

Briefings

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Four Mathematicians Win Field Medals

Whether through spite, sloppiness, or disinterest, Alfred Nobel neglected to create a prize for mathematics—but that oversight hasn't stopped mathematicians from giving prizes to themselves. The most prestigious, the Fields Medals, are awarded every 4 years to mathematicians under 40, and carry a cash award of \$15,000 Canadian.

This year's winners include:

■ Vladimir Drinfeld of the Institute for Low Temperature Physics and Engineering in Kharkov, U.S.S.R. Drinfeld's recent work has focused on the theory of quantum groups, a branch of mathematical physics.

■ Vaughan Jones of the University of California at Berkeley. He discovered the "Jones polynomial," an equation that provides the best method to date for helping mathematicians to distinguish knots from one another.

■ Shigefumi Mori of Kyoto University in Japan, whose work in algebraic three-dimensional manifolds recently resulted in the extension of classical theory of algebraic surfaces to three dimensions.

■ Edward Witten of the Institute for Advanced Study at Princeton. Most recently, Witten has explored the relations between quantum field theory and the differential topology of two- and three-dimensional manifolds.

From Crackhouse to Freakhouse

Some cocaine prices have more than doubled recently, leading law enforcement officials to congratulate themselves that drug interdiction efforts are making it harder to buy the stuff. But New York street an-

thropologist Ansley Hamid (see *Science*, 15 December 1989, p. 1376), offers another, even more felicitous explanation for the price rise: a dwindling pool of crack users.

Hamid, who teaches at the John Jay College of Criminal Justice, says that even before the price increase last year, field workers had trouble finding users who started after 1987. He says that's because a lot of young people have figured out that crack is bad news and aren't being "initiated" into it. So distributors are raising prices to keep their profits up.

But crack-spawned social pathologies are multiplying as dealers adapt to a smaller clientele. Among the disturbing "social organizational developments" observed by Hamid is the "freakhouse," the apartment of an older, crack-using man who supports a resident "harem" of women providing him with sex and drugs. The women also attract male clients, who pay the older man for the privilege of using drugs and "freaking"—an act Hamid describes as "using any and all women sexually."

The freakhouse is a logical response to the contraction of the crack market, Hamid says,

since it efficiently organizes the remnants of the crack population by bringing together women who must perform more sex to pay for higher priced crack. Hamid says the setup also demonstrates the higher status of older men, whose income and benefits have tripled in the last two decades, while young women are getting poorer and young men usually can't get welfare.

Congress Cites Agent Orange Coverup

When a House subcommittee recently reopened the Pandora's box labeled "Agent Orange," it not only sparked a new round of mudslinging over the Centers for Disease Control's aborted 5-year study, it spiced it with suggestions of conspiracy. "A secret 1984 White House strategy to deny federal liability in toxic exposure cases led to the cancellation of a major federal Agent Orange study," states a press release describing the panel's report.* But have con-

*"The Agent Orange Coverup: A Case of Flawed Science and Political Manipulation," House Report 101-672, U.S. Government Printing Office, 1990.

gressional watchdogs vented their ire in the wrong direction?

Much of the dispute revolves around arcane issues of epidemiology. In an ideal world, CDC would have matched troop movements with Agent Orange spraying patterns—thereby creating what's called an "exposure index"—and then tested a group of veterans with likely exposure histories for dioxin. Such a process would have allowed CDC to ensure the validity of its exposure index, which could then have been used to correlate Agent Orange exposure with later health problems. When run through a blood test, however, less than 4% of 646 subjects tested positive for dioxin, so the CDC judged that its exposure index was worthless, and the study impossible to conclude.

But after a 14-month investigation chaired by Representative Ted Weiss (D-NY), the committee became convinced that this decision was grievously flawed. Among its charges: CDC ignored advice from an Institute of Medicine panel and improperly excluded from its study servicemen who were most likely to have been exposed to Agent Orange, thereby warping its exposure index; CDC compounded its error by using a flawed blood test for dioxin to validate the index; and the White House obstructed the study's progress—later halting it altogether—because of concerns over the cost of paying compensation to veterans.

Former Reagan Administration officials have denied any wrongdoing. Even leaving aside the question of conspiracy, however, the scientific merits of the Weiss committee's case seem dubious. "Our recommendation, had we been asked, would have been to scrub the study," says Paul Stolley of the University of Pennsylvania, who chaired the IOM advisory panel. "If you can't correctly classify people [as exposed or not exposed], you're out of business. All the error in that study would be in the direction of 'no risk.'"

Recombinant Vaccine Finally Gets a Chance

After years of false starts and public relations gaffes, a field trial of a genetically engineered rabies vaccine finally got under way last week on an isolated island off the Virginia shore.

The Wistar Institute, which developed the vaccine, won approval from Virginia health officials more than a year ago to conduct the field test on raccoons (*Science*, 14 July 1989, p. 126) after South Carolina turned thumbs down on the project (*Science*, 30 June 1989, p. 1535). But it's taken the last year to con-



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Parramore Island

vince the Nature Conservancy, which owns Parramore Island, to go along with the trial.

The vaccine consists of a glycoprotein from the rabies virus inserted into an attenuated strain of the vaccinia virus. The vaccine was injected into fish bait and distributed around the island. Any uneaten bait will be removed after 14 days. Researchers will then observe the raccoon population over the next year for the presence of antibodies to the rabies virus.