about the Third Wave conference at a congressional hearing on 26 April but denies he was asked to present the paper. As for Corn, who headed the Occupational Safety and Health Administration in 1976, Landrigan stated in a 1 June letter to Mossman that "although Dr. Corn is an old friend and colleague, we did not invite him to present, because the focus is on health rather than on engineering aspects of the problem." Two other authors of the *Science* paper declined to attend, both pleading prior commitments. In addition, Selikoff invited Wagner, who declined. He told *Science*, "They did not want to hear my side anyway." Adds Mossman, "We were invited in a way that made us feel that they didn't really want us there."

One uninvited revisionist was epidemiologist J. Corbett McDonald, director of the Institute of Occupational Health and Safety at McGill University in Montreal, whose research—by his own accounting—had a "direct bearing" on about two-thirds of the Third Wave conference's papers. At the meeting, McDonald was one of the revisionists harangued in absentia by audience members. Five months after the conference, Landrigan wrote to McDonald to apologize for "the several unflattering remarks that were made about you and your work."

For many U.S. asbestos researchers, there seems to be little movement toward a ceasefire: The Third Wave meeting's proceedings are about to be published by the New York Academy of Sciences, and that has set off another round of skirmishing (see box, p. 930), and an attempt by the Health Effects Institute to come up with a consensus document has also drawn fire from both sides (see box, p. 929). The further apart Mt. Sinai researchers and the revisionists drift, the harder it will be to mend the rift, says Dorothy Nelkin, a New York University social scientist who has studied controversy in science. The only way to resolve the issues, adds Morgan, is for the scientists to get back to doing science. "If there are legitimate scientific disagreements," he says, "they're not going to get resolved unless people spend time paying attention to each other's arguments and try to design experiments that come to grips with those arguments." Until that happens—if it ever does—judges and regulators will continue to be caught in the middle of this long-distance scientific "debate." ■ RICHARD STONE

Scientific Sleuths Solve a Murder Mystery

Truth can sometimes be stranger than fiction—or at least as strange as a made-for-TV movie. Take, for example, the case of Patricia Stallings. Convicted of the murder of her infant son, she was sentenced to life in prison—but was later found innocent, thanks to the medical sleuthing of three persistent researchers.

The story began in the summer of 1989 when Stallings brought her 3-month old son, Ryan, to the emergency room of Cardinal Glennon Children's Hospital in St. Louis. The child had labored breathing, uncontrollable vomiting, and gastric distress. According to the attending physician, a toxicologist, the child's symptoms indicated that he had been poisoned with ethylene glycol, an ingredient of antifreeze, a conclusion apparently confirmed by analysis by a commercial lab.

After he recovered, the child was placed in a foster home, and Stallings and her husband, David, were allowed to see him in supervised visits. But when the infant became ill, and subsequently died, after a visit in which Stallings had been briefly left alone with him, she was charged with first-degree murder and held without bail. At the time, the evidence seemed compelling as both the commercial lab and the hospital lab found large amounts of ethylene glycol in the boy's blood and traces of it in a bottle of milk Stallings had fed her son during the visit.

But without knowing it, Stallings had performed a brilliant experiment. While in custody, she learned she was pregnant; she subsequently gave birth to another son, David Stallings Jr., in February 1990. He was placed immediately in a foster home, but within 2 he weeks started having symptoms similar to Ryan's. David was eventually diagnosed with a rare metabolic disorder called methylmalonic acidemia (MMA). A recessive genetic disorder of amino acid metabolism, MMA affects about 1 in 48,000 newborns and presents symptoms almost identical with those caused by ethylene glycol poisoning.

Stallings couldn't possibly have poisoned her second son, but the Missouri state prosecutor's office was not impressed by the new developments and pressed forward with her trial anyway. The court wouldn't allow the MMA diagnosis of the second child to be introduced as evidence, and in January 1991 Patricia Stallings was convicted of assault with a deadly weapon and sentenced to life in prison.

Fortunately for Stallings, however, William Sly, chairman of the department of biochemistry and molecular biology, and James Shoemaker, head of a metabolic screening lab, both at St. Louis University, got interested in her case when they heard about it from a television broadcast. Shoemaker performed his own analysis of Ryan's blood and didn't detect ethylene glycol. He and Sly then contacted Piero Rinaldo, a metabolic disease expert at Yale University School of Medicine whose lab is equipped to diagnose MMA from blood samples.

When Rinaldo analyzed Ryan's blood serum, he found high concentrations of methylmalonic acid, a breakdown product of the branched-chain amino acids isoleucine and valine, which accumulates in MMA patients because the enzyme that should convert it to the next product in the metabolic pathway is defective. And particularly telling, he says, the child's blood and urine contained massive amounts of ketones, another metabolic consequence of the disease. Like Shoemaker, he did not find any ethylene glycol in a sample of the baby's bodily fluids. The bottle couldn't be tested, since it had mysteriously disappeared. Rinaldo's analyses convinced him that Ryan had died from MMA, but how to account for the results from two labs, indicating that the boy had ethylene glycol in his blood? Could they both be wrong?

When Rinaldo obtained the lab reports, what he saw was, he says, "scary." One lab said that Ryan Stallings' blood contained ethylene glycol, even though the blood sample analysis did not match the lab's own profile for a known sample containing ethylene glycol. "This was not just a matter of questionable interpretation. The quality of their analysis was unacceptable," Rinaldo says. And the second laboratory? According to Rinaldo, that lab detected an abnormal component in Ryan's blood and just "assumed it was ethylene glycol." Samples from the bottle had produced nothing unusual, says Rinaldo, yet the lab claimed evidence of ethylene glycol in that, too.

This September, Rinaldo presented his findings to the case's prosecutor, George McElroy, who called a press conference the very next day. "I no longer believe the laboratory data," he told reporters. Having concluded that Ryan Stallings had died of MMA after all, McElroy dismissed all charges against Patricia Stallings on September 20, 1991. ■ MICHELLE HOFFMAN