RANDOM SAMPLES

edited by CONSTANCE HOLDEN

Court Cramps EPA on Pesticides

For the second time in a year, a federal appeals court has stung the Environmental Protection Agency (EPA) with a ruling that undermines the agency's regulatory powers. In response to a petition from several environmental and public interest groups, the ninth circuit court of appeals in San Francisco last week threw out an EPA order that would have allowed minuscule amounts of four carcinogenic pesticides to remain in processed foods. The court thereby upheld a 34-year-old ban on food additives that pose a cancer risk to humans. An EPA spokesman says the decision could wind up affecting all 35 of the pesticides that are carcinogenic and accumulate in processed foods—about 10% of those in use.

During the trial, EPA officials argued that the benefits of using some cancer-causing pesticides on food crops outweigh their negligible cancer risks. The agency pointed to toxicological studies that have estimated that people exposed for a lifetime to any one of the four pesticides in question—benomyl, phosmet, mancozeb, and trifluralin—have far less than a one in 1 million chance of developing cancer, the threshold at which the EPA begins regulating chemicals.

But in a unanimous decision, the court ruled that when Congress in 1958 added the Delaney Clause to the 1938 Food, Drug, and Cosmetics Act, it intended an absolute ban on any buildup of carcinogenic substances in processed foods. So far, saccharin is the only known carcinogen that Congress allows in processed foods.

Last week's ruling is only the latest to challenge EPA's method of regulating potentially dangerous substances. Last October, the fifth federal appeals court in New Orleans struck down an EPA ban on virtually all new asbestos-containing products, ruling that the EPA had failed to define the risks of asbestos substitutes (*Science*, 27 March, p. 1639).

While the EPA has declined to comment on whether it will appeal the food-additive ruling to the Supreme Court, an EPA official told *Science* that the agency plans to push for legislation for a more flexible risk standard.

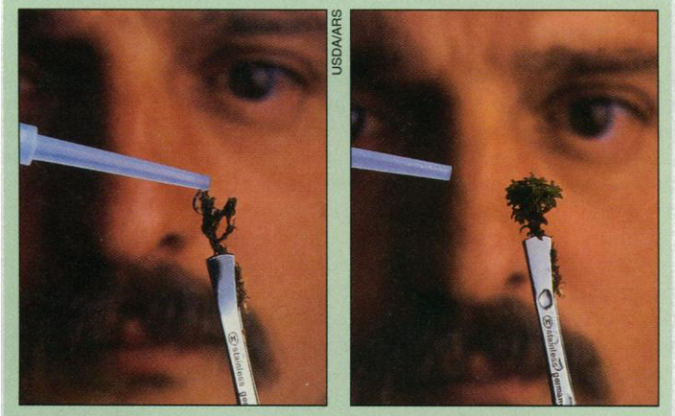
Global Perspective on Medicine

Harvard Medical School thinks it's time to "rethink medicine." Why? "Eighty percent of the world's population [lives] in extremely poor societies," the school's officials note. And so they have established a new Center for the Study of Culture and Medicine.

Inaugurated in May and headed by psychiatrist and medical anthropologist Arthur Kleinman, the center is taking a multidisciplinary approach to issues ranging from the cultivation of medical research in East Africa to differential cultural influences on mind-body relationships. Of particular interest, and the subject of the center's first report, are behavioral and mental health problems in Third World countries, nowadays referred to as "nations of the South." Kleinman says these countries are suffering a rising tide of mental problems and behavioral disorders that are being exacerbated by political strife, technological change, and massive movements from rural to urban areas.

None of the related problems, such as drug abuse or abandoned street children, "has been examined as a health concern," says Kleinman. Yet he says 10 to 20 percent of all primary health services in poor countries are being sought by patients whose problems are primarily behavioral. Depression and anxiety disorders, childhood developmental disorders, alcoholism, drug abuse, and suicide, as well as major mental illness, are all on the increase—for example, as many as 20% of the adults in Latin America have problems with alcohol; homicide is the number one cause of death in Colombia; and record numbers of young men are committing suicide in Micronesia (many, ironically, with the aid of agricultural chemicals).

