Tainted Science?

"Ties That Bind: Do Corporate Dollars Strangle Scientific Research?" by Daniel Zalewski, in *Lingua Franca* (June–July 1997), 22 W. 38th St., New York, N.Y. 10018.

The image of the white-coated scientist in his ivory tower, disinterestedly pursuing knowledge for its own sake, has never been more at odds with reality. Today, researchers and universities patent everything from genes to vaccines, and most scientists rely on grants from industry, in addition to federal support. Is the profit motive leading scientists astray? asks Zalewski, a senior editor at *Lingua Franca*.

A recent study by Sheldon Krimsky, a professor of environmental policy at Tufts University, shows how common conflicts of interest are. Scrutinizing 789 articles in leading scientific journals, he found that in one-third of the cases at least one author had a vested interest in the research. The interests included "owning a patent directly related to the published work; being a major stockholder or executive in a company with commercial interests tied to the research; or serving on the board of directors of such a company." Only one of the 268 articles included a disclosure statement. So what? say many scientists. "There's a real trumping up of this issue," maintains Boston University's Kenneth Rothman, editor of the journal *Epidemiology*. It's the science that counts, he says, not who did it or who funded it.

But others have concluded that disclosure is a good idea. In 1995, the National Institutes of Health adopted regulations obliging researchers who get federal funds to reveal their financial interests in companies to their universities. The rules grew out of a controversy that began with a *Journal of the American Medical Association* (*JAMA*) article in 1988 heralding a Genentech heart-attack medication called TPA. *Newsday* then revealed that at least 13 of the researchers involved were long-time Genentech stockholders, some to the tune of $100,000. The scientists angrily denied that their financial interests biased their work. But after "several conflicting studies," Zalewski says, "the medical community today remains divided" over their findings.

JAMA now demands disclosure from prospective authors, as do *Science*, the *Lancet*, and the *New England Journal of Medicine*.

Scientists and editors, Zalewski says, now confront "an even more troubling phenomenon: industry's manhandling of manuscripts during the period before publication." Scientists who receive industry funding typically agree to keep their research results confidential until any possible patents are secured. Firms naturally want to examine a researcher's data before publication, Zalewski says, and "it appears they often use the opportunity to suggest, or even demand, alternative ways to frame data." Recently, four of the major authors of a study of a hypertension medication quit to protest pressure along those lines from the drug's Swiss manufacturer.

Some scientists say the problems are exaggerated. "Collaboration between science and industry is crucial, particularly in the medical realm," says JoAnn Manson, a professor of medicine at Harvard University. "This is how the public gets safe and effective therapies." Trading these in for "some fairy-tale vision of academic purity," she says, would make little sense.

Catching Criminals Early

"Interaction between Birth Complications and Early Maternal Rejection in Predisposing Individuals to Adult Violence: Specificity to Serious, Early-Onset Violence" by Adrian Raine, Patricia Brennan, and Sarnoff A. Mednick, in *The American Journal of Psychiatry* (Sept. 1997), American Psychiatric Assn., 1400 K St. N.W., Washington, D.C. 20005.

Efforts to prevent young people from turning to violent crime should begin when they are still in the womb. That's the conclusion Raine, a professor of psychology at the University of Southern California, and his colleagues draw from their study of 4,269 Danish males born between 1959 and 1961.

Elaborating on an earlier, more limited study they did, the authors find that boys who suffered both birth complications (such as a breech delivery or forceps extraction) and early rejection by their mother (as indicated chiefly by her attempt to abort the fetus or by her placing the infant in a public institution for more than four months during his first year) were more likely to com-

mit serious violent crimes by age 18.

Nine percent of the boys who had experienced both difficulties committed murder, rape, assault, or other violent crimes by the time they turned 18. By contrast, only four percent of the boys with neither characteristic followed that path. And the percentage for those who had experienced only one of the problems was even lower: three percent of the boys with only birth complications, and two percent of those with only maternal rejection.

The infants' twin disadvantages played out early in life. Among men who turned to violence *after* age 18, there is no sign that these handicaps played any special role.

The authors suggest that disruption of mother-infant bonding early in a child's life may result in "more callous, affectionless, unempathic, psychopathic-like" behavior. That increases the likelihood of violence—especially in individuals who also suffered birth complications, which can cause neuropsychological damage, weakening their self-control and making them prone to "explosive, impulsive aggression." Providing mothers with better prenatal health care, the authors say, might be one way to fight crime.

Overhauling Highway Design

"The Asphalt Rebellion" by Alan Ehrenhalt, in *Governing* (Oct. 1997), 1100 Connecticut Ave. N.W., Ste. 1300, Washington, D.C. 20036; "Look, Ma, No Hands!" by Corinna Wu, in *Science News* (Sept. 13, 1997), 1719 N St. N.W., Washington, D.C. 20036.

For decades, America's roads and highways have been getting wider, in accordance with the engineering design principle that wider means safer and more efficient. Alas, it has also meant turning city streets and scenic country roads into multilane speedways. Now, the assumptions behind this trend are coming under challenge. In New England and elsewhere, writes Ehrenhalt, executive editor of *Governing*, "a rebellion against an entire half-century of American engineering ideology" has begun.

That ideology, he says, is embodied in a 1,044-page tome published by the American Association of State Highway and Transportation Officials (AASHTO) and commonly known as the "AASHTO Green Book." Federal law no longer requires that roads built with the help of federal funds adhere to Green Book standards, but that publication remains the engineering profession's sacred text, Ehrenhalt says. It makes safety the primary objective in highway design; insists that safety means accommodating drivers traveling at high, even illegal speeds; and assumes that safety at high speeds requires wide roadways.

Local officials in New England and other regions have been challenging those assumptions. When Connecticut's state government offered two years ago to help address problems with a 17-foot-wide stone arch bridge on a picturesque rural road in southwestern Connecticut by replacing it with a 28-foot-wide structure of steel and concrete, Redding selectmen told the state highway engineers to take their $350,000 in state and federal aid and get lost. "It's a sad commentary on our system," said First Selectman Henry Bielawa, "when historic preservation, neighborhood esthetics and common sense are displaced by cookie-cutter design requirements." In the past year, Connecticut has relaxed its rules on bridges, while Vermont has enacted a law virtually inviting its transportation department to depart from AASHTO standards in road building. Maybe, the "Asphalt Rebels" assert, high-speed travel is not always the highest good.

The principle that safety requires width is also coming under challenge from a different, perhaps ultimately more powerful source: technology. Under the 1991 Intermodal Surface Transportation Efficiency Act, a research consortium has been working to develop a prototype automated highway system. Such a system, reports Wu, a *Science News* writer, "promises to reduce accidents, cut travel times, and reduce fuel consumption and pollution"—and to reduce the need for new, ever wider highways.

Under one approach, ceramic magnets would be embedded in the roadway, spaced a few feet apart. Automated cars equipped with sensors and tracking one another through radio signals would travel at high speeds close together in a pack without the intervention of human drivers. This could double or even triple the lane capacity of existing roads. And the cost of automating an existing highway would be only a fraction of the cost of building new roads.