt is meant to test a controversial theory that fast-rising waters some 7500 years ago drove coastal dwellers inland at a dizzying 1 to 2 kilometers a day, a cataclysm that some researchers say could have spread farming into Central Europe and perhaps even account for the biblical tale of Noah's ark.

In late 1997, oceanographers William Ryan and Walter Pitman of the Lamont-Doherty Earth Observatory in Palisades, New York, published evidence from sediment cores that about 5500 B.C., the rising Mediterranean Sea topped the shallow Bosporus straits and began gushing into the nearby Black Sea, until then a landlocked lake. The flood raised water levels 15 centimeters a day; by the time it ended, the sea was up about 150 meters and an area the size of Florida was underwater (*Science*, 20 February 1998, p. 1132). Many oceanographers consider this flood scenario credible, but archaeologists are



Shipshape. Last year's expedition found what may be a Turkish warship sunk in 1854.

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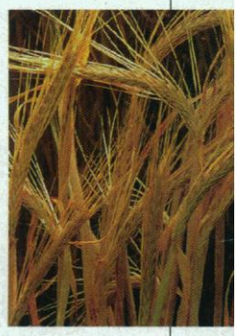
ScienceScope

Racing the Genetic Clock Science diplomats are scrambling to hammer out some last-minute compromises on a controversial international agreement to regulate the global traffic in transgenic organisms. A United Nations committee will convene next week in Cartagena, Columbia, to finalize a Biosafety Protocol to the 1992 Convention on Biological Diversity. The protocol is intended to prevent engineered organisms, such as crop plants, from escaping into the wild or transferring their implanted genes to other species; ministers plan to sign it later this month.



But some observers wonder whether the negotiators will run out of time before finding common ground. Some European and developing countries, for instance, want the pact to cover transgenic organisms and foods, drugs, and vaccines derived from them. On the other hand, U.S. officials—who will just be observers at the meeting because the Senate hasn't ratified the biodiversity treaty—fear such sweeping coverage could hurt the U.S. biotech industry. Says one U.S. diplomat: "Never in international negotiations have I seen a draft with this many key issues waiting to be resolved."

From Classroom to Boardroom In hopes of stimulating Japan's flagging economy, the nation's Ministry of Education (Monbusho) wants to change a law that prevents national university professors from serving as officials of private corporations. "There has been a lot of discussion over how Japan can encourage the creation of venture businesses as America does," says a spokesperson for Monbusho, which plans to ask the Diet, Japan's parliament, to end the ban. "We think Monbusho must do its part."

Removing the prohibition would be "a very good thing," agrees Ryozo Yoshizaki, a cryogenic engineer who heads an industry liaison office at the University of Tsukuba. But he cautions that a change is unlikely to have an immediate impact. "Professors are very happy to have their research benefit society, but most aren't interested in actively participating in the necessary commercial development," he believes.

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