Although Kleinman points out that many disorders, such as depression, can be successfully treated, he says most of these societies have no mental health professionals to speak of and place little emphasis on developing them. China, for example, has between 3000 and 4000 mental health professionals for its population of 1.14 billion—compared with 200,000 for the 250 million in the United States.



Greening up. Biologist Mel Oliver applies a few drops of water to a desiccated star moss...30 seconds later moss has sprung to life.

Miracle Moss

To agriculture researchers always on the lookout for better ways to engineer drought resistance into crops, the star moss, *Tortula ruralis*, holds some promising secrets. An unlikely star, *Tortula ruralis* is a rather common wild moss found throughout the forests of North America. Moreover, it is a very primitive organism, without either roots or a vascular system. But therein lies something of its genetic distinction: This plant is not only drought-tolerant, but also desiccation-tolerant. In fact, it can sit on dry ground looking dead for several years—and then be brought back to life by a few drops of water.

One key is the existence of certain proteins that may have been lost by higher plants as they traveled up the evolutionary ladder. These proteins enable the moss, in a matter of seconds, to repair massive cellular damage. And 8 to 10 hours after being exposed to water, it is metabolically back to normal. Obviously, if such a talent could be transferred to crops, the benefits would be dramatic. And that's why Mel Oliver, a molecular biologist for the Department of Agriculture's Plant Stress and Water Conservation lab in Lubbock, Texas, is trying to identify the genes responsible.

Oliver says: "What we have found is that the moss, when it begins to dry, makes messenger RNA that we suspect directs the synthesis of the repair proteins when it is rehydrated." So far, he says, "We have identified at least 74 proteins the moss manufactures as it recovers from the massive cell damage caused by drying." The next step is to use DNA probes to discover the genes that produce recovery proteins. If scientists could clone these genes and transfer them to crop plants such as cotton—coaxing them into producing their own cell-repair proteins—farming might eventually be expanded to millions of acres of arid land that will now yield crops only with heavy irrigation.

Gallo Aide Convicted on Three Counts

Representative John Dingell (D–MI) can hang another trophy on his wall. Last week, a federal court convicted Prem Sarin, formerly deputy laboratory chief to NIH researcher Robert Gallo (controversial co-discoverer of the AIDS virus), on three felony counts involving the making of false statements to the government and embezzling funds from NIH. The case against Sarin stemmed from charges first aired by Dingell in a hearing more than a year ago (*Science*, 15 March 1991, p. 1305).

A 12-member jury found that Sarin illicitly received $25,000 from Degussa/ASTA Pharma, a German pharmaceutical manufacturer, for testing Degussa vaccines in Gallo's lab in 1986 and 1987, and subsequently lied about his income on an NIH financial disclosure form. The jury also convicted Sarin of making a false statement on a second NIH financial disclosure form when he failed to list a $4000 consulting agreement with another pharmaceutical firm.

At his trial, Sarin claimed he was merely holding the $25,000 for the Foundation for the Advancement of Education in the Sciences (FAES), a nonprofit institution that sponsors research and training fellowships at NIH. (Sarin served as the Gallo lab's liaison to FAES.) But Sarin deposited the money in his own bank account and used the money for personal expenses. Furthermore, Sarin's bank account was titled "FAES," although Sarin explained that these initials actually stood for "Family Account for the Education of the Sarin Children." According to his lawyer, Neil Eggleston, Sarin admitted to "serious errors in judgment," but had not intended to hurt or defraud anyone.

All told, the three felonies could carry fines of up to $750,000 and prison sentences of as much as 20 years. Sarin's sentencing is scheduled for 16 October, although Eggleston says he will appeal the conviction.

