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THE FIRST WORD

THE ENVIRONMENTAL PRECEDENT

'Tis a gift to be simple—Folk Song

At the beginning of *Great Possessions: An Amish Farmer's Journal*, David Kline writes feelingly about his order's traditional four-year-rotation, low-input, horse-drawn agriculture, a cycle as lyrical as the succession of seasons, full of life and light on chemical fertilizer. It seems persuasive, natural, fit, and right. Then we run across environmentalist Richard D. Stone's explanation of the eutrophication of the upper Chesapeake Bay—a process he ascribes in large part to the intensive, manure-heavy agriculture of the Amish in Pennsylvania's Lancaster County. A pity: what seemed so attractively plain in the barnyard seems very complicated at the bayhead. The example should caution us against simple-minded environmentalism.

Still, it is far from simple-minded to decry the damage that industrialized societies have done everywhere—especially in Pacific Asia, Europe, and the Americas—and to demand that we use our best tools to dress the planet's wounds as best we can.

So the past decade has been supremely frustrating. We have watched environmental clean-up efforts the world over struggle, spending scarce funds on expensive "burn or bury" palliation. Yet throughout that time, we have had—*ready, in our hands*—the biological tools needed to undertake a much broader attack on pollution, at a fraction of the cost. In some cases, not technology but legalisms and the entrenched (and entrenching) habits of field engineers have blocked the progress from laboratory to toxic-waste dump and spill site.

That may be changing. Recent developments* betray increasing attention to biotech treatment of a wounded environment.

But there are still barriers. In the United States, ironically, the barriers lurk in the very statutes meant to remedy pollution: the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, better and more concisely known as Superfund), which provides for monitoring and clean-up of toxic waste sites; and the Resource Conservation and Recovery Act (RCRA) which gives the U.S. Environmental Protection Agency (USEPA) authority to set limits for, regulate traffic in, and prescribe disposal of, hazardous substances.

Superfund, for example, allows only proven technology in waste-site clean-ups. Until the bill was reauthorized in 1985, it made no provision for proving new approaches; since then, tight budgets have prevented biological approaches from making much headway (though conventional biological methods were tried in the Exxon Valdez cleanup campaign in Prince William Sound, Alaska). Also, current law permits no detectable pollutant levels to remain after cleanup; unfortunately, microbial methods, though they can reduce levels by five orders of magnitude, can never bring the levels down to zero—the bugs starve and die off or shift their metabolisms to exploit more abundant sources of nutrients.

So as it stands, the situation in the U.S. is in a delicate, if static, equilibrium. A small push—an amending act, a well-placed hint to environmental engineers in the field—could tip that balance once and for all in favor of what still appears to us as the most rational, most effective means of undoing the damage we have done.

As it happens, both CERCLA and RCRA are due for reauthorization—and modification—in the next U.S. Congress, according to staffers. The opportunity is obvious. All it takes is someone of high standing to deliver the necessary push. No U.S. legislator seems prepared, however, to take that leading role.

But USEPA Administrator William K. Reilly might. He is—like Stone—a former official of the World Wildlife Fund (he was president from 1985 to 1989), and—like his boss, President George Bush—a graduate of Ivy League schools. And, he has demonstrated a strong interest (just short of fully committing his agency) in applying the tools of biotechnology to the environment. He has firm foundations in both the governmental establishment and in the conservation community. Archimedes said, "Give me a lever long enough and a place to stand, and I will move the Earth." Reilly has both, and a tidy fulcrum, to boot. It would make things so simple.

—Douglas K. McCormick

*See, for example, Jeffrey Fox's "EPA seeks a high profile for bioremediation," and Bernard Dixon's "Holland home to new environmental group," *Bio/Technology* 8:283, Apr. '90 and "Enhanced removal of Exxon Valdez spilled oil from Alaskan gravel by a microbial surfactant," by S. Harvey, et al., *Bio/Technology* 8:228, Mar. '90.