WOMEN IN MATHEMATICS, 1991-92

Department	Tenured		Untenured		Tenure-track/ Could Lead to Tenure	
	Total	Female	Total	Female	Total	Female
UC-Berkeley	60	2*	12	3	2	0
Caltech	13	0	6	0	1	0
Chicago	25	0	24	2	6	0
Columbia	14	1**	12	0	0	0
Harvard	17	1	14	3	1	0
MIT	40	0	38	4	12	1
Michigan	49	1	38	6	3	1
Princeton	31	0	28	7	22	5
Stanford	23	0	9	1	2	0
Yale	16	0	11	1	3	0
Total	288	5	192	27	52	7

*One has a joint appointment with UCLA **Tenured at Barnard

Women in math update. Last year, *Science* published a table on the number of women who have tenure or are in tenure-track positions at 10 math departments in the United States. That table caused considerable controversy, partly because of some confusion over its categories. In the interest of accuracy, we are publishing a carefully revised version of the table, updated to the 1991–1992 academic year. "Untenured" is here used to mean all full-time members of a department who do not have tenure, including both tenure-track and non-tenure-track positions. "Tenure-track," a subset of the untenured group, means members of a department with appointments at the end of which the member must automatically be considered for tenure. Columbia, Harvard, and Yale report no tenure-track appointments in this strict sense. Yale notes that "assistant professors have been promoted to tenured positions sometimes in the past." (Yale currently has three men, but no women, in such positions). Harvard has one department member (a man) in a position it says "could lead to tenure." Princeton argues that all 22 of its instructors and assistant professors are in positions that "could lead to tenure"; of the 22, five (four instructors and one assistant professor) are women.

Genentechies Split on Biodiversity Treaty

George Bush said the biodiversity treaty was bad for biotech and wouldn't sign it. Does the community he claimed to be protecting agree? At the moment, that's a hot question at Genentech, where an employee-management tussle has turned public.

At the Earth Summit last month in Rio, President Bush said that the Convention on Biological Diversity would infringe on patent protection. Among those who cheered was G. Kirk Raab, president and CEO of Genentech, who wrote Bush praising him for his "courageous stand" in "rejecting an unwise convention." But Genentech postdoc Anthony Pelletier booed. He wrote a letter of his own, which was then signed by some 70 Genentech employees (for scale, there are 2100 in all), and fired it off to Bush. The letter called the president's refusal to sign the treaty "shortsighted," and added: "We, the undersigned scientists and staff of Genentech, hold a different view than Mr. Raab's letter to you."

Raab

Raab struck back via press release. He asserted that "Genentech is very concerned about ecological preservation" and "would have applauded ratification of the convention in its entirety" had it been "worded in a way that does not create serious and unnecessary problems that could have the opposite effect than that expressed by the convention's underlying intent." The next day the altercation landed on the front business page of *The San Francisco Chronicle*.

Trouble for Genentech employees? "No flak has come back toward me," says Pelletier, a self-described "raving moderate." He says Raab "let it be known" that he was willing to talk face-to-face, and a meeting has been duly set for 16 July. Pelletier is not worried, however—he points out that Raab, in his press release, said: "Diversity of opinion is just as important as biodiversity."

Environmentally Critical Technologies

U.S. science and technology policies seem to be "rooted in an obsolete paradigm"—taking their cue from national security and economic competitiveness concerns and leaving the environment in the lurch, according to World Resources Institute (WRI), a Washington, D.C., think tank. WRI says that's what's wrong with federal lists of "critical technologies."

So, in a report called "Backs to the Future," WRI has made up its own list in what it calls "the first American attempt to identify advanced technologies critical to environmental sustainability." The list covers such areas as efficient energy production and storage, precision fabrication, agricultural biotechnology, "smart" roads and buildings, and contraception. All the technologies selected, says WRI, are ones that could bring about large, cost-effective reductions in environmental risk, embody significant technical advances, and are at a "precompetitive" stage.

At a 24 June press conference, report co-author George Heaton said the politically loaded topic of contraception was the item that "gave our reviewers the most problems." But given that it's people who destroy the environment, and the fact that U.S. R&D on contraceptive technologies has "slackened dramatically," WRI could scarcely leave it